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Abstract Mentor Programme

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

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

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

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

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

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

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

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SESSION CODING FOR AIDS 2018 PROGRAMME

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Note: **LBPE00** (Late Breaker)
TUESDAY 24 JULY

Oral Abstract Sessions

TUA01 From conception to delivery: The vaccine discovery pipeline

TUA0101
Two-component self-assembling nanoparticle vaccines that present multiple HIV-1 envelope trimers

P. Brouwer1, D. Ellis1, A. Antanasjevic1, A. Yasmeen1, Z. Berndsen1, T. Bjil1, J. Burger1, B. Nickerson1, C. Cottrell1, J. Allen1, I. Bortij1, M. Crispin1, D. Baker1, A. Ward1, J. Moore1, P.-J. Klauser1, N. King1, R. Sanders1
1Academic Medical Center, Amsterdam, Netherlands, 2University of Washington, Seattle, United States, 3The Scripps Research Institute, San Diego, United States, 4Weil Medical College of Cornell University, New York, United States, 5University of Southampton, Biological Sciences, Southampton, United Kingdom

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

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

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

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

TUA0102
A CD4-mimetic compound enhances vaccine efficacy against stringent immunodeficiency virus challenge

N. Madani1, A. Princiotto1, L. Mach1, J. Richard1, B. Hora1, C. Zhao1, T. Bradley1, B. Melillo1, A. Finzi2, B. Haynes3, A. Smith4, S. Santra3, J. Moss1, M. Baum1, J. Sodroski1
1Harvard Medical School/Dana-Farber Cancer Institute, Cancer Immunology and Virology, Newton, United States, 2Dana-Farber Cancer Institute, Cancer Immunology and Virology, Boston, United States, 3Beth Israel Deaconess Medical Center, Harvard Medical School, Center for Virology and Vaccine Research, Boston, United States, 4Université de Montréal, Department of Microbiology, Immunology and Immunology, Montreal, Canada, 5Duke Human Vaccine Institute, Department of Medicine, Durham, United States, 6Dana-Farber Cancer Institute, Cancer Immunology and Virology, Boston, United States, 7Duke University Medical Center, Dept. of Medicine, Durham, United States, 8University of Pennsylvania, Chemistry, Philadelphia, United States, 9Université de Montréal, Department of Microbiology, Immunology and Immunology, Montreal, Canada, 10Duke Human Vaccine Institute, Department of Immunology, Durham, United States, 11Beth Israel Deaconess Medical Center, Boston, United States, 12Oak Crest Institute of Science, Monrovia, United States

Background: Preventing sexual transmission of human immunodeficiency virus (HIV-2) is a global priority. HIV-1 envelope glycoproteins (Env) mediate virus entry through a series of conformational changes triggered by binding to the receptors, CD4 and CCR5/CXCR4. Broadly neutralizing antibodies that recognize conserved elements of the closed Env are potentially protective, but are elicited inefficiently during natural HIV-1 infection or by vaccination. Small-molecule CD4-mimetic compounds (CD4-mc) engage the CD4-binding pocket on the gp120 exterior, directly inactivate HIV-1, and induce Env epitopes that are highly sensitive to neutralization by vaccine-induced antibodies.

Methods: For cell culture studies, viruses containing primary HIV-1 Envs were incubated with the different concentrations of BNM-III-170, a CD4-mc. Virus neutralization by various antibodies or sera was tested in the presence or the absence of CD4-mc. Three groups of monkeys were used in the present study. The monkeys were boosted with human serum albumin (HSA) (Group 1) or HIV-1 gagpol, gp120 (Groups 2 and 3) either two weeks (Challenges 1 and 2) or four weeks (Challenge 3) before the SHIV-Cl7E3 challenge. Group 1 and 3 were also treated with 300 uM CD4-mc.

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

Conclusions: CD4-mimetic compounds directly interrupt HIV-1 infection and dramatically enhance the neutralizing activity of antibodies that can be elicited in monkeys with currently available Env immunogens. CD4mc should increase the protective efficacy of any HIV-1 Env vaccine that elicits antibodies against CD4-induced conformations of Env. Based on these results, macaque-sized intravaginal rings for sustained-release topical delivery of CD4-mc are being developed and evaluated in vitro in preparation for pharmacokinetics and efficacy studies in a macaque model. Used as microbicides, CD4-mimetic compounds might increase the protective efficacy of HIV-1 vaccines. Our results set the stage for clinical studies in humans at risk of sexually acquired HIV-1 infection.
TUA0103

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


1Emory University, Yerkes National Primate Research Center, Decatur, United States, 2Indian Institute of Science, Bangalore, India, 3Laboratory of Viral Diseases, NIAID, NIH, Bethesda, United States, 4Duke University, Department of Surgery, Durham, United States, 5Duke University, Durham, United States, 6Tufts University School of Medicine, New Orleans, United States, 7Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, United States, 8Louisiana State University Health Sciences, New Orleans, United States

Background: In the immediate hours and days post mucosal transmission, HIV-1 is considered to be at a vulnerable state due to localized replication and low or unestablished viral reservoirs. Thus, HIV vaccines should induce a strong and long-lasting mucosal immune response and mucosal vaccination would be an ideal route to achieve this. Here we evaluate the immunogenicity and efficacy of oral vaccination and compare it with systemic vaccinations in rhesus macaques (RM).

Methods: For oral vaccination, we immunized a group of RM (n=6) via sublingual and buccal tissue (GL/B) routes using a modified needle-free injector. Animals were immunized twice with modified vaccinia Ankara (MVA) expressing HIV-1 Gag, Pol and envelope antigens, followed by two immunizations with a recombinant trimeric gp120 immunogen along with the mucosal adjuvant dmLT. A second group (n=6) received the immunizations via the conventional intradermal (MVA) and subcutaneous (protein) routes (ID/SC). All animals were challenged intrarectally at around 5 months after the final immunization with a pathogenic SHIV162P3 for a maximum of 6 challenges.

Results: Systemic immunization (ID/SC) induced strong IgG responses in serum and mucosal secretions (rectal, vaginal, and salivary secretions) but failed to induce IgA responses. Impressively, needle-free oral immunization generated a robust HIV Env-specific IgG and IgA antibody response both in blood and mucosal compartments that are at least 10-fold higher compared to responses in ID/SC immunized animals. The vaccine induced IgG responses showed a strong cross-reactivity to a global panel of gp120-V1V2 scaffolds. Following intrarectal challenge, all 5 controls became infected by 3 challenges and we observed a significant delay in acquisition of infection in both vaccinated groups (p < 0.02 for oral, p = 0.007 for ID/SC and p = 0.002 for combined) compared to unvaccinated controls. Two of the six ID/SC animals remained uninfected at the end of 6 challenges.

Conclusions: Our results show that needle-free injection of the sublingual and buccal tissues acts as an effective and practical route to generate both systemic and mucosal antibodies via vaccination. They also show that MVA prime followed by a gp120 trimer boost can provide a significant protection against intrarectal SHIV challenges.

TUA0104

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

F. Tomaka1, D. Stiehl2, D. Barouch3, M. Robb4, N. Michael1, G. Tomaras5, G. Alter1, J. McElrath1, L. Lavrenys5, S. Nijs6, K. Calliwaert1, J. Hendriks7, Z. Euler2, M. Pau2, H. Schuitemaker2

1Janssen Research & Development LLC, Titusville, United States, 2Janssen Vaccines & Prevention B.V., Leiden, Netherlands, 3Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, United States, 4Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, 5Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, 6Duke Human Vaccine Institute, Duke University, Durham, United States, 7Ragon Institute of MGH, MIT, and Harvard, Cambridge, United States

Background: Globally, 1.8 million new HIV infections in 2016 demonstrate the need for a prophylactic HIV vaccine, but none currently exist. APPROACH (NCT02315703) investigates various vaccine regimens (comprising viral vectors with global mosaic HIV-1 Env, Gag and Pol transgenes and a soluble clade C gp140 trimeric envelope protein) that aim to elicit protective immunity against multiple clades of HIV-1. Week 28 and 52 data showed Ad26.Mos.HIV double prime, and Ad26.Mos.HIV-MVA-Mosaic boost regimens combined with gp140 Env protein were immunogenic and well tolerated. We here present data on durability of immune responses.

Methods: Healthy, uninfected participants were randomized into seven vaccine regimens, or a placebo and administered Ad26.Mos.HIV double prime (Weeks 0 and 12) and a double boost of either Ad26.Mos.HIV or MVA-Mosaic, with high- or low-dose aluminum-phosphate adjuvanted gp140 Env protein. Vaccine responders were participants exhibiting an immunological response (>LLOQ/missing) or 3-fold increase from baseline (if ≥LLOQ). Week 78 results: 393 participants from the US, East-Africa, South Africa and Thailand were randomised and received ≥1 dose of study vaccine (n=48-50/group; see figure for regimens). Median age 29 years; 54% male; 54% Black, 27% White and 16% Asian. Participants in all vaccine regimens showed humoral response rates >92% at Week 78 (30 weeks after fourth dose). Rates of antibody decay after the fourth vaccination exhibited regimen-independent decrease in magnitude. Groups boosted with Ad26.Mos.HIV-gp140 Env (high- or low-dose) maintained 100% response rate (high-dose [n=44]; 95% CI=91.96%-100% low-dose [n=39]; 95% CI=90.97%-100%). Boosting with a parallel non-human primate (NHP) challenge study showed for Ad26.Mos.HIV-gp140 Env high-dose boost group, autologous ELISA responses at Week 78 were 4.3-fold higher in humans than in partially protected NHPs at time of challenge.

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

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

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

K. Stephensson1, J. Ansell1, S. Walsh1, C.S. Tan1, D. Ananos1, A. Yanez2, L. Peter1, F. Tomaka3, D. Stieh3, J. Hendriks3, S. Nijs3, C. Truyers3, and L. Peter1

Background: A large Phase 2b proof-of-concept study called “Imbokodo” was initiated in 2017 to assess the preventive vaccine efficacy of a prime/boost regimen using mosaic antigens encoded by Ad26 and gp140 Env protein in HIV-uninfected women in sub-Saharan Africa. The vaccine schedule in Imbokodo involves 4 vaccination visits over 6 weeks, a long regimen that may be a factor in limiting adherence. We explored in HPX1002/IPCAVD010 whether shorter, simpler regimens might be equally immunogenic to an Imbokodo-like regimen.

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

Results: All vaccine regimens appeared to be well tolerated. Pain and fatigue were the most frequently reported solicited events. The shortest regimen (Groups 2 and 3) elicited equivalent antibody titers against autologous Clade C Env at peak immunity to the Imbokodo-like regimen (41.097 and 49.243 GMT vs. 44.590 GMT, respectively), with this peak occurring earlier in the shortened regimens. Antibody responses remained elevated (>5,000 GMT) in Groups 2 and 3 at all 52 weeks. ADCP, Env-specific IgG3, tier 1A neutralizing activity and broad cellular immune responses were detected in all groups.

Conclusions: In this Phase 1 study, we demonstrate that Ad26.Mos.HIV combined with gp140 Env protein can elicit HIV-specific immune responses in shortened, 4-week vaccine schedules that appeared to be similar to responses elicited in a longer, 8-week vaccine schedule that is currently being evaluated in a clinical efficacy study. Further studies are required to test the protective efficacy of these shortened vaccine regimens.

TUA0203 Dominant HIV DNA populations present in different T-cell subsets before stem cell transplantation persist in tissues early after transplantation with CCR5Δ32 stem cells

A. Wensing1, K. Bosman1, A. Bruns2,3, P. Ellerbroek1, T. de Jong1, K. Tesselaa1, A. Stam1, M. Salgado2, G. Hutter2, L. Brosens1, M. Karon1, J. Diez Martin1, J. Boelen1,2, J. Martinez-Picado1,4, J. Kuball1,4, M. Nijhuis1, IciStem Consortium

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

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

Results: Before SCT we performed: 1) Phenotypic and genotypic coreceptor tropism analysis, 2) HIV reservoir quantification using ddPCR and viral characterization using deep-sequencing.

Conclusions: In the Berlin patients, transplanted with cells from regular CCR5WT donors, HIV rebound occurred after treatment interruption despite loss of detectable HIV-DNA in PBMCs. It is unknown which reservoir fueled HIV rebound.

TUA02 Strategies for cure: Pitfalls, possibilities and promise

Department of Translational Virology, Laboratory of Translational Immunology, Utrecht, Netherlands, 1University Medical Center Utrecht, Department of Medical Microbiology, Utrecht, Netherlands, 2University Medical Center Utrecht, Department of Internal Medicine and Infectious Diseases, Utrecht, Netherlands, 3University Medical Center Utrecht, Department of Hematology, Utrecht, Netherlands, 4University Medical Center Utrecht, Laboratory of Translational Immunology, Utrecht, Netherlands, 5AIDS Research Institute IrsiCaixa, Badalona, Spain, 6Cellex, Dresden, Germany, 7University Medical Center Utrecht, Department of Pathology, Utrecht, Netherlands, 8Hospital General Universitario Gregorio Maranon, Madrid, Spain, 9University Medical Center Utrecht, Blood and Marrow Transplantation Program, Department of Pediatrics, Utrecht, Netherlands, 10ICREA, Badalona, Spain

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

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Results: Before SCT we performed: 1) Phenotypic and genotypic coreceptor tropism analysis, 2) HIV reservoir quantification using ddPCR and viral characterization using deep-sequencing.

Conclusions: In the Berlin patients, transplanted with cells from regular CCR5WT donors, HIV rebound occurred after treatment interruption despite loss of detectable HIV-DNA in PBMCs. It is unknown which reservoir fueled HIV rebound.
**TUA0204**

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

J. Verheyen1, A. Thielen1, N. Lübbe1, M. Dirks1, M. Widera2, U. Dittmer1, L. Kordales1, M. Däumer1, D. de Jong1, A. Wensing1, R. Kaiser4, M. Nijhuis5, S. Esser6

1University of Duisburg-Essen, University Hospital, Institute of Virology, Essen, Germany; 2Institute of Immunology and Genetics, Kaiserslautern, Germany; 3Heinrich-Heine-University, University Hospital, Institute of Virology, Düsseldorf, Germany; 4University Hospital, University of Duisburg-Essen, Department of Bone Marrow Transplantation, Essen, Germany; 5University Medical Center Utrecht, Medical Microbiology, Utrecht, Netherlands; 6University of Cologne, Institute of Virology, Cologne, Germany; 7University Hospital, University of Duisburg-Essen, Clinic for Dermatology, Essen, Germany

**Background:** To date, the case of the Berlin patient provides the only evidence of an intervention that has been able to cure HIV infection. The procedure involved an allogeneic stem cell transplantation (SCT) with donor cells lacking the CCR5 coreceptor (CCR5Δ32). Interestingly, in the Berlin patient no viral rebound was observed despite the fact that cART was stopped at the day of transplantation. In a similar setting in the Essen patient, cART was stopped before initiation of myeloablative therapy and a rapid viral rebound was observed after SCT. To fully understand the underlying mechanism of viral breakthrough in the Essen patient we retrospectively analyzed the genotypic and phenotypic characteristics of the viral population.

**Methods:** RNA was isolated from plasma and total DNA was isolated from PBMCs at different time points before (~287d: RNA, ~103d: RNA/DNA, ~18d: DNA) and after (~103d: RNA, ~373d: RNA/DNA) SCT. HIV co-receptor tropism was genotypically assessed (enzymo-phenol) after deep-sequence analysis of the viral envelope (env1120-V3). The observed g120-V3 sequences were cloned in our shuttle vector pHXB2-Δgp120-V3 and chimeric viruses were tested for replication capacity and coreceptor usage in primary cells (PBMCs).

**Results:** Viral breakthrough was observed three weeks after SCT. Every single viral RNA sequence detected with deep-sequence analysis at time of breakthrough was predicted to be CXCR4-tropic (FPR: 0.2%-0.7%). These sequences are genetically distinct from the pre-SCT viral variants predicted to be CCR5-tropic (FPR: 8.5%-10.5%). Interestingly, the most dominant viral variant rebounding after SCT (FPR 0.5%) could already be detected as a minor variant in the proviral DNA 103 days before transplantation. This dominant variant, once cloned in our HIV shuttle vector, demonstrated a high replication capacity in primary cells and is completely dependent on the alternative CXCR4 coreceptor for replication.

**Conclusions:** In this study we demonstrate that the rapid rebound after SCT was related to a highly replicative CXCR4-tropic HIV variant, which was already present prior to SCT. These data indicate that in-depth HIV coreceptor analysis is essential for future CCR5-based stem cell transplantation and gene therapy studies.

**TUA0205**

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

A. Wong1, A. Aggarwal1, O. Atthi1, B. Hao1, H. Macrae1, M. Churchill2, A. Kelleher1, S. Turville1

1University of New South Wales, Kirby Institute, Sydney, Australia; 2RMIT University, School of Health and Biomedical Sciences, Melbourne, Australia

**Background:** Conventional gene therapy vectors warrant extensive cellular activation of the target population (defined as resting CD4 T cells, and macrophages) to increase gene delivery outcomes. However, cellular departure from the resting state lowers stemness and therefore long-term therapeutic potential. There are two barriers to the genetic modification of target cells: particle delivery/fusogenicity, and ability to perform reverse transcription/integration. We designed a platform where vectors are customised to overcome these limitations.

**Methods:** To increase lentiviral vector fusion into CD4 T cells, over 1000 envelopes were surveyed, yielding a shortlist of one dozen candidate pseudotypes. These pseudotypes were previously characterised by the HIV Affinofile assay and distinguished by an ability to attain cellular entry despite low CD4 levels. For the enhancement of gene delivery, over 200 Vpx variants were surveyed, creating a shortlist of 27 candidate variants. These variants were validated by firstly determining their capacity to enhance HIV NL43 infection, before further measurement of gene delivery enhancement using lentiviral vectors.

**Results:** From the many prospective pseudotypes, one lead candidate was identified. This pseudotype consistently enabled cellular entry in greater than 95% of untouched resting CD4 T cells. Six lead Vpx variants were identified that enhanced gene transfer up to 20-fold and 10-fold in macrophages and T cells, respectively. Combining both approaches resulted in an excess of 95% and 46% gene delivery in macrophages and T cells, respectively, accomplished using low MoIs (0.04). Whilst a majority of Vpx variants still enhanced gene delivery for greater than two weeks, we identified variants that possessed contracted enhancement durations in T cells (kept 2 weeks). This would alleviate cellular vulnerabilities to HIV upon reinfusion into hosts.

**Conclusions:** We have designed a lentiviral vector platform that targets resting cell types by leveraging the fusogenic potential of the lead pseudotype and enhancing potential of Vpx. We achieved gene delivery into a challenging cell type using limited inocula, and benchmarked at levels conducive to clinical applications.

**TUA0801**

Antiretroviral strategies

**TUA0801**

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

M.V. Meireles1, A.R. Pascon1, F. Ferrini1, F. Rick1, A. Benzaken1

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**Background:** In early 2017, the Ministry of Health of Brazil (MoH) released a new preferential first-line regimen for HIV treatment. This study, we used real-world programmatic data from Brazil aiming to describe the observed effectiveness of different regimens in the initial response to ART, using the six-month viral load (VL) count.

**Methods:** Programmatic data from two information systems from the MoH were used; they gather data on every VL and CD4 counts performed within the country’s public health system, and on every ART dispensation. Patients aged 15 and over, who started ART from January 2014 to June 2017 and had a 6-month VL (±180 days after treatment initiation) were included. The outcome was failure to achieve initial virologic suppression (VSI). Defined as presenting the 6-month VL above 50 copies/mL. Univariable and multivariable analyses were performed, with unconditional logistic regression models assessing the likelihood of the outcome according to the initial ART regimen, controlling for adherence level, sex, age and CD4 and VL at treatment initiation. Adherence level was calculated using pharmacy refill data.

**Results:** Of the 103,420 patients included in the analysis, 67.6% were male; median values of age, baseline CD4, baseline VL and adherence were 34 years old, 394 cells/mm3, 38,057 copies/mL and 96.2%, respectively. Overall, 76.9% achieved a VL<50 copies/mL. The most common regimens were 3TC+TDF+EFZ (72.0%), 3TC+TDF+DTG (72.1%), 3TC+AZT+LPV/r (4.9%), 3TC+TDF+ATV/r (4.9%), 3TC+AZT+EFZ (3.5%) and 3TC+TDF+LPV/r (2.0%). VS ranged from 63.7% with 3TC+TDF+LPV/r to 85.2% with 3TC+TDF+DTG. In the multivariable analysis, with 3TC+TDF+DTG as the reference, aOR (95%CI) of failing to achieve VS were 1.42 (1.32-1.52) for 3TC+TDF+EFZ, 1.51 (1.35-1.68) for 3TC+AZT+LPV/r and 2.62 (2.32-2.95) for 3TC+TDF+LPV/r.

**Conclusions:** Establishing effective ART regimens is crucial to reduce HIV mortality and achieve national and global targets. Indiana ART guidelines [1] have identified 3TC+TDF+EFZ as the preferred first-line regimen for HIV treatment. We decided to report the effectiveness of different regimens in the initial response to ART in Brazil using real-world programmatic data.
Conclusions: The observed effectiveness of 3TC+TDF+DTG was markedly superior after controlling for possible confounders, with all other regimens showing 42%-162% higher odds of not achieving initial virologic suppression. Our results support the decision made by the MoH to switch its recommendations for preferred first-line ART from Efavirenz to Dolutegravir-containing regimens.

<table>
<thead>
<tr>
<th>Baseline characteristics</th>
<th>3TC+TDF+DTG</th>
<th>Multivariable analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regimen</td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>3TC+TDF+DTG</td>
<td>72</td>
<td>1</td>
</tr>
<tr>
<td>3TC+TDF+EFV</td>
<td>74</td>
<td>1.42 (1.32-1.53)</td>
</tr>
<tr>
<td>3TC+ATV+LPV/r</td>
<td>4.9</td>
<td>2.41 (2.10-2.90)</td>
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<tr>
<td>3TC+TDF+ATV/r</td>
<td>4.8</td>
<td>2.11 (1.91-2.32)</td>
</tr>
<tr>
<td>3TC+ATV+LPV/r</td>
<td>4.5</td>
<td>1.61 (1.35-1.93)</td>
</tr>
<tr>
<td>3TC+TDF+LPV/r</td>
<td>2.0</td>
<td>2.62 (2.32-2.95)</td>
</tr>
<tr>
<td>Others</td>
<td>3.7</td>
<td>2.11 (1.91-2.34)</td>
</tr>
</tbody>
</table>

Sex: Male 67.6 % 1.19 (1.13-1.23) Female 32.4 % 1

Age: 50+ 12.0 % 1 40-49 15.2 % 1.00 (1.02-1.15) 25-39 46.7 % 1.10 (1.05-1.16) 20-24 14.7 % 1.08 (1.00-1.13) 15-19 3.9 % 1.22 (1.11-1.34) CD4 (cells/mm³) 500+ 26.1 % 1 350-499 10.0 % 1.24 (1.17-1.30) 200-349 16.5 % 1.52 (1.44-1.61) 100-199 9.0 % 2.13 (2.00-2.29) < 100 11.2 % 2.50 (2.36-2.65) Unknown 15.2 % 1.64 (1.54-1.74) VL (copies/mL) 10,000-49,999 18.3 % 1 50,000-99,999 18.5 % 1.42 (1.34-1.50) 100,000+ 21.7 % 4.48 (4.14-4.80) Unknown 31.7 % 2.27 (2.13-2.41) Adherence (by 1% increase) - 0.96 (0.90-0.99)

**TUAB0102**

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

D.L. Braun1, T. Turki1, B. Hampel2, C. Grubel1, P. Schreiber1, M. Greiner1, D. Steffen1, F. Tschumi1, C. Depmeier1, K. Metzner1, B. Bertisch1, J. Böni2, R. Kouyos1,2, H. Günthard1,2, for the Zurich Primary HIV Infection Study

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

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

**Results:** Between 11/2015-3/2017, we randomly assigned 101 patients (68 to dolutegravir monotherapy, 33 to continuation of cART). At week 48 in the per-protocol-population, 67/67 (100%) had virological response in the dolutegravir monotherapy group versus 32/33 (100%) in the cART group (difference 0%, 95%-CI -1, 0.047), showing non-inferiority at the prespecified level (Figure). In the intention-to-treat population, 1 patient in the dolutegravir monotherapy group experienced viral failure at week 36 (viral load 382 cop/mL) and 2 patients in the cART group left the study before week 48 because they moved abroad. The patient who experienced viral failure was found to be chronically infected at the start of first cART and therefore violated entry criteria. Resistance test at time of viral failure revealed no RAMs and he was re-suppressed on cART. Overall, 14 severe adverse events occurred (dolutegravir monotherapy 10 [5.4%], cART 4 [12%]), none related to study-drugs.

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

**TUAB0103**

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

L. Hosqueloux1, C. Allavena1, T. Prazuck1, L. Bernardi4, S. Sunder1, J.-L. Esnault3, D. Rey4, G. Le Moal1, M. Roncato-Sabaran1, M. André4, E. Breaker1, V. Avettand-Felot1, A. Valéry1, F. Raff1, J.-J. Parrel1,2, MONCAY Study Group

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

**TUAB0102**

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

D.L. Braun1, T. Turki1, B. Hampel2, C. Grubel1, P. Schreiber1, M. Greiner1, D. Steffen1, F. Tschumi1, C. Depmeier1, K. Metzner1, B. Bertisch1, J. Böni2, R. Kouyos1,2, H. Günthard1,2, for the Zurich Primary HIV Infection Study

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

**TUAB0103**

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

L. Hosqueloux1, C. Allavena1, T. Prazuck1, L. Bernardi4, S. Sunder1, J.-L. Esnault3, D. Rey4, G. Le Moal1, M. Roncato-Sabaran1, M. André4, E. Breaker1, V. Avettand-Felot1, A. Valéry1, F. Raff1, J.-J. Parrel1,2, MONCAY Study Group

**Background:** We investigated whether dolutegravir alone was able to maintain virological suppression in HIV-1-infected patients on a successful dolutegravir-based standardized triple-therapy.
Methods: MONCAY was a 48-week multicentric, randomized, open-label, 12% non-inferiority margin study. Inclusion criteria were: age ≥18 years, CD4 nadir >100/μl, no previous AIDS event, plasma HIV RNA (pVL) <50 copies/ml at 12 months; stabilized regimen with once daily dolutegravir/abacavir/lamivudine (DTG/ABC/3TC) and no failure or resistance to any integrase inhibitor (INI). Patients were 1:1 randomized to continue DTG/ABC/3TC or to simplify to DTG monotherapy. The primary end-point was the proportion of patients with pVL <50 copies/ml at week 12 in intention-to-treat (ITT). missing or switch equals failure (M-F); modified ITT (mITT) excluding patients who had non-inclusion criteria: Per-protocol (PP) excluding from mITT patients with major protocol deviation. Virologic failure (VF) was defined as two consecutive pVL >50 copies/ml within 2 weeks apart.

Results: Seventy-eight patients were assigned to DTG and 80 to continue DTG/ABC/3TC. Of these 158 patients, 3 had non-inclusion criteria and 6 had major protocol deviation in the DTG arm; 2 had non-inclusion criteria and 1 had major protocol deviation in the DTG/ABC/3TC arm. By W12, 2 patients in DTG group experienced VF (both at W24 without resistance to the INI class); 1 patient stopped DTG/ABC/3TC due to adverse event (at W1). In ITT (n=158), the success rate was 73/78 (93.6%) in the DTG arm and 77/80 (96.3%) in the DTG/ABC/3TC arm; difference 3.7% (95%CI: -5.0 to 10.8). During subsequent follow-up, 3 additional patients in the DTG arm experienced VF (2 at W36 and 1 at W48) with emerging resistance mutations to INI in 2 cases, whereas none occurred in the DTG/ABC/3TC group (difference 6.6%; 95%CI: -1.8 to 15.6). The DSMB recommended to re-intensify the DTG arm with standardized triple-therapy.

Conclusions: Although non-inferior to DTG/ABC/3TC at W24, DTG monotherapy was not a valid option to maintain virological suppression overtime in HIV-1-infected patients on a successful DTG/ABC/3TC triple-therapy and favoured emergence of INI resistance.

TUAB014
A phase 3b, open-label, pilot study to evaluate switching to elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (E/C/F/TAF) in virologically suppressed HIV-1 infected adult subjects harboring the NRTI resistance mutation M184V and/or M184I (GS-US-292-1824)

I Perez Valero1, J.M. Libbre2, A. Lazzarin2, G. Di Pierro2, F. Pulido2, J-M. Molina2, S. Esser1, I. McNicholl, R-P. Longeaux1, N. Margot2, Y. Sha0, D. Plontkowski2, M. Das3, R. Hauberich3
1Unidad VIH - Hospital Universitario La Paz, Madrid, Spain, 2Fundación Lucha contra el SIDA, Barcelona, Spain, 3Fundación ICS-SSR Raúl S. Fonseca del Monte Tabor, Milan, Italy, 4Dipartimento di Malattie Infettive e Tropiche, Turin, Italy, 5Unidad VIH, Hospital Universitario 12 de Octubre, Madrid, Spain, 6UCM, Madrid, Spain, 7Department of Infectious Diseases, Saint-Louis Hospital and University of Paris, Paris, France, 8Universitätsklinikum Essen, Essen, Germany, 9Gilead Sciences, Inc, Foster City, United States, 10Gilead Sciences, Inc, Montreal, Canada

Background: Treatment with once-daily E/C/F/TAF in HIV-1-infected therapy-naive patients was shown to be effective and safe through 144 weeks in two randomized, double-blinded trials, which excluded participants who had HIV-1 harbored the M184V and/or M184I mutation.

Methods: This ongoing, prospective open-label, single arm, multicenter, 48-week trial is evaluating the efficacy and safety of switching to E/C/F/TAF in HIV-1-infected patients with no follow-up booster doses, to reduce the occurrence of TB in people living with HIV (PLHIV). However, the effectiveness and durability of this intervention remains obscure in this setting. This study evaluated the effectiveness of IPT and the durability of its protection in Lesotho.

Methods: The study was based on 2 955 records which met the inclusion criteria of 4.122 HIV-positive medical records randomly sampled from eight health institutions in six districts of Lesotho. Univariate Kaplan-Meier function. Wilcoxon’s log-rank test and Cox regression analyses were used to select factors into the model. Cox’s proportional hazards regression analysis was performed, with data formatted as discrete-time survival data with interval date as the time variable and the occurrence of TB as the Failure outcome.

Results: The overall TB incidence rate was 2.0 per 100 person-years. Thirty-nine (15.9%, n = 246) patients developed TB after IPT. TB incidences per 100 person-years by timing of IPT were as follows: (a) IPT before ART (1.7); (b) IPT after ART (1.8); (c) no IPT (2.6); (d) IPT within one year of ART commencement (1.3) and (e) IPT 3–5 years after ART initiation (2.3). IPT effectiveness rapidly deteriorated after four years.

Conclusions: E/C/F/TAF offers an effective, well tolerated switch option for patients with pre-existing M184V and/or M184I mutations. These data on continued virologic suppression despite resistance are encouraging through longer term data are needed.

TUAB021
Durability and effectiveness of isoniazid preventive therapy in Lesotho, southern Africa

E. Musenge1, D. Olivier2, W.M.J. van den Heever1
1National University of Lesotho, Department of Epidemiology, Maseru, Lesotho, 2Central University of Technology, Department of Health Sciences, Bloemfontein, South Africa

Background: The Southern African country of Lesotho, which has the highest tuberculosis (TB) incidences in the world, is facing a catastrophic sydemic of HIV and tuberculosis. In 2011, the government of Lesotho launched isoniazid preventive therapy (IPT) as a once-off intervention with no follow-up booster doses, to reduce the occurrence of TB in people living with HIV (PLHIV). However, the effectiveness and durability of this intervention remains obscure in this setting. This study evaluated the effectiveness of IPT and the durability of its protection in Lesotho.

Methods: This study presents the Week 24 data. Thirty-seven participants were enrolled and switched to E/C/F/TAF. Mean age was 50 years(range 22-76), 73% White, 27% Black. 22% women, median CD4 count 734 cells/μL and 100% HIV RNA < 50 c/mL at baseline. Through Week 24, all 37 participants had HIV-1 RNA < 50 c/mL based on PVR/TiTable. Three participants who discontinued prior to Week 24 with last recorded HIV-1 RNA < 50 c/mL, were not considered VF. Four serious adverse events occurred (none were study drug-related): 1 each of squamous cell carcinoma, acute kidney injury (with poorly controlled hypertension and diabetes), transient proteinuria (resolved on study drug) and pulmonary embolism. Twenty-two percent (8/37) of participants experienced a study drug-related AE (grade 1 or 2); one participant discontinued due to grade 2 muscle spasms.

Conclusions: E/C/F/TAF offers an effective, well tolerated switch option for patients with pre-existing M184V and/or M184I mutations. These data on continued virologic suppression despite resistance are encouraging through longer term data are needed.
in patients given IPT within one year of ART commencement (Figure 1). Gender, baseline WHO clinical stage, district category and time to IPT relative to ART commencement emerged as significant predictors of TB occurrence. Increasing time to IPT by one six-month interval increased the risk of contracting TB by between 6% and 59%, depending on the cohort.

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

**TUAB020**

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

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1University of Bern, Institute of Social and Preventive Medicine (ISPM), Bern, Switzerland, 2Swiss Tropical and Public Health Institute, Basel, Switzerland, 3University of Basel, Basel, Switzerland, 4University of Zurich, Institute of Medical Microbiology, Zurich, Switzerland, 5Swiss National Center for Mycobacteria, Zurich, Switzerland, 6Centre de Prise en Charge de Recherche et de Formation, Yopougon, Côte D’Ivoire, 7Moi University School of Medicine, Department of Medicine, Eldoret, Kenya, 8London School of Hygiene and Tropical Medicine, London, United Kingdom, 9University of Cape Town, Division of Medical Microbiology and the Institute for Infectious Disease and Molecular Medicine, Cape Town, South Africa, 10National Center for Mycobacteria (MGIT liquid culture). We categorized drug regimens into adequate treatment, under-treatment and over-treatment, based on WHO and local guidelines. We used multivariate logistic regression adjusted for age, sex, sputum microscopy, HIV status, and treatment adequacy, accounting for clustering at site-level, to examine mortality during treatment according to DST results and treatment adequacy.

**Results:** 634 TB patients were included. 272 (42.9%) were HIV-positive, with a median CD4 cell count at TB treatment start of 192 cells/µl (IQR 78-369 cells/µl). 175 (64.3%) of HIV-positive patients were on ART at the start of TB treatment or initiated ART within 3 months. Based on reference MGIT DST, 394 (62.5%) isolates were pan-susceptible, 45 (7.1%) mono-resistant, 163 (25.7%) multidrug-resistant (MDR-TB), and 30 (4.7%) pre-extensively or extensively drug-resistant (pre-XDR/XDR-TB). In 126 (19.9%) patients, local and reference DST results were discordant. For any drug resistance, the sensitivity of local DST was 84% (95% CI 80%-88%). specificity was 89% (95% CI 84%-92%). Treatment was inadequate (under- or over-treatment) in 25/126 (19.8%) patients with discordant DST results, and in 16/508 (3.1%) with concordant DST results (P < 0.001). Mortality was 13% (24/176) if DST results were concordant, but 26.6% (17/64) if DST results were discordant (P=0.039). The corresponding risk ratio was 1.95 (95% CI: 1.12-3.38) and the population attributable fraction 20.2%. In multivariate logistic regression, mortality was determined by TB drug resistance and adequacy of treatment, but not by HIV status, gender or sputum positivity.

<table>
<thead>
<tr>
<th>Drug susceptibility</th>
<th>Pan-susceptible adequate</th>
<th>Pan-susceptible inadequate</th>
<th>Any resistance adequate</th>
<th>Any resistance inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients</td>
<td>319</td>
<td>19</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Unadjusted OR</td>
<td>2.4</td>
<td>1.0</td>
<td>2.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Adjusted OR</td>
<td>4.9 (2.3-9.8)</td>
<td>1.1 (0.5-2.2)</td>
<td>8.1 (4.2-15.0)</td>
<td>2.2 (1.0-4.7)</td>
</tr>
</tbody>
</table>

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

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

**TUAB023**

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

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**Background:** TB meningitis (TBM) mortality is 40-60% in HIV-positive individuals, in part due to diagnostic delay. Earlier diagnosis and initiation of treatment are needed to improve outcomes. The re-engineered Xpert Ultra (Ultra) has an eight-fold lower limit of detection than Xpert (Xpert) and requires evaluation in clinical settings.
Methods: We obtained samples of cerebrospinal fluid (CSF) from HIV-positive adults presenting with suspected meningitis to Mbarara (since Feb 2015) and Mulago Hospitals (since Dec 2016), in Uganda. CSF was tested for cryptococcal antigen, then if negative, centrifuged and tested with Xpert. Ultra and culture. The performance of Ultra was measured against:

1. Composite reference standard of any positive CSF test
2. Uniform case definition of ‘probable’ or ‘definite’ TBM.

Results: CSF was collected from 406 patients. After exclusion of cryptococcal meningitis (57%, 231/406). CSF from 206 patients was tested for TBM, of which 37 (18.0%) patients had microbiologically confirmed TBM (33 Ultra, 16 Xpert and 17 culture positive. Fig 1). We met the criteria for ‘probable’ or ‘definite’ TBM by the uniform case definition. Against composite reference standard the sensitivity of Ultra was 88% (33/37), versus 43% (16/37) for Xpert and 46% (17/37) for culture. Against uniform case definition sensitivity of Ultra was 70% (23/33), versus 34% (16/47) for Xpert and 36% (17/47) for culture. Specificity of Ultra was 100% and negative predictive value was 98% (95% CI 94-99%) against the composite reference standard and was 91% against then uniform case definition.

We were only positive by Ultra, of which we tested 10/13 samples with a multiplex meningoecephalitis PCR assay and did not identify other potential aetiology. In these HIV-positive adults with meningitis we believe these are true positive results. 4 patients were negative by Ultra but positive on culture.

Conclusions: Ultra detected significantly more cases than either Xpert or culture in this HIV-positive population. A diagnostic test with ~90% sensitivity and a 90 minute turnaround time holds the potential to improve early diagnosis. Whilst 98% NPV in microbiologically proven TBM is an vast improvement, the NPV of 91% against uniform case definition proves early diagnosis. Whilst 98% NPV in microbiologically proven TBM was measured against composite reference standard and was 91% against then uniform case definition.

TUAB0204
Risk factors of recurrent TB disease in a setting of high HIV prevalence

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Background: The incidence of retreatment tuberculosis (TB) disease in high-prevalence settings such as Cape Town is very high. We previously showed that risk of recurrence increases with every subsequent episode. It is unclear what mechanisms underlie this increasing risk over time. We evaluated the risk factors of recurrent TB disease after previous TB treatment completion by subsequent episode.

Methods: All recorded TB episodes from January 2003 to April 2016 in the City of Cape Town were included, and linked to individuals by deterministic linkage of personal identifiers. Among a cohort of individuals whose first episode was notified in Cape Town we calculated recurrence rates after previous treatment completion which were adjusted to population HIV- and non-HIV associated mortality rates sourced from the THEMBSA HIV model of the Western Cape. We used multivariable Cox proportional hazards regression to estimate risk factors of recurrent TB disease per subsequent episode.

Results: A total of 245,533 individuals experienced 21,297 episodes of recurrent disease. The rate of recurrent TB after previous treatment completion was 14.5 (95% CI 14.2-14.7) per 1000 person-years of follow-up and increased per subsequent episode: the HIV-negative rate increased 7-fold from episode 2 to episode 5 (from 11.3 (95% CI 11.0-11.7)/1000 to 84.1 (95% CI 62.4-113.5)/1000 respectively), and the HIV-positive rate increased 6-fold from 22.1 (95% CI 21.6-22.6)/1000 to 123.7 (95% CI 99.5-153.8)/1000. HIV infection was the strongest risk factor for recurrence, reducing per subsequent episode (Table 1). Other factors identified were male gender and older age. Antiretroviral treatment (ART) use was associated with a reduced rate of recurrence for a second episode but not for subsequent episodes. CD4 count was not associated with recurrence.

Conclusions: We identified very high TB recurrence rates after successful previous treatment in Cape Town, especially after multiple episodes. As expected, HIV was the strongest risk factor and ART had a protective effect. However, the importance of HIV as a risk factor declined over subsequent episodes, suggesting additional mechanisms underly the escalating rate of TB recurrence. Further investigation into increased risks of reinfection or progression to disease through clinical, microbiological, immunological and socio-economic factors is warranted.

<table>
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<tr>
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<td>0.84</td>
<td>(0.74-0.95)</td>
<td>1.10</td>
<td>(0.85-1.18)</td>
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</table>

(Adjusted hazard ratios (95% confidence intervals) per subsequent episode of TB recurrence. *Among HIV-positives only (adjusted for age and gender)*)
TUAB0205

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

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

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

Results: Data from 330 patients with laboratory-confirmed pulmonary MDR-TB were analyzed, 162 with bedaquiline substitution and 168 controls. Baseline characteristics were similar between the groups, except for CD4 cell count which was lower in the bedaquiline group (median: 92.5 vs 222.5 cells/mm³). Treatment of multidrug resistant tuberculosis (MDR-TB) are associated with substantial toxicity and treatment discontinuations. Bedaquiline is being widely used as a substitute in MDR-TB regimens for patients unable to tolerate SLIs, but the efficacy and safety of this strategy is unknown.

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

TUAB0206

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

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

Methods: INSPIRING (NCT02278592) is a Phase 3b, non-comparative, active control, randomised, open-label study in HIV-1-infected ART-naive adults 18-56 years of age with CD4 cell counts <50 cells/µL with drug-sensitive TB. Subjects on rifampicin-based TB treatment 8 weeks were randomised (1:2) to receive DTG (50mg twice daily during and 2 weeks post-TB therapy, followed by 50mg once daily or EFV (600mg once daily) with two NRTIs for 52 weeks. The Week 48 primary endpoint was the proportion of DTG subjects with plasma HIV-1 RNA <50 copies/mL (responders) using the FDA Snapshot algorithm. Time-to-treatment exposure (ITT-EI) was independently adjudicated IRIS episodes. The study was not powered to show a difference between arms, nor formal statistical hypothesis was tested.

Results: Subjects were randomised to DTG (n=69) or EFV (n=44). Median baseline HIV-1 RNA and CD4 counts were 5.10 log10 c/mL and 208 cells/µL for DTG and 5.24 log10 c/mL and 202 cells/µL for EFV. The proportions of Week 48 responders (ITT-EI) were 52/69 (76%) (95%CI: 61%, 86%) for DTG and 36/44 (82%) (95%CI: 70%, 93%) for EFV. The DTG non-response rate was primarily driven by non-treatment-related discontinuations, seven subjects (10%) for DTG and three (7%) for EFV, due to non-treatment-related reasons. Time to culture conversion was assessed for both arms at week 48. The proportion of patients with at least a 1-log10 decrease in culture positivity at 2 months was 56% (95% CI: 42%, 69%) for DTG and 15% (95% CI: 10%, 21%) for EFV (p<0.001).

Conclusion: DTG is effective and well-tolerated in HIV/TB-co-infected adults receiving rifampicin-based TB treatment.
TUAC01 Forging new pathways towards HIV elimination

TUAC010
HIV incidence trends among the general population in Eastern and Southern Africa 2000-2014

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Background: Studies from Kenya, Malawi, Tanzania, South Africa, Uganda and Zimbabwe comprise the Network for Analysing Longitudinal, Population-based HIV/AIDS data on Africa (ALPHA). We used data from 6 studies to assess whether HIV incidence has changed over time.

Methods: Individual participants consented to research HIV tests at regular intervals, typically around 2 years apart. Person-time under observation started at the first HIV negative test recorded while resident in the study area. Participants were followed until study exit or seroconversion. Seroconversion dates were estimated using multiple imputation assuming a uniform distribution of seroconversion dates between the last negative and first positive study test result.

We estimated incidence rates and Poisson confidence intervals, by study, sex and age (15-19, 20-24, 25-29, 30-34, 35-39, and 40-49) and calendar year between 1995 to 2014. We fitted piecewise exponential models for 2000 to 2014 to estimate age-adjusted hazard ratios for non-linear change in HIV incidence over time with random intercepts for study and individual and a random slope for change over time by study. To account for exposure to infection we estimated age, sex and period-specific untreated HIV prevalence among potential heterosexual partners using observed data on age-mixing between sexual partners and HIV status and treatment status among the opposite sex. We included this in the regression model as an explanatory variable.

Results: There were 1475 seroconversions among 163,613 male person-years of observation and 3302 among 218,233 female person-years. Men and women aged 15-49 experienced clear incidence rate declines in Rakai and Manicaland; elsewhere women’s incidence appeared stable or rising whilst men’s was stable or declining (Figure 1).

Adjusted hazard ratios for age, men’s incidence declined between 2000-04 and 2010-14 (HR 0.78, Table 1). Adjusting for untreated opposite sex prevalence decreased the estimated mean untreated prevalence among sexual partners of the opposite sex.

Findings from population-based HIV impact assessments (PHIAs) in Zimbabwe, Malawi, and Zambia

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1Columbia University, ICAP, New York, United States; 2US Centers for Disease Control and Prevention (CDC), Atlanta, United States; 3International Training and Education Center for Health (I-TECH), Lilongwe, Malawi; 4Zimbabwe Ministry of Health and Child Care, Harare, Zimbabwe

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

TUAC0102 Population viral load and recent HIV-1 infections: Findings from population-based HIV impact assessments (PHIAs) in Zimbabwe, Malawi, and Zambia

Population viral load (PVL) reflects antiretroviral therapy (ART) program effectiveness and transmission risk in a population. Using nationally representative data from household surveys conducted in...
Temporal trends of population viral suppression in the context of Universal Test and Treat. Results from the ANRS 12249 TasP trial in rural South Africa


Background: The universal test-and-treat strategy (UttT) aims to maximize the proportion of all people living with HIV (PLWHIV) on antiretroviral treatment (ART) and virally suppressed in a community, i.e. to reach population viral suppression (PVS). The ANRS 12249 TasP trial did not demonstrate an impact of universal ART on HIV incidence at population level (Lancet HIV 2017). Here, we investigated whether PVS improved over time in TasP trial improved PVS over time. As it was mainly due to RHCT rather than universal ART, it did not induce differences between arms, explaining the null effect observed on cumulative incidence. The main trial finding. Changes in ART initiation guidelines alone are not enough to significantly increase PVS.

Methods: We analyzed data from the HIV surveillance registry. Persons were included if they were diagnosed with HIV during 2008-2016, were 18 years at time of diagnosis, alive 12 months after HIV diagnosis and had ≥2 viral load (VL) tests. Multivariate zero-inflated negative binomial regression was used to assess trends in year spent above three viral thresholds among persons newly diagnosed with HIV in San Francisco (SF).

Results: Among 1,510 EAs across the three surveys, a total of 58,366 adults aged 15-59 years resided in 1,374 (91%) EAs that had at least one HIV+ adult consenting to an interview and blood draw. Among the 1,374 EAs, 92.6%, 6.99% and 0.04% had 0, 1 and 2 recent HIV-1 cases, respectively. Mean VLS prevalence across these EAs was 63.5% (95% confidence intervals [CI] 62-65%). In multivariable analysis, PVL particularly among those unaware of their HIV status, was associated with a recent HIV+ case in that EA (adjusted odds ratio [AOR] 1.44, 95% CI 1.22-1.70, p<0.001). VLS prevalence was inversely correlated with recent infections (AOR: 0.17, 95% CI 0.08-0.37, p<0.001). On average, every 1% increase in VLS in an EA decreased the predicted probability of one recent infection by 8%.

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

TUA0104
Trends in percent time spent viremic among persons newly diagnosed with HIV, San Francisco, CA, USA, 2008 - 2016

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

Methods: We analyzed data from the HIV surveillance registry. Persons were included if they were diagnosed with HIV during 2008-2016, were 18 years at time of diagnosis, alive 12 months after HIV diagnosis and had ≥2 viral load (VL) tests. Multivariate zero-inflated negative binomial regression was used to assess trends in year spent above each viral threshold, while controlling for covariates (gender, transmission category, race/ethnicity, age, housing status, CD4+ lymphocyte count, health insurance type, and time from HIV diagnosis to ART initiation).

Results: Of the 3336 new HIV diagnoses from 2008-2016, 2556 (77%) met inclusion criteria for analysis. Overall, persons newly HIV diagnosed spent 53.6% of pPT>200, 44.1% of pPT>1500, and 31.7% of pPT>10000. By year, pPT>200 decreased from 70.3% in 2008 to 39.8% in 2016, pPT>1500 decreased from 62.3% in 2008 to 24.8% in 2016 and pPT>10000 decreased from 46.0% in 2008 to 17.0% in 2016 (p<0.0001 for each threshold; see Figure).

TUA0103
Temporal trends of population viral suppression in the context of Universal Test and Treat. Results from the ANRS 12249 TasP trial in rural South Africa

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Background: The test-and-treat strategy (TTT) aims to maximize the proportion of all people living with HIV (PLWHIV) on antiretroviral treatment (ART) and virally suppressed in a community, i.e. to reach population viral suppression (PVS). The ANRS 12249 TasP trial did not demonstrate an impact of universal ART on HIV incidence at population level (Lancet HIV 2017). Here, we investigated whether PVS improved over time in TasP trial improved PVS over time. As it was mainly due to RHCT rather than universal ART, it did not induce differences between arms, explaining the null effect observed on cumulative incidence. The main trial finding. Changes in ART initiation guidelines alone are not enough to significantly increase PVS.

Methods: We analyzed data from the HIV surveillance registry. Persons were included if they were diagnosed with HIV during 2008-2016, were 18 years at time of diagnosis, alive 12 months after HIV diagnosis and had ≥2 viral load (VL) tests. Multivariate zero-inflated negative binomial regression was used to assess trends in year spent above each viral threshold, while controlling for covariates (gender, transmission category, race/ethnicity, age, housing status, CD4+ lymphocyte count, health insurance type, and time from HIV diagnosis to ART initiation).

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In adjusted regression, significant differences for all three pPT thresholds were found by transmission category, age, CD4 count, and time from HIV diagnosis to ART initiation. PWID (including MSM-PWID) and younger age were associated with increased pPT viremic. Persons with lower CD4 count and a shorter time to ART initiation had decreased pPT viremic.

Conclusions: The proportion of virologically untreated individuals decreased significantly among newly diagnosed persons from 2008 to 2016. Thus, the possibility that persons with a recent HIV diagnosis could transmit HIV in more recent years decreased and likely contributed to the decreased HIV incidence observed in SF.

TUAC0105
HIV prevention in a Fast Track City: Trends in time-dependent HIV cascade indicators among gay and bisexual men attending high HIV caseload testing services in Melbourne, Australia

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Background: The Fast-Track Cities partnership focuses on translating global HIV goals into local strategies, with progress towards 90-90-90 targets used as key indicators. Melbourne is Australia’s only Fast Track global HIV goals into local strategies, with progress towards 90-90-90

Methods: HIV testing data was extracted from patient management systems through the Australian Collaboration for Coordinated Enhanced Surveillance (ACCESS) between Jan 2012-Sep 2017. Using anonymised unique identifiers, ACCESS prospectively links data on individuals’ clinic attendances and laboratory test results. We calculated annualised trends in repeat testing follow-up tests within three, six and 12-months. HIV positivity, the proportion of GBM with undetectable viral loads (<200 copies/ml) within 12 months of diagnosis and median time between diagnosis and undetectable viral load.

Results: 11,607 GBM received 47,722 HIV diagnostic tests between 2012 and 2017. There were significant increases in 12-month (66% to 83%; p<0.01), six-month (28% to 44%; p<0.001) and three-month (10% to 23%; p<0.001) repeat testing. Between 2012 and 2017, 292 GBM were newly diagnosed with HIV. HIV positivity was 1% in 2012, peaked at 2.2% in 2014 then declined significantly to 0.4% in 2017 (p<0.001). Among GBM newly diagnosed between 2012 and 2016, the percentage with undetectable viral loads (<200 copies/ml) within 12 months of diagnosis increased from 59% to 97% (p<0.001) and the median time between diagnosis and undetectable viral load declined from 162 days to 50 days (p<0.001).

Conclusions: Considerable declines in time between HIV diagnosis and viral suppression among GBM attending specialist HIV testing services in Melbourne have coincided with substantial declines in HIV diagnosis rates at these services. The most recent declines in diagnoses also coincided with a substantial scale up of PrEP among GBM in 2016-17 as part of a multi-site implementation project.

TUAC0201
Impact of HIV combination prevention in men who have sex with men, Bangkok, Thailand

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Background: PrEP is recommended for HIV prevention among at risk men who have sex with men (MSM) in Thailand. Anticipated PrEP impact on reduction of HIV infections would support the expansion of programs implementing PrEP in combination with consistent condom use. We used a deterministic model to assess PrEP and condom use and estimated HIV infections among MSM in Bangkok, Thailand using different adherence attributes.

Methods: For this deterministic model previously developed by Smith et al. we used three parameters from published data: 1) PrEP effectiveness from the iPrEx international clinical trial among MSM having > 50% adherence and 50% adherence based on self-reported medication adherence and pill counts 2) condom effectiveness from self-reported condom use during anal sex among MSM reporting at least one HIV-positive partner in two prospective HIV prevention trials and 3) annual HIV incidence in the absence of PrEP from the Bangkok MSM Cohort study, overall and stratified by characteristics. Among different age groups and risk behaviors, and adherence categories, the number of HIV infections per 10,000 MSM each year was calculated. The estimates assumed that PrEP and condom use efficacy were independent.

Results: Among MSM who had ≥90% PrEP adherence, an estimated 48 (95% confidence interval: 40-56) HIV infections would occur among those who used condoms consistently, and an estimated 990 (520-680) HIV infections would occur among those not taking PrEP and not using condoms (a reduction of 544 HIV infections). Among MSM who had < 50% PrEP adherence, an estimated 116 (52-260) HIV infections would occur if condoms were used consistently. Combination HIV prevention used in MSM who were ages 18-21 years, or who engaged in sex parties, or who used club drugs with sex resulted in the greatest reduction of HIV infections (a reduction of 811, 922, and 1493 HIV infections) compared to those not using PrEP and condoms.

Conclusions: Models predict an estimated >10 fold reduction of HIV infections each year for MSM using PrEP and condoms in Bangkok, Thailand. Adherent combination prevention strategies in the highest risk MSM could result in the most substantial reductions in HIV infection.
TUACo202
Changes in rectal STI incidence and behavioral HIV risk before, during, and after PrEP in a national sample of gay and bisexual men in the United States

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

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

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

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

TUACo203
Reducing risk of male sex partners: HIV testing, treatment, and VMMC of men in PEPFAR-supported DREAMS districts

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

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

Methods: Countries were selected for inclusion if they met the following criteria: there were comparable non-DREAMS districts that were originally considered for DREAMS or will begin DREAMS implementation in 2018, and districts remaining consistent from 2015-2017. PEPFAR indicators were used to analyze total number of VMMCs com-
Results: Out of 718,090 procedures, there were 1,826 moderate and severe AEs (0.25% rate, peaking at 2.3%, in the first month), with 1,650 moderate (90.4%) and 176 severe (9.6%). The three most common AEs (80% of AE) were infection (41%), hematoma (23%) and excessive bleeding (6%). Damage to the penis and pain accounted for 6% each. Most moderate AEs were infections (64.2%), and most severe AE were hematomas (59%). The most affected age was 10 to 14 years, with 40% of the AEs, followed by 15 to 19, and 20 to 24 years, with 24% each. By age strata, AE were 0.2% (10-14), 0.22% (15-19), 0.8% (20-24), 0.29% (25-34), 0.37% (35-49), 0.57% (50-64), 0.24% (65-79), and 0.05% (79+).

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

TUAC0301 Retention in care for HIV pre-exposure prophylaxis (PrEP) among sex workers of four public health centers in Senegal

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

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

Results: Overall, out of 325 eligible FSWs, 271 (83.4%) were initially enrolled at baseline. The average age of those enrolled was 38 years (STD=8.7). Most FSWs were Senegalese (96.7%), and approximately half of them never attended school (49.8%). Among the 267 participants who were prescribed PrEP, 70.4% were retained in care at six months (Pikine: 68.8%, Mbao: 78.8%, Rufisque: 71.2%, Diamniadio: 65.8%, p=0.439) and 67% were retained in PrEP care at twelve months (Pikine: 69.9%, Mbao: 61.5%, Rufisque: 72.7%, Diamniadio: 63.3%, p=0.483). Older age among FSW was found to be a significant predictor of higher PrEP retention (P = 0.0012). Compared to the 18-24 year age group, the 25-34 IRR 2.53, 95%CI=1.22-4.99, 35-44 IRR 3.24, 95%CI=1.57-6.23, and 45+ year age groups IRR 3.85, 95%CI=1.03-13.07 were significantly more likely to be retained in PrEP. We did not find significant differences in retention by site, education, registration as sex worker status, condom use or HIV risk perception.

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

TUAC005 Results from a cluster-randomized trial to evaluate a microfinance and peer health leadership intervention for HIV and intimate partner violence prevention among social networks of young Tanzanian men

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

Methods: Thirty camps (n=621 men) were randomly assigned to the two-year intervention condition and 29 camps (n=568 men) were randomized to the control. Behavioral assessments were conducted at baseline and 30-months post-intervention launch, with biological samples drawn at 12-months follow-up. Repeated measures analysis using Generalized Estimating Equation (GEE) models were used to identify the predictors of PrEP retention.

Results: Of 1,249 men enrolled in the trial, 1,029 (82.4%) completed the 30-month follow-up. There was no evidence that the intervention reduced STI prevalence (aIRR 1.05, 95% CI 0.86-1.29), IPV perpetration (aIRR 1.15, 95% CI 0.91-1.44), or STI risk behaviors. Men in the intervention condition reported greater levels of past-year HIV testing, controlling for HIV testing status at baseline. (aIRR 1.13, 95% CI 1.00-1.28, p<0.04) as well as significantly lower levels of inequitable gender norm attitudes at the 30-month follow-up (adjusted effect -0.11, 95% CI -0.21-0.00, p<0.04), while there was no significant difference in hope across condition.

Conclusions: We successfully engaged and retained social networks of men in this multilevel HIV and IPV prevention study. The combined microfinance and peer health leadership intervention successfully improved HIV testing and reduced inequitable gender norm attitudes.
TUAC0302
Key population-led health services (KP-LHS) critical to PrEP introduction among MSM and TG in Thailand

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

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

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

Conclusions: Our study on the scale-up of PrEP showed that the most significant increase of clients requesting PrEP were at KP-LHS sites as well as private clinics whose services are provided by KPs. These organizations appear to be the most critical for rapid scale-up, particularly where epidemic growth is concentrated among KPs. Government health facilities are still needed for sustainability and coverage. However, our data suggest that in the early stages of introduction, KP-LHS can quickly lead health services (KP-LHS) model. We examined data from sites to assess the contribution of KP-LHS as part of a national strategy to increase PrEP uptake.

TUAC0303
Comparison of measures of adherence to HIV pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) and transgender women (TGW). Results from the PrEP Brasil study

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

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

Results: From April 2014 to July 2016, 450 participants initiated PrEP, 379 (83.3%) were retained through 48 weeks. Of these, FTC/TDF was provided to 354 (94.4%) in the previous three months and those participants were included in this analysis. Median age was 30 years (IQR 25–39), 842 (37.3%) were aged 18–24 years, 19 (5.4%) TGW, 41 (11.8%) black and 83 (24.5%) had <12 years of education. At week 48, 77.4% (274/354) had TFV-DP>700fmol/punch. All adherence measures were able to discriminate between participants with and without protective drug levels (AUC >0.5) (Table 1).

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

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

<table>
<thead>
<tr>
<th>Adherence measures</th>
<th>Median adherence (IQR)</th>
<th>AUC (95% CI)</th>
<th>P-value</th>
<th>Cut-off point sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPR</td>
<td>1.16 (1.00–1.31)</td>
<td>0.64 (0.56-0.71)</td>
<td>&lt;0.001</td>
<td>1.07 0.69 0.54 0.84 0.34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pill count</td>
<td>96.82 (88.15–100.00)</td>
<td>0.62 (0.53–0.70)</td>
<td>0.01</td>
<td>90.24 0.77 0.54 0.86 0.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-report</td>
<td>100.00 (96.67–100.00)</td>
<td>0.64 (0.56–0.71)</td>
<td>&lt;0.001</td>
<td>100.00 0.65 0.54 0.84 0.29</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Figure 1. ROC Curves for protective drug level vs adherence measures.*
Background: Integrating PrEP within family planning (FP) clinics could serve as a platform for reaching young women at-risk for HIV in high burden settings. The PrEP Implementation for Young Women and Adolescents (PrIYA) Program is conducting real-world delivery of PrEP to at-risk women seeking routine FP services in Western Kenya.

Methods: PrIYA is part of the DREAMS Innovation Challenge funded by PEPFAR managed by JSI Research & Training Institute, Inc. We approached HIV-uninfected women seeking routine FP services at 16 clinics in Kisumu County, Kenya from June to December 2017. At each encounter, women were screened for behavioral risk factors and willingness to consider PrEP following the national PrEP guidelines. Eligible women who were interested in PrEP were offered PrEP at the same visit.

Results: Overall, we conducted 493 assessments among FP clients for behavioral risk factors and willingness to consider PrEP. Among all women, median age was 25 years (IQR 21-29); 78% were married and 39% did not know their male partner’s HIV status. The most frequently used FP methods were injectables (53%), implants (32%) and oral contraception (7%). 4% used intrauterine devices (IUDs). 4% used condoms alone and 3% used other methods. Overall, 110 (22%) of encounters led to PrEP initiation. Frequency of PrEP initiation differed by male partner HIV status (HIV-negative 1%, unknown 30%, HIV-positive 82%, p<0.001). Younger women were as likely to initiate PrEP as older women (24 yrs vs >24 yrs, OR=1.53, 95% CI 0.93-2.51, p=0.09). Initiating PrEP was associated with having an STI (OR=3.33, 95% CI 1.28-22.09, p=0.021) and experiencing intimate partner violence in the last 6 months (OR=3.17, 95% CI 1.27-7.88, p=0.01).

Likelihood of PrEP initiation did not differ between women using a non-barrier FP method (hormonal contraception or IUDs) and women using condoms alone (OR=2.02, 95% CI 0.43-9.48, p=0.37). Frequently reported reasons for declining PrEP included the perception that HIV risk was low (70%) and that the partner was HIV-negative (30%).

Conclusions: Among FP clinic attendees in Kenya, PrEP initiators were more likely to have HIV risk factors and just as likely to use FP methods other than condoms as those who declined PrEP.
TUAD0102
You don’t feel freedom inside: Causes and factors influencing the adherence to the substitution therapy program in Khujand, Tajikistan

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Background: The substitution therapy program in Khujand (Tajikistan) started in 2001 with the support of UNDP/GFATM. 345 PWID passed through the program, however, during six years 283 patients (82%) have fallen out. Currently, 62 clients are enrolled, or 6% or PWID registered in the region - coverage far below the targets recommended by WHO for universal access to HIV prevention, treatment, and care for PWID. Low coverage and high drop out rate undermine the program effectiveness in preventing HIV. Our qualitative study aimed to identify the factors that influence adherence.

Methods: In 2017 we carried out in-depth interviews with twelve men and six women aged between 34 and 46 who used to participate in the program (15) or are current clients (3). We also interviewed two doctors.

Results: Analysis revealed the factors that affect low retention:
1) The discrepancy between expectations and reality: many participants said they expected the program to be a short-term intervention that would fully rid them of dependency. 2) Neglected: respondents felt the program failed to consider their needs and fully excluded them from decision making regarding own treatment, in particular concerning the dosage, their psychological needs were not addressed. 3) Stringent rules and insufficient information. Often patients signed their contract without understanding the terms and regulations. 4) Loss of control. The patients are required to visit OST daily which impedes resocialization and employment. Many withdrew from the program as they felt lack of personal freedom and control. In general, people felt disempowered by the program even more than by their previous drug addiction and wanted the exit to regain control over their lives.

Conclusions: To make the program an empowering environment for people to regain control over their lives, not visa versa we need to: - Ensure more patient involvement in decision making regarding the overall program design and individual treatment plans; - Allow take-home methadone, subject to individual conditions; - Make methadone available at pharmacies, hospitals and penal institutions; - Include patient representatives in the program governance and staff; - Give more attention to patient expectations before admission and ensure more psychosocial support in achieving their goals.

TUAD0103
Increased methadone dose reduces illicit drug injection among HIV negative methadone clients in Myanmar

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Background: HIV prevalence rate among People who inject drugs (PWID) in Myanmar is high at 28.5%. The transmission of HIV can be reduced by reducing unsafe needle sharing among injecting drug uses and Opioid substitution. National Drug Abuse Prevention and Control Programme in Myanmar has increased financial and programmatic support for Methadone Maintenance Therapy as an Opioid Substitution Therapy (OST), paralleling with Needle Syringes Exchange Programme (NSEP). Out of 83,000 estimated people who inject drugs, more than 12,500(15%) had taken methadone for Opioid substitution in 2017. Evaluation of methadone programme is vital for the efficient service delivery.

Methods: A cross-sectional study was conducted in five cities with stratified random sampling from all States/Regions of Myanmar, where methadone services delivered. A sample of 42 persons from each site with minimum 6-month duration on methadone, total 210 respondents were recruited to answer survey questionnaires relating to methadone profile, drug use history for 30 days and urine sample collection for methadone and illicit drug use detection (Morphine, Cannabis, Methamphetamine, Amphetamine, Benzodiazepam).

Results: Findings showed that 93 (44.5%) didn’t inject within 30 days and 116 (55.5%) admitted that they injected heroin. Those respondents had average methadone dose of 83 mg ranging from 20 to 300mg and reported HIV is 74 out of 200, 37% of who answered. An increase in methadone dose proved that reduced in the reported drug injection within 30 days especially among HIV negative respondents (P< 0.001) in Cox regression analysis. This finding is also consistent with less use of Morphine in the urine samples (P<0.034) and less use of Cannabis in the urine findings (P<0.032). However, there is association of methadone dose and Benzodiazepam in the urine (P<0.014).

Conclusions: High dose of methadone maintenance therapy more than 80mg is crucial in reducing of illicit drug injection among HIV negative individuals which can subsequently reduce the unsafe practice of sharing needle among injecting drug uses. The increased methadone dose can further prevent HIV transmission among people who inject drugs. This methadone evaluation finding from Myanmar will be useful for other similar settings where methadone is used for Opioid substitution world-wide.

TUAD0104
Reducing harm caused by drugs: HIV prevention among people who inject drugs in South Africa

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Background: The overall aim of the Global Fund (GF) prevention programme is to reduce the number of new HIV infections and further spread of HIV among people who inject drugs (PWID). This was necessitated by rapid escalation of injection drug use which coincided with synergistic rise in HIV prevalence. A 2013, UNODC study in major metropolitan cities to assess HIV prevalence and risk practices among PWID found that 1 in 6 (16%) PWID where HIV infected. National prevalence rate is estimated at 19%. When comparing PWID to people in the general population from similar socio-economic contexts (using race as a proxy), the HIV burden among PWID is between two and ten times higher. (Scheibe et al 2014)

Description: The programme is guided by WHO comprehensive package of services for PWID and utilises combination prevention methods that include behavioural, biomedical and structural interventions. Peer outreach workers act as a link to biomedical services and conduct community awareness around drug use. Key interventions include HIV Testing Services (HTS), Antiretroviral therapy (ART), Opioid Substitution Therapy (OST), and Needle and syringe programme (NSP). Of the WHO comprehensive package the GF programme doesn’t support diagnosis and treatment of Hepatitis C virus (HCV), a common occurrence among PWID due sharing of drug paraphernalia. A study by Semugona et al 2017 showed a 27% HCV positivity rate among men who have sex with men and injecting drugs in Cape Town. The programme is implemented in 4 cities, namely, Durban, Cape Town, Port Elizabeth and Johannesburg by Right to Care partners, Anova and TB HIV Care Association under Global Fund.

Lessons learned: Attainment of results was necessitated by stakeholder engagement in planning, community mapping, and implementation. From April 2016 to date the programme achieved the following. Programme Results

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Output</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWID reached with comprehensive prevention package</td>
<td>2,349</td>
<td>Harm reduction messaging, information, education and communication</td>
</tr>
<tr>
<td>PWID tested for HIV and know their status</td>
<td>2,410</td>
<td>Positively referred for onward management</td>
</tr>
<tr>
<td>PWID HIV+</td>
<td>449</td>
<td>Denotes 19% positivity rate</td>
</tr>
<tr>
<td>Needles and syringes distributed</td>
<td>542,634</td>
<td>To minimise sharing and re-use of needles</td>
</tr>
</tbody>
</table>

17
TUAD015
Combating the HIV epidemic among people who inject drugs in ground zero of the war on drugs - the Afghan experience

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Bridge Hope and Health Organisation, Programme Director, Kabul, Afghanistan

Background: Afghanistan is at a cross-roads; the country is emerging from more than twenty years of political and social unrest as the leading global producer of opium in a geographic region widely affected by drugs and HIV. The number of drug users in Afghanistan is growing and currently is estimated at between 1.3 and 1.6 million. Drug treatment capacity in Afghanistan still covers only 78 per cent of opium and heroin users. The community consultation identified the rapid increase in the use of methamphetamine and overall drug-related risks being compounded by low knowledge levels.

Description: Bridge was formed by people who use drugs in 2014, and over time PLHIV and other key populations have mobilised together under the Bridge banner. Bridge’s team of peer advocates and peer educators have skilled up to undertake a number of different activities including: Peer research
Peer education
Wound care management
Outreach
Multi and social media advocacy
High level advocacy

All this has been set against working in a very high risk context where people who use drugs face daily beatings, extortion, heavy criminalisation and the threat of being rounded up and forced in to a compulsory detox centre. The drug scene is also extremely volatile and only Bridge is able to identify failings in service provision from traditional providers including highlighting corruption, poor quality services and human rights abuses.

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

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

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

TUAD0201
The new AIDS denialism: How criminal courts’ dismissal of modern science perpetuates HIV stigma, discrimination and criminalisation

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HIV Justice Network, Brighton, United Kingdom

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

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

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

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

TUAD0202
Decriminalizing HIV: How people living with HIV translated quantitative research into community action and legislative transformation

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1L.A. HIV Law & Policy Project, Los Angeles, United States, 2UCLA School of Law, Los Angeles, United States, 3UCLA, Luskin School of Public Affairs, Los Angeles, United States, 4UCLA School of Law, Williams Institute, Los Angeles, United States

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

Description: Beginning in 2015, The Williams Institute and the California HIV/AIDS Policy Research Center issued findings from California state-wide data on the use of criminal laws targeting PLWH. The Los Angeles HIV Law and Policy Project and their collaborative partners trained and
engaged PLWH to present these data. Working in partnership with academic researchers, HIV-positive activists translated quantitative figures into compelling evidence demonstrating that HIV-specific laws were disparately enforced against HIV-positive women and people of color, especially those engaged in commercial sex work. At every step throughout the movement, the experiences of PLWH were centered not just in the data but also, and most importantly, in the voices of the HIV-positive leaders who shaped the movement.

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

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

TUAD0203

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

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1Gender and Sexual Health Initiative, Vancouver, Canada, 2University of British Columbia, Faculty of Medicine, Vancouver, Canada, 3Oak Tree Clinic, BC Women’s Hospital, Vancouver, Canada

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

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

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

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

TUAD0204

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

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Background: The criminalization of HIV non-disclosure continues to supersede human rights and public health imperatives in many settings globally. Canada stands out in its assertive approach to criminalizing HIV non-disclosure, despite recent recommendation by the Federal Government to limit prosecution of HIV non-disclosure cases. In some jurisdictions, such as Ontario, Canada, prosecutorial guidelines limiting prosecution to people living with HIV who do not have a sustained suppressed viral load for six months have been implemented. We examined factors correlated with not meeting this legal test of achieving sustained viral suppression for 6 months among women living with HIV (WLWH) in Vancouver, Canada.

Methods: Prospective data (2010-2016) were drawn from SHAWNA (Sexual health and HIV/AIDS, Women’s Longitudinal Needs Assessment). SHAWNA is a community-based participatory open cohort study with WLWH (cis and trans women) who access HIV services in Metro Vancouver; the cohort includes data linkages to comprehensive HIV clinical monitoring. Participants completed semi-annual interviewer administered questionnaires and visits with a study nurse. Multivariable logistic regression using generalized estimating equations (GEE) was used to prospectively model correlates of viral load suppression failure over a seven-year period.

Results: Of 277 WLWH (Median age 43) 61% would not meet the legal test of achieving sustained viral suppression for at least one six-month period over the seven year follow up. Over half of participants (58%) identified as Indigenous; 33% identified as White and 6% identified as African/Caribbean/Black. In multivariable GEE analyses, younger age (AOR:0.97 per year older, 95%CI:0.95-0.99), recent homelessness (AOR:1.89,95%CI:1.30-2.75), recent sex work (AOR:1.88,95% CI:1.38-2.55) and recent incarceration (AOR:2.71,95% CI:1.15-6.43) were correlated with increased odds of viral load suppression failure.

Conclusions: These findings highlight that approaches exempting people from criminal liability for HIV non-disclosure, conditional on maintaining an undetectable viral load for 6 months, continue to put a large proportion of WLWH in Canada at risk for criminal prosecution. Those at highest risk of prosecution are the most marginalized WLWH, including those who are younger, unmarried, unsteadily housed, sex workers and those who have been recently incarcerated. Further action to limit the criminalization of HIV non-disclosure is urgently needed.
**TUAD0205**

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

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**Background:** HIV infection has been on the increase among gays and other men who have sex with men (MSM) in Nigeria where same sex relationships are criminalised. Gays and MSM encounter legal barriers to access healthcare due to discrimination in healthcare facilities forcing many of them to go underground to save their faces, resulting in the spread of HIV/AIDS and STIs.

Again, organisations rendering services to this vulnerable groups reduced there publicity and stopped having group meetings but instead engaged in interpersonal one-on-one meetings with the target group for fear of being prosecuted under the Same Sex Marriage Prohibition Act (SSMPA) 2013, which prohibits same sex relationships including civil union/partnerships and even criminalises activities of organisations rendering any form of services to same sex persons in Nigeria, as provided in sections 4 and 5 of the Act.

**Methods:** The international Centre for Advocacy on Right to Health (ICARH) carried out documentation of cases of Human rights violations of LGBTI persons in ABRUA Nigeria from March 2011 till December 2017. ICARH also recorded data of Gays and MSM clients’ inflow in its clinic within the same period. A total of 160 of these clients were interviewed at the entry phase using a structured questionnaire. These data were analysed using both descriptive and inferential methods to arrive at the results shown below.

**Results:** ICARH recorded 160 cases of human rights violation from 2011 till date. These are denial of medical services, forced HIV test; disclosure of HIV status, wrongful termination of employment, arbitrary arrest. Of till date. These are: denial of medical services, forced HIV test, disclosure of results shown below.

**Conclusions:** Need for high level stakeholders advocacy on the effect of discriminatory laws against sexual minorities in the fight against HIV/AIDS.

**TUAD0302**

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

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**Background:** From 2004 to 2016, social care services for over 60,000 people living with HIV (PLHIV) in Ukraine have been funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GF) and other donors. State and regional budgets did not provide funding for social care services for PLHIV. As donor funding is projected to decrease drastically in 2020 according to the agreement between the GF and Ukrainian government, ways and mechanisms of funding of essential social services had to be developed and implemented to allow for domestic funds from state and regional budgets to substitute donor funds.

**Description:** In 2017, All-Ukrainian Network of PLHIV has designed a portfolio of interventions aimed at creating environment for regional budgets funding of social care services for PLHIV. Those interventions included development of regional policies to include funding for social services for PLHIV in regional targeted and integrated programs covered by regional budgets. This allowed development of mechanisms for direct purchases of social care services from regional NGOs through the system of electronic public procurement. The first group of services to benefit from this mechanism is social support for PLHIV.

**Lessons learned:** Proactive role of NGOs can ensure sustainability of vital social care services for PLHIV and implement the plan for the transition from donor funding to domestic regional funding. Direct purchasing is the optimal mechanism to be used by the government sector to procure social care services as it allows engaging NGOs.

In 2017, after new regional policies introduction, 10 regions allocated funding in amount of $126,423 for procurement of social care services for PLHIV in 7 regions is already allocated in 2018. Furthermore, approx. $143,857 in 8 regions are planned in 2018 as well.
TUAD0305
Assessing and overcoming human rights-related barriers to HIV in 20 countries

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Background: Stigma and discrimination, gender inequality and other human rights-related barriers continue to impede access to HIV services and attainment of global HIV goals. Despite UN member states’ commitments to support programs known to reduce these barriers, the programs have nowhere been sufficiently scaled up. A five-year initiative of the Global Fund to Fight AIDS, TB and Malaria aims to change this, first by assessing human rights-related barriers to HIV services and then supporting and evaluating the scale-up of evidence-based programs to reduce those barriers.

Description: An extensive consultation identified 20 countries for this effort - Benin, Botswana, Cameroon, Côte d’Ivoire, DR Congo, Ghana, Honduras, Indonesia, Jamaica, Kenya, Kyrgyzstan, Mozambique, Nepal, Philippines, Senegal, Sierra Leone, South Africa, Tunisia, Uganda and Ukraine. In each country, research teams assessed existing barriers to HIV services and effectiveness of programs to address them, but also what programs and interventions will be required over a five-year period to comprehensively address barriers. Retrospective costs of existing services were estimated, as were prospective costs of the proposed comprehensive response.

Lessons learned: Results of the assessments confirmed that human rights-related barriers continue to impede access to services for many. Few effective programs are being funded to address these barriers, undermining access to services and representing a serious gap in the HIV response. Even where laws and policies on the books seemingly protect key and vulnerable populations, practices by law enforcement agents and health care providers continue to subject people to discrimination and violence. There is an urgent need to significantly scale up UNAIDS’ seven key interventions to reduce stigma and discrimination and increase access to justice, which, when implemented strategically, will increase uptake of and retention in services. Substantially larger investment in these programs will be needed, but the expected benefits are great.

Conclusions/Next steps: Multi-stakeholder consultations in the 20 countries are finalizing five-year plans to scale up programs to reduce rights-related barriers to HIV services, with intensive evaluation and costing of programs over that period. The programmatic experience of this initiative will provide unprecedented, well-evaluated and soundly costed models for rights-based approaches to HIV services for years to come.

TUAD0304
Challenges in implementing domestic funding policies for HIV prevention for key populations

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Background: The policy of domestic funding for HIV prevention for key populations in Thailand aims to strengthen the national AIDS strategies for ending AIDS by 2030 by using RRTTR approaches. It began in the fiscal year of 2016. The fund allocates 200 million baht per year.

Description: In 2016, the domestic fund was mainly allocated to health care services nationwide though it intended to engage CSOs & NGOs in the response. The fund could not be given to CSO due to the limitations of the National Health Security Act. However, with the Article 44 of the National Council for Peace and Order (NCPO), CSOs were made eligible to access this fund to implement HIV prevention services in 2017. As it is the first year that the NHSO can directly signed contact with CSOs, there were many challenges and lessons learned in establishing a well-functioning system for the country. Through this process, all gaps and barriers were reflected to the policy makers as well as the recommendations for further improvement.

Conclusions/Next steps: The challenges of 2017 serve as good guidance for establishing a mechanism for domestic funding of HIV prevention initiatives. NHSO has developed a manual for implementing and managing the HIV Prevention Fund.

TUAD0303
Development of impactful advocacy arguments for domestic investments in HIV response among key population: Experience from EECA region

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Background: Donors funding for HIV in low and middle-income countries is decreasing, especially in EECA region. Governments are more likely to invest in HIV drugs procurement, than in prevention services. The following trends have been observed: funding for HIV programs was reduced, share of NGO-based services for key populations was decreased and overall, meaningful involvement of the communities was diminished. Disruptions in services became common. Role of communities to advocate for domestic funding is vast and information about arguments that work or fail in this process is important to multiply the effect.

Description: Based on the systematic analysis of case studies, experiences and data accumulated as a result of regional advocacy programs Eurasian Harm Reduction Association has developed a systematic approach to arguments used for national and sub-national advocacy. Each sub-group of arguments has different research data requirements and can be used to plan effective advocacy campaigns for domestic investment in HIV.

Lessons learned: Advocacy arguments and their impact for HIV investments can be grouped as following:
- Services for key populations as basic human rights: this argument in EECA does not work because of low political support to human rights values.
- Service funding gap and other cost estimation exercises: is often requested, but rarely used for public budgeting proposes, which are constructed using historical costing models. However, availability of arguments strengthened by budget/cost figures positively impacts the image of the community and gives them access to policy discussions of HIV program budgeting.
- International or donor requested commitments/conditionality for domestic funding: those prove to be effective only in case of strong watchdogging from local communities.
- Potential cost saving impact of prevention versus treatment: there is a limited local data to strengthen arguments, and health authorities are more favourable and trustful towards funding services in healthcare facilities (often publicly owned), rather than hard-to-measure prevention activities.

Conclusions/Next steps: Regional and national advocacy for sustainable HIV funding from domestic sources lacks not only capable and trained advocates, but also a systematic approach to advocacy argument and targeted evidence-collection.

Conclusions/Next steps: Interventions made by All-Ukrainian Network of PLHIV allowed creating environment for transition to sustainable funding of social care services for PLHIV through regional budgets. Final target is to cover 100% of regions of Ukraine and provide funds needed for social care services for PLHIV from state and regional budgets.
TUAD04 Time for transformation: Listening to trans voices

TUAD0401 Data, stories, advocacy, leadership: The positively trans approach

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

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

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

Conclusions/Next steps: The conversation in the United States on HIV in the past, a key step in bridge-building. There was an identification of the gaps in understanding of gender and sexuality reflected in the relevant LGBTQ/MSM vocabulary has become a dominant model shaping the global response to HIV. We often neglect other understandings of gender and sexuality that differ from this dominant model. Consequently, HIV programs do not adequately address the needs of individuals outside of the LGBTQ/MSM paradigm. Anthropological research explores the understanding of gender and sexuality in Tajikistan among people with situational gender and ‘sexual orientation’.

Methods: The study employed ethnography and historical analysis. The later was done through literature review of concepts of gender and sexuality in the Persian/Tajik culture and understanding of gender and sexuality based on a “gender/sexuality conflation model” (when gender is defined by the position in sex, rather than the biological sex). Unlike in the WE/NA “gay model”, an individual is not required to adhere to a solid inflexible gender and “sexual orientation” identity. People with variable gender find it difficult to decide which identity slot offered by the western vocabulary they should fit in. They are not “MSM” or “gay” as they often identify as women while having sex. They also don’t identify as “transgender women,” and in the conservative Tajik society, they prefer to stick to male social roles without manifesting their female selves. The identity problem messes up with sentinel surveillance/indicators, also based on the WE/NA vocabulary that people don’t understand.

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

TUAD0402 Addressing the needs of people with situational gender and ‘sexual orientation’ in Tajikistan by HIV services

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

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

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

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

TUAD0403 Breaking the wall: Transgender people and Islamic religious leaders

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

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

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

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

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

Conclusions/Next steps: The role of Islamic religious leaders towards the transgender community has been seen as unhelpful, however this can be transformed to a positive influence, as advocates to counteract stigma and discrimination.
TUAD0404
Progressive Botswana court affirms that legal recognition of gender identity is at core of human dignity - transgender persons are fully entitled to constitutional protection

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Background: For many transgender persons throughout Africa, obtaining an identity document that matches their expressed gender is virtually impossible. Without an identity document that reflects their gender, they are exposed to not only stigma and discrimination but ongoing distress when they are required to explain intimate details of their life to strangers to merely access routine services such as health care and treatment. However, the Botswana High Court recently took a significant step towards protecting the dignity of transgender people when it ordered the Registrar to change the gender marker on the identity document of a transgender man from female to male. The case also highlights advocacy and litigation strategies that LGBTI activists and their lawyers can use to assert their basic rights, even within the most criminalised environments.

Description: The case was brought before the courts after sustained advocacy and legal strategy by brave LGBTI activists, who publically sought the recognition of their constitutional and human rights. When meaningful engagement with the government of Botswana failed, a transgender man took his plight to the judiciary and has successfully sought to uphold the fundamental rights of LGBTI persons throughout the country.

Lessons learned: The Court acknowledged that recognition of a person’s gender identity constitutes the core of one’s sense of being and is an integral part of a person’s identity. Legal recognition of the gender identity is therefore part of the fundamental right to dignity and freedom to express oneself in a manner he or she feels comfortable with. The High Court emphasised that the State (and society) has a duty to respect and uphold the individual right to human dignity despite opposing and different views it might hold with regards to the applicant’s gender identity.

Conclusions/Next steps: This legal recognition is an important step towards the realisation of the fundamental rights of transgender persons. However, much more work needs to be done to ensure the respect and recognition of the fundamental rights of transgender people in Botswana, including providing access to adequate gender-affirming treatment and care and the implementation of non-discriminatory healthcare, HIV policies, and employment and education policies.

TUAD0405
Developing and pilot testing TRANScending love, a multi-methods arts based workshop with African, Caribbean and Black transgender women

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Background: Transgender women’s HIV vulnerabilities are shaped by contexts of social, economic and healthcare exclusion. In Canada, African, Caribbean and Black (ACB) women are also overrepresented in HIV infections; vulnerabilities are similarly shaped by social and structural inequities. There are a scarcity of HIV interventions developed by and for ACB transgender women in Canada who are at the nexus of ACB transgender women’s HIV disparities. We aimed to develop HIV intervention strategies with ACB transgender women in Toronto, Canada.

Description: This community-based study with an ACB AIDS service organization and ACB transgender women community leaders involved a focus group with ACB transgender women (n=8) to explore HIV prevention/care priorities. Findings were presented to a second focus group with ACB transgender community leaders (n=4) to brainstorm next steps. Focus group findings informed the development of the TRANScending Love (T-Love) arts-based workshop that included: 1) hand-held mirrors with glass markers to write messages of self-love, 2) anatomical drawings of hearts to write/draw emotional blocks and coping strategies, and 3) blank ‘you are loved’ affirmation cards to write messages to other ACB transgender women. We conducted 3 T-Love workshops with 18 ACB transgender women. Workshops were followed by a focus group to examine art products and processes. Focus groups were digitally recorded and transcribed verbatim, and analyzed using thematic analyses.

Lessons learned: The first focus group highlighted ACB transgender women’s priorities were not HIV: participants called for researchers to address transgender women’s lack of self-love produced by social and structural exclusion, and to move away from the focus on transgender women’s sexual practices and bodies. The 2nd focus group articulated the need for strengths and arts-based approaches to build self-love and acceptance. Workshop participants described T-Love as empowering in documenting journeys to self-acceptance, and also in building connections and solidarity with other ACB transgender women.

Conclusions/Next steps: Findings highlight the potential for arts-based approaches to foster dialogue and reflection on individual and collective strengths among transgender women. We produced a ‘deck’ of T-Love cards and disseminated these online and in community forums. Findings can inform in-depth, sustained arts-based engagement to build self-love and community with ACB transgender women.

\(\text{Figure 1. TRANScending Love Arts-Based Research with African, Caribbean and Black Trans Women.}\)
**TUAEO1 Taking testing to the next level**

**TUAEO101**

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

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Cameroon health system

**Background:** At scale provision of key services to persons living with HIV is challenging in low resource settings. Performance-based financing (PBF) is a complex health systems intervention aimed at improving coverage and quality of care. An impact evaluation was conducted in Cameroon seeking to isolate the role of specific components of the PBF approach on the delivery of three services at facility level: HIV testing, prevention of mother to child transmission and antiretroviral delivery.

**Methods:** The evaluation used a cluster random design at the health facility level to separate the different components of the PBF approach. Facilities were randomly allocated in four evaluation groups to measure the effects of each component. Facilities in group T1 implemented the full PBF package: payments linked to results (quantity and quality of services) including bonus for health workers, management autonomy, enhanced supervision and monitoring. Facilities assigned to group C1 received a fixed per capita budgetary supplement that matches the per capita budgetary allocation for T1 facilities, but was not linked to performance. C2 facilities received no additional resources but the same supervision and monitoring as T1 and C1 facilities. C3 facilities were the ‘business as usual’ facilities and did not receive any additional resources or inputs. Facility register data documenting facility provision of HIV-related services was collected during a baseline and endline surveys and analyzed.

**Results:** We found large and statistically significant effects of both PBF and additional financing on HIV testing. An average of 61 more patients (p<0.01) were tested for HIV in PBF facilities than control facilities, and 51 more patients (p<0.01) were tested monthly in the additional financing arm compared to the control. There was very little change in HIV testing in the additional supervision group, and the effect of PBF was greater than the effect of additional supervision (p<0.01). However, we found no impacts on PMTCT and ART provision.

**Conclusions:** PBF increased the delivery of HIV testing. A similar improvement was however measured in the additional financing group, suggesting that the complex PBF mechanism might not necessarily add value, even though the comparison between both interventions is delicate.

**TUAEO102**

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


**Background:** Point-of-care early infant diagnosis (POC-EID) may improve the care of HIV-exposed infants compared to conventional testing. POC-EID is being implemented in eight sub-Saharan African countries at POC (“testing”) and near-POC (“spoke”) sites. A program evaluation was undertaken to assess the impact of POC- or near POC-EID implemented as part of routine care, compared with conventional testing.

**Methods:** Using a pre-post intervention design, key EID outcomes were compared in each country. Pre-intervention conventional EID data were collected retrospectively from registers across a purposively sampled sub-set of sites. Post-intervention data for specimens processed between December 2016 and December 2017 were collected prospective-ly using a POC-EID testing form. Median turnaround times (TATs) were compared using Wilcoxon rank-sum test, and proportions with Pearson chi-square test. Kaplan-Meier Estimator was used for the proportion of caregivers who received results within 30 days of sample collection. Prospective data were analyzed by entry point and compared between testing/hub and spoke sites. The cost per test result returned was calculated using Global Fund’s total cost of ownership estimates for POC and conventional EID.

**Results:** POC-EID resulted in a significantly higher percentage of results returned to caregiver and percentage of infants started on treatment sooner, as compared to conventional EID (Table 1). There were no significant differences in percent results returned between testing and spoke sites (Figure 1).

<table>
<thead>
<tr>
<th></th>
<th>Conventional EID</th>
<th>POC-EID</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Results received by caregiver within 30 days</td>
<td>21.18%</td>
<td>99.13%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Median TAT from blood sample collection to result returned to caregiver (IQR: 31-76)</td>
<td>55 days</td>
<td>0 days</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>% HIV-infected infants started on treatment</td>
<td>67.33%</td>
<td>90.6%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Median TAT from result returned to caregiver to ART initiation for HIV-infected infants (IQR: 0-4.5)</td>
<td>0 days</td>
<td>0 days</td>
<td>NS</td>
</tr>
<tr>
<td>Median TAT from blood sample collection to ART initiation for HIV-infected infants (IQR: 32-68)</td>
<td>49.5 days</td>
<td>0 days</td>
<td>p&lt;0.001</td>
</tr>
</tbody>
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(Table 1: Comparing conventional and POC EID on primary service delivery outcomes)

![Figure 1: Distribution of POC in testing/hub and spoke sites by median turnaround time from sample collection to results received by caregivers](image-url)
Valid, non- confirmatory tests from different entry points revealed 3.2%, 19.6%, 15.5%, and 2.5% HIV-positivity rates from prevention of mother-to-child transmission entry points, pediatric inpatient, outpatient, and vaccination clinics, respectively. The cost per test result returned regardless of TAT was $20-38 for POC and $21-33 for conventional.

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

TUAEO103
Improving technical efficiency: Reaching first 90 through community index HIV sexual network testing in Zimbabwe. The case of FHI 360 Zimbabwe

A. Muchedzi1, N. Mahachi1, T. Mugai1, T. Tafuma1, P. Mawora3, D. Harbick1, T. Nyagura1, K. Reichert1

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

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

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

Conclusions/Next steps: FHI360 achieves and sustains a high yield among individuals tested for HIV using the community HIV-index-testing model. This model is reaching people living with HIV who would not ordinarily access HIV testing services (HTS) from the conventional health facility HTS modalities. By going into the community, FHI360 is identi-
**Results:** There was a strong relationship between the cost-of-testing-per-new-HIV-diagnosis and the ICER illustrated for testing programmes in men in Table. In general, the ICER was below US$500 per DALY averted so long as the cost-of-testing-per-new-HIV-diagnosis was below US$151. Results were similar when we restricted to setting scenarios with specific epidemic and programmatic features, such as prevalence of undiagnosed HIV. Incidence and the proportion of HIV diagnosed people with viral suppression. When the testing programme was restricted to testing in women beyond the core testing this was not cost effective. However, for over 50% of setting scenarios testing programmes in men were cost-effective when the cost-of-testing-per-new-HIV-diagnosis was < US$585 (and 80%) when the cost-of-testing-per-new-HIV-diagnosis = < US$321 regardless of unit cost of testing.

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

### TUA0105

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

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

**Methods:** A cluster randomized trial was conducted at 15 health facilities in Central/Southern Malawi between September 2017-January 2018. Facilities were randomized 3:1:

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

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

**Results:** 5,675 outpatients completed an exit survey. There were no differences by arm (Table). 52% of outpatients in the HIVST arm tested for HIV compared to 14% in Optimized PITC (AOR:6.66 p<0.001) and 12% in PITC (AOR:7.6 p<0.001). For HIVST, 60% of outpatients in need of testing (defined as tested>12 months ago and never tested HIV-positive) were tested compared to 18% in Optimized PITC and 16% in PITC. There was no significant difference in the proportion of clients tested who reported previously testing HIV-positive (± 1% for all arms). Positive rates did not differ by arm; however, HIVST was associated with a higher absolute number of new positives identified compared to Optimized PITC (AOR:2.9, p<0.01) and PITC (AOR:4.1, p<0.001). Participants who were tested by HIVST were more likely to want to test again using the same method to a friend. No adverse events were reported in the HIVST arm.

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

<table>
<thead>
<tr>
<th>Arm 1: PITC</th>
<th>Arm 2: Optimized PITC</th>
<th>Arm 3: HIVST</th>
<th>Adjusted Odds Ratio* (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>Method</td>
<td>Method</td>
<td></td>
</tr>
<tr>
<td>Tested</td>
<td>Tested</td>
<td>Tested</td>
<td></td>
</tr>
<tr>
<td>HIV+</td>
<td>HIV+</td>
<td>HIV+</td>
<td></td>
</tr>
<tr>
<td>&gt;2 partners in past 12 months</td>
<td>&gt;2 partners in past 12 months</td>
<td>&gt;2 partners in past 12 months</td>
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<tr>
<td>Would test again using the same method</td>
<td>Would test again using the same method</td>
<td>Would test again using the same method</td>
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<tr>
<td>Coercion to test</td>
<td>Coercion to test</td>
<td>Coercion to test</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

*models adjust for: sex, age, age-squared, currently married, and number of years of school completed

(Table. Participant characteristics and outcomes across three arms of a HIVST study targeting outpatient clients (n=5,675))
TUESDAY 24 JULY

Poster Discussions

TUPDA01

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

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Background: Some HIV-1 infected individuals durably control viremia after interruption of early ART (post-treatment controllers, PTC). The mechanisms associated with this phenomenon are unclear. Prevalence of HLA-B*35, associated with rapid progression without therapy, is high among PTC in the VISCONTI study. In contrast, HLA-B*27/57 alleles, associated with HIV-control, are not overrepresented in PTC. We investigated the association between HLA-B*35 and HIV remission.

Methods: CD4+ T-cell counts, plasma viral loads, PBMC-associated HIV-DNA levels were analysed in 245 HIV-infected individuals from the ANRS PRIMO cohort, on ART for at least 12 months since primary infection. HLA and KIR genotyping and NK cell analyses were done in PTC (n=10) from the ANRS VISCONTI study. Results were compared to HIV-infected (viremic, on cART, HIV-controllers) and non-infected individuals.

Results: In the PRIMO cohort, despite similar time since infection, HLA-B*35 individuals (B35, n=64) had lower CD4+ T-cell counts (median 398 cells/mm3, p=0.04) and higher HIV-DNA levels (median 3.53 log10 HIV-DNA copies/million PBMC, p=0.06) than HLA-B*27/57/B27/B57/B27/57/n=21, 543 cells/mm3 and 2.88 log10 HIV-DNA copies/individuals or those carrying other HLA (others, n=165, 481 cells/mm3 and 3.44 log10 HIV-DNA copies) at the time of treatment initiation. A after similar period on ART (~5 years) the only difference was B27/57 having lower HIV-DNA levels (median < 17 log10, vs 2.5 and 2.3 for B35 and others, p=0.01). Among those interrupting the treatment, B35 were more likely to maintain viral control than B27/57 or others (p=0.01). B35 who controlled HIV carried more frequently KIR ligands Bw4 or C2/C2 (p=0.04) than B35 not controllers (p=0.3). In the VISCONTI study, PTC also carried often the Bw4 epitope (p=0.35 vs 0.44 in non-infected controls, p=0.02) and had high prevalence of the KIR B haplotype (p=0.06 vs 0.4). Phenotypical differences and increased anti-HIV activity of NK cells were observed in PTC compared to other HIV-infected individuals (p=0.01).

Conclusions: Our results suggest that HLA-B*35 might favour post-treatment control, despite unfavourable primary HIV-infection, in some early treated individuals. This might be associated with the presence of KIR Bw4 and C2 ligands in the MHC of PTC. enrichment of KIR B genotype and optimal licensing of NK cells.

TUPDA0102

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

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Background: The effect of direct acting antiviral (DAA) agents for hepatitis C virus (HCV) on the HIV reservoir in co-infected individuals is not completely understood. We hypothesized that cure of HCV would reduce persistent interferon (IFN) signaling and would have downstream effects on the frequency of infected cells and their basal transcriptional activity.

Methods: Nineteen HIV/HCV coinfection individuals on suppressive ART were treated for HCV with sofosbuvir/daclatasvir/ribavirine (12-24 weeks). Blood samples were obtained at enrollment, immediately before HCV treatment (baseline sample, BSL) and at end-of-treatment (EOT) for HCV. HIV-monoinfected individuals on at least one year of ART were included as controls. Cell-associated HIV DNA (total, integrated, 2LTR) and unspliced (US) and multiply spliced (MS) RNA were quantified by real-time PCR. Data was analyzed using non-parametric statistics.

Results: In the HIV/HCV coinfected group, 75% were male (mean age=49±5 years old). The mean times of HIV and HCV diagnosis were 16.2±4.8 and 13.1±3.7 years, respectively. Median CD4+ T-cell count at enrollment was 291 cells/µL (IQR 231-779). All were under cART and were not taken into account in the baseline sample (BSL) and at end of treatment (EOT). HIV/HCV mono-infected individuals had higher US HIV RNA at BSL (p=0.09) and EOT samples (p=0.005), compared to HIV only individuals. There were no statistically significant differences in HIV MS RNA, 2LTRs or total and integrated HIV DNA between EOT and BL or between HIV/HCV and HIV only individuals at EOT. Compared to BSL, HIV/HCV subjects had significantly higher CD4+CD8 ratios (0.42 (IQR 0.29-0.71) versus 0.50 (IQR 0.31-0.70), p=0.02). This was a result of an increase in CD4+ T-cells but minimal change in CD8+ T-cell counts.

Conclusions: HIV/HCV individuals showed higher levels of HIV unspliced-RNA than HIV mono-infected individuals and this difference was even greater after HCV clearance with DAAs. Thus, HIV clearance, or related downstream effects impact HIV persistence on ART. These changes are consistent with reduced basal transcription in latently infected cells post-HCV clearance which could be secondary to reduction in chronic IFN signaling.

TUPDA0103

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

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Background: One of the main barrier to designing therapeutic strategies aimed at targeting HIV persistence is our incomplete knowledge of the mechanisms regulating the establishment and maintenance of the HIV reservoir, as well as the lack of biomarkers able to predict its size. Interleukin 110 is a critical component of the anti-inflammatory responses required to damp the pro-inflammatory responses acti-
vated by the immune system after an encounter with a pathogen. IL-10 signaling reduces antigen presentation and increases T cell anergy, and IL-10 deficiency in mice prevented the persistence of pathogens normally inducing chronic infections. We hypothesized that IL-10 can lead to a status of immunosenescence and favor viral persistence.

**Methods:** Fifteen RMs were infected with SIVmac239 and started on cART at day 58 post-infection. cART was maintained for 7 months. Blood, lymph node (LN), and rectal biopsy (RB) were collected longitudinally for flow cytometric and DNAscope analyses. SIV-DNA content was quantified in CD4 T cell subsets, including Tfh. RNaseq analyses were performed on PBMCs.

**Results:** IL-10 in vitro stimulation significantly upregulated pathways involved in HIV persistence, including the expression of pSTAT3, PD-1 and CTLA4, and histone deacetylases. In vivo, IL-10 levels (plasma and LN) and IL-10 stimulated genes increase upon SIV infection and do not fully normalize with ART (p<0.05). III) before ART, IL-10 and IL-10 stimulated genes levels significantly correlated with multiple markers of disease progression as well as the frequency of CD4 T-cells harboring SIV-DNA in blood, LN (including Tfh cells), and gut (p<0.01). III) IL-10 levels and IL-10 stimulated genes at pre-ART predict the frequency of LN CD4+ T cells (p<0.0002) and SIV-DNA content in blood CD4 T cells (p<0.018) and in RB (p<0.038) at ten months of ART. Finally, among LN follicular SIV+ DNA, those IL-10+ were more stable between the pre-ART and at ART time points than their IL-10 negative counterpart, resulting in 85% of SIV-DNA+ cells being IL-10+ on-ART (p<0.005).

**Conclusions:** Altogether, our data highlight IL-10 signaling as a mechanism of and a biomarker for viral persistence in ART-treated, SIV-infected individuals. IL-10 stimulated genes at pre-ART predict the frequency of LN CD4+ Tfh cells, those IL-10+ on-ART (p=0.0095).

**TUPDA0104**

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


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**Background:** B cells follicles are considered a site of ongoing viral replication during treated HIV infection due to the exclusion of cytopsotic CDB T-cells. Recent work has demonstrated that follicular cytotoxic (CXCR5+CD8+) T-cells have the ability to migrate to B cell follicles and are important for HIV control. We investigate the frequency and phenotype of CXCR5+CD8 T-cells in gut-associated lymphoid tissue (GALT) during treated primary HIV infection (PHI) and examine the association with HIV reservoir.

**Methods:** Gut biopsy samples from terminal ileum (TI) and rectum were collected from HIV+ virally suppressed individuals enrolled in HEATHER, an observational study of treated PHI. Comparisons were made with biopsies from healthy controls (HC). Expression of CD4, CD8, CXCR5, PD-1, HLA-DR, CD28, perforin, Granzyme B and Bcl-6 were assessed on gut and peripheral blood mononuclear cells (PBMC) cells by flow cytometry. Total HIV DNA was quantified by qPCR.

**Results:** GALT samples were analyzed from 21 HIV+ and 8 HC individuals. Longitudinal (baseline & 1-year) biopsies on ART were available for 10 individuals. CXCR5+CD8+ T-cells are found at significantly higher frequency in GALT compared to peripheral blood (mean 9.5% [IQR: 7.5-14.5%] vs. 2.1% [IQR: 1.2-2.9%] respectively, p<0.01). The frequency of CD8+CXCR5- T-cells was similar in HIV- and HC GALT (TI = 0.076; rectum p=0.06). In the HIV+ group, no change in CXCR5+CD8+ T-cells in GALT was noted between baseline and 1-year. Higher frequency of CXCR5+CD8+ T-cells was observed in rectal tissue compared to TI (p<0.06). An inverse correlation between the frequency of CXCR5+CD8+ T-cells and HIV-1 DNA was observed in TI (r=-0.6, p=0.01) and not in the rectum (r=-0.03, p=0.98). CXCR5+CD8- T-cell percentage correlated with CD4/CD8 ratio (0.008, p=0.001). Rectum r=0.5, p=0.03) & T-follicular helper cell frequency (TI r=0.5, p=0.03; rectum r=0.5, p=0.02). Higher expression of Bcl-6, Perforin (p<0.001), Granzyme B (p<0.0001), HLA-DR (p<0.0003) and PD-1 (p<0.0001) was observed on CXCR5+CD8+ compared to CXCR5-CD8- T-cells in HIV+ GALT.

**Conclusions:** Follicular CDB+ T-cells in HIV+ GALT persist on ART, exhibit greater cytotoxic potential than CXCR5-CD8- T-cells and may have a role in limiting HIV reservoir in terminal ileum during treated PHI.

**TUPDA0105**

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


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**Background:** HIV latency is the main barrier to cure. But our knowledge of the genetic landscape of latent HIV genomes, particularly in immune-privileged sites, remains incomplete. Knowing that the testes constitute such a site, we characterize latent HIV diversity in testes and blood in HIV-infected individuals with suppressed viremia on cART.

**Methods:** PBMC and right/left testicular tissue samples were collected from 8 adults undergoing sex reassignment surgery who had maintained virola suppression on cART for >6 months. HIV proviral Nef sequences were obtained via single-genome amplification. Phylogenies were reconstructed by maximum-likelihood (RAxML, GTR substitution model). PBMC HIV DNA levels were measured by qPCR. HIV adaptation to host HLA (determined via sequence-based typing) was inferred bioinformatically. Genetic compartmentalization was assessed using Wright’s measure of population subdivision (Fst) and Slatkin-Maddison (ISM) tests.

**Results:** 377 Nef sequences were isolated from PBMC (n=230) and testes (n=147), of these 212/235 (92.0%) and 133/142 (93.7%) were intact/non-hypermutated (median 24 [IQR 21-33] PBMC and 8 [IQR 4-37] testis sequences/participant). Within-host proviral diversity varied markedly (median within-host patristic distance 2.05e-06 [IQR 8.3e-05-5.43e-06] substitutions/site), and total HIV DNA correlated with proviral diversity in
PBMCs (Spearman rho 0.77, p = 0.2). In some participants a single HIV variant dominated, while others harbored predominantly unique sequences. Proviral diversity in PBMCs generally exceeded that in testis, but not significantly so (median within-host pairwise distance 1.56e - 2 vs. 1.26e - 2 respectively, p = 0.4); inferred HIV immune escape burden was also consistently higher in PBMCs. Both FST and SM tests identified 4 of 8 participants as having significant HIV genetic compartmentalization between blood and testis (FST, scores 0.89, 0.67, 0.29 and 0.22; all p < 0.05; SM all p < 0.05).

Conclusions: Latent HIV diversity varies widely between individuals; larger reservoirs tend to be more diverse. Detection of identical HIV sequences in blood and testis is consistent with migration of clonally-expanded reservoirs, suggesting that latent HIV-infected cells throughout the body, including into immune-privileged sites. Detection of significant genetic compartmentalization between blood and testis in 50% of participants underscores the complexity of the proviral HIV landscape on cART, yet suggests that, at least in some individuals, blood proviral diversity may not be unrepresentative of overall reservoir diversity.

TUPDB01 Neuro HIV: Cognition, complications and ART toxicity

TUPDB0101 Persistent immune activation and depression in rural Ugandans initiating antiretroviral therapy

J. Chang1,2, N. Musinguzi3, A. Tsai3,5, C. Mutoona1, M. Bwana1, Y. Boun1, R. Tracy1, J. Martin1, J. Haberer1,2,6,10, D. Bangsberg11, P. Hunt12, M. Siedner1,6,13

Background: Decreases in kynurenine/tryptophan (K/T) ratio have been associated with decreases in depressive symptoms after initiation of antiretroviral therapy (ART); however, the relationship between depression and other markers of immune activation in persons with HIV (PWH) is less clear.

Methods: We analyzed data from 393 adult PWH in rural Uganda who were enrolled at ART initiation and observed every 3-4 months from 2005-2015. Our exposures of interest were change in levels of soluble CD4, soluble CD14 (sCD14), K/T ratio, soluble CD163 (sCD163), D-dimer, and interleukin-6 (IL-6) from before to six months after ART initiation. Our outcome of interest was probable depression, defined by a mean score >1.75 on the Hopkins Symptom Checklist depression subscale. We fit modified Poisson regression models and generalized estimating equations (GEE) Poisson regression models with cluster-correlated robust standard errors to respectively examine the relationship between: 1) pre-ART inflammatory marker levels and depression, and 2) 6-month change in marker levels and depression at follow-up visits within two years of ART initiation. Models were adjusted for pre-ART depression, year of ART initiation, and tuberculosis co-infection; and time-varying demographic and other markers of immune activation in persons with HIV (PWH) is less clear.

Results: There were no statistically significant associations between levels of inflammatory markers and depression in the pre-ART period. However, in multivariable-adjusted GEE regression models, larger decreases in sCD14 and K/T ratio from pre-ART to 6-months post-ART were associated with decreased risk of depression (Table, Figure). These associations remained qualitatively similar when additionally adjusted for 6-month change in the level of the other marker and when restricted to follow-up visits where the participant was virally suppressed. We estimated no statistically significant associations between sCD163, D-dimer, or IL-6 and risk of depression.

Conclusions: Greater decreases in sCD14 and K/T ratio after ART initiation were independently associated with decreased risk of depression. This may suggest independent sCD14 and K/T-mediated pathways leading to depression in PWH and may be targets of future intervention.

TUPDB0102 Variables associated with neuropsychiatric symptoms in PLWH receiving dolutegravir based therapy in phase III clinical trials

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Background: Analysis of phIII clinical trials for DTG concluded that NPs result in higher rates of discontinuation among DTG users. Potential factors associated with discontinuations due to NPs reported in some cohorts include ABC co-administration, older age and female gender. We performed a meta-analysis to assess variables associated with NPs, and explored whether insomnia was associated with subsequent NPs.

Methods: Studies included: SPRING-2, SINGLE, FLAMINGO, ARIA, SAILING. NPs included Insomnia, anxiety, depression, suicidality, nightmares/abnormal dreams, headache. Exposure adjusted incidence of NPs was calculated from frequencies of reported adverse events (AEs); 95% CIs are based on exact binomial 2-sided CIs. Poisson mixed effects meta-regression models were used to conduct two analyses of pre-specified variables in a backward selection on the incidence rate of AEs in patients treated with (A) DTG (N=1,672) versus nonDTG (N = 1,681)
B) DTG+ABC (n=943) vs DTG+nonABC (n=729). Significance level was 10%. Insomnia as a precursor to other NPs was analyzed descriptively.

Results: Identified variables associated with NPs are shown in the figure. Overall, adjusted estimates (SE) for NPs rates per 1,000 person years were 5.26 (0.068) with DTG versus 5.21 (0.07) with non-DTG (aRR 1.05 [95%CI 0.9, 1.21, p=0.55]), and 5.4 (0.27) with DTG+ABC versus 5.3 (0.08) with DTG+nonABC (aRR 1.1 [95%CI 0.89, 1.37, p=0.37]). Descriptive analyses of first insomnia events and subsequent non-insomnia events are in the table. First insomnia events with subsequent non-insomnia NPs occurred infrequently (0.2%), with higher rates of first occurrence of non-insomnia NPs (23%).

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

**Table 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>DTG (n=1,681)</th>
<th>nonDTG (n=1,672)</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients without NPs</td>
<td>1,242 (74.3%)</td>
<td>1,273 (75.7%)</td>
<td>-1.45 (-2.4, -1.5)</td>
</tr>
<tr>
<td>First insomnia event with non-insomnia NPs</td>
<td>37 (2.2%)</td>
<td>25 (1.5%)</td>
<td>0.73 (-0.2, 1.6)</td>
</tr>
<tr>
<td>Non-insomnia NPs without prior insomnia event</td>
<td>384 (23.0%)</td>
<td>378 (22.5%)</td>
<td>0.48 (-2.4, 3.3)</td>
</tr>
<tr>
<td>Only one NPs event</td>
<td>310 (18.5%)</td>
<td>278 (16.5%)</td>
<td>2.00 (-0.6, 4.6)</td>
</tr>
</tbody>
</table>

**TUPDB0103**

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

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

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

Results: Forty-six HIV+ children (24 ART-interrupted - interruption age (median ± IQR: -49.14 ± 36.18 weeks), ART initiation - median ± IQR: 9.14 ± 2.93 weeks, 22 ART-uninterrupted, ART initiation - median ± IQR: -11.86 ± 22.14 weeks) and 18 age-matched uninfected controls (9 boys) (age: mean ± std. = 5.58 ± 0.31 years) were included. HIV+ children showed thicker cortex than controls in bilateral superior parietal and left superior frontal regions. ATI who restarted when CD4% < 25% or CDC severe Stage B and children on continuous ART showed lower gyration than continuous therapy in bilateral superior parietal and left occipital cortical regions (figure 1). Antiretroviral therapy interruption in HIV-infected children and adolescents may affect the development of cortical structures, leading to parietal gyration decrease and occipital cortical thinning at age 5 years. The neuropsychological implications of these effects in HIV+ children requires further investigation.
performed in FSL using a general linear model (GLM) with gender, age and ethnicity as confounders. Axial diffusivity (AD), and radial diffusivity (RD) were extracted for each subject in surviving clusters (threshold \( p_{\text{FDR}}<0.005 \) and \( p_{\text{FDR}}<0.001 \) and compared between groups using a student’s t-test.

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

**Notes:**

In the Children with HIV Early Antiretroviral therapy (CHER) substudy, we reported persistent WM abnormalities in the corticospinal tract (CST), inferior fronto-occipital fasciculus (IFOF), inferior/superior longitudinal fasciculus (ILF/SLF), anterior thalamic radiation (ATR). Corresponding cluster sizes can be found in Table 1. Clusters are shown overlaid on masks of the corresponding WM tracts (JHU White-Matter Tractography Atlas). Peak cluster coordinates are at the base of each image.

### Table 1

<table>
<thead>
<tr>
<th>Cluster location</th>
<th>Size (mm³)</th>
<th>FA</th>
<th>AD</th>
<th>RD</th>
<th>HIV-</th>
<th>HIV+</th>
<th>p</th>
<th>HIV-</th>
<th>HIV+</th>
<th>p</th>
<th>p &lt; 0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corticospinal Tract (L)</td>
<td>528</td>
<td>0.490 (0.095)</td>
<td>0.405 (0.100)</td>
<td>1.023 (0.086)</td>
<td>1.001 (0.106)</td>
<td>0.315</td>
<td>0.488 (0.067)</td>
<td>0.527 (0.113)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corticospinal Tract (R)</td>
<td>424</td>
<td>0.409 (0.080)</td>
<td>0.340 (0.068)</td>
<td>0.984 (0.071)</td>
<td>0.982 (0.081)</td>
<td>0.482</td>
<td>0.517 (0.066)</td>
<td>0.594 (0.086)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corpus Callosum</td>
<td>384</td>
<td>0.613 (0.130)</td>
<td>0.487 (0.156)</td>
<td>1.345 (0.114)</td>
<td>1.258 (0.119)</td>
<td>0.001</td>
<td>0.423 (0.113)</td>
<td>0.536 (0.140)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inferior fronto-occipital fasciculus (R)</td>
<td>336</td>
<td>0.289 (0.093)</td>
<td>0.224 (0.061)</td>
<td>1.033 (0.094)</td>
<td>0.975 (0.065)</td>
<td>0.005</td>
<td>0.651 (0.058)</td>
<td>0.694 (0.047)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corticospinal Tract (L)</td>
<td>320</td>
<td>0.552 (0.059)</td>
<td>0.486 (0.075)</td>
<td>1.211 (0.065)</td>
<td>1.177 (0.078)</td>
<td>0.013</td>
<td>0.457 (0.043)</td>
<td>0.508 (0.046)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inferior fronto-occipital fasciculus (R)</td>
<td>248</td>
<td>0.356 (0.115)</td>
<td>0.269 (0.110)</td>
<td>1.003 (0.104)</td>
<td>0.970 (0.086)</td>
<td>0.109</td>
<td>0.579 (0.091)</td>
<td>0.648 (0.100)</td>
<td>0.001</td>
<td></td>
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</tr>
</tbody>
</table>

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

**TUPDB0105**

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

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

**Methods:** Participants are 51 HIV+ and 36 HIV- children (42 females; mean age:sd: 9.1±0.4; 11 Cape Coloured/75 Xhosa) scanned in Cape Town, South Africa on a 3T Siemens Skyra MRI scanner (Erlangen, Germany).

Structural T1-weighted images and two DWI sets with opposite phase encodings were acquired. Data were processed using TORTOISE (version 3.1) and AFNI. Voxelwise group comparison of FA and MD were
TUPDB0106
Longitudinal neurocognitive performance in HIV infected individuals in rural Uganda


Background: Neurocognitive impairment in HIV+ individuals remains prevalent despite effective antiretroviral therapy (ART). There is limited data on longitudinal neurocognitive performance in HIV+ individuals in rural Sub-Saharan Africa. By implementing neurocognitive exams for both HIV+ and HIV- individuals, we can establish normative data and monitor neurocognitive function in HIV+ persons in an ongoing study in rural Rakai District, Uganda.

Methods: Participants were enrolled in the Rakai Community Cohort Study (400 HIV-, 400 HIV+ ART naïve). Personnel were trained to administer standardized neurological and neuropsychological assessments, and participants were stratified by demographic features (age, education, and gender). The HIV+ participants initiated on ART had a follow-up exam to assess neurological function over time.

Results: At baseline there was a significant difference in neurocognitive performance between HIV - total z score M = 0.1, SD 5.0 and HIV + (M -0.26, SD 7.2, p< 0.001). The 333 HIV+ participants who returned for a follow-up exam after two years had a mean age of 37.4 years (SD 8.6), education of 5.5 years (SD 3.3), and 42% were women. There was a significant improvement in the total neurocognitive performance of the HIV+ participants initiated on ART within the two year follow-up period (F (1,332) - 9.88, p < 0.005, mean time1 - >23; time 2 - >16). There was improved performance in the neurocognitive domains of Fine motor Learning, and Memory (p< 0.0001) with no change in Executive functioning, Gross motor, or Speed of processing. The improvement in the domains of Fluency and Attention decreased (p< 0.008) Overall neurocognitive test deficits (c 1 SD) improved over time (F (1, 332) = 26.86, p < 0.001; times1 - 3.03, times2= 2.39).

Conclusions: Over the course of 2 years on ART, HIV+ participants in this rural, resource limited cohort showed an overall improvement in neurocognitive performance. While there were substantial improvements in learning, memory, and fine motor abilities, there was not the expected improvement in executive functioning, gross motor, speed, fluency, and attention. Overall, neurocognitive test deficits significantly improved over time and warrant further follow-up.
TUPDC0101 Mortality differences after ART initiation in HIV-positive women from Europe, the Americas and sub-Saharan Africa 2000-2014

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

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

Results: A total of 150,175 women (16% Eur, 47% EAf, 13% WAf, 13% SAf, 1% 5Am, 3% NAm and 2% CAmCRB) were included. Median age at ART initiation ranged from 33 years in SAf to 40 years in NAm. The proportion of injecting drug users was highest in NAm (18%) and Eur (7%). Only 16% of the women in NAm were of white ethnicity, while 63% and 17% were Black and Hispanic, respectively. Ethnicity data were available for 45% of European women, 26% of whom were Black, largely migrants. Median CD4 count at ART initiation was close to 250 cells/mm³ in Eur and NAm, 141 cells/mm³ in SAf and 170-190 cells/mm³ in other regions. Crude mortality rates and adjusted mortality rate ratios are presented in the figure and table, respectively.

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

TUPDC0102 High mortality among women living with HIV enrolled in Canada’s largest community-based cohort study

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

Methods: CHIWOS is Canada’s largest community-based study enrolling women with HIV (trans inclusive; >16y) across British Columbia, Ontario, and Quebec. Participants complete a peer-administered baseline survey (2013-2015), with 18-month (Wave-2: 2015-2017), and 36-month (Wave-3: 2017-ongoing) follow-up. Among 1,422 women enrolled and followed until December 1st, 2017, we determined incidence and mortality differences after ART initiation in HIV-positive women worldwide.

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

Results: Median age was 42.5 (IQR:35-50); 4.4% identified as trans, and 22.4% Indigenous. 29.4% African/Caribbean/Black, and 41.1% white. Most women were engaged in HIV medical care (97.4%) and on ART (82.6%). 54 women died (crude mortality rate=11.8 per 1,000 woman-years; 95% CI:9.0-15.3). The age-standardized mortality rate was 4.54 times higher (95%CI: 3.33-5.76) than the general female Canadian population. Primary cause of death was unknown for most women (67%), followed by co-morbidities including cancer and cardiovascular disease (15%), drug/alcohol use (12%), and HIV-related opportunistic infections (6%). Baseline factors significantly (p<0.05) associated with mortality included older age, personal annual income< $20,000, illicit drug use, hazardous alcohol use, tobacco use, sex work, incarceration, depression, violence, and poorer physical health-related-quality-of-life. Independent predictors of age-adjusted mortality included hazardous alcohol use (aHR 4.62, 95% CI:1.66-12.8), current tobacco use (aHR 3.93, 95% CI:1.45-10.7), and depression (aHR 1.95, 95% CI:0.97-3.92). HIV treatment factors (i.e., ART use, VL, CD4) were not predictive of mortality.

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

<table>
<thead>
<tr>
<th>Duration on ART (months)</th>
<th>East Africa</th>
<th>West Africa</th>
<th>South Africa</th>
<th>South America</th>
<th>North America</th>
<th>Central America and Caribbean</th>
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<tr>
<td>0 - 3</td>
<td>2.75</td>
<td>8.95</td>
<td>5.42</td>
<td>4.74</td>
<td>0.88</td>
<td>9.93</td>
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<tr>
<td></td>
<td>(5.87 - 8.97)</td>
<td>(7.34 - 10.91)</td>
<td>(4.43 - 6.64)</td>
<td>(2.94 - 6.72)</td>
<td>(0.53 - 1.44)</td>
<td>(7.79 - 12.63)</td>
</tr>
<tr>
<td>3 - 6</td>
<td>4.24</td>
<td>4.05</td>
<td>3.15</td>
<td>1.67</td>
<td>1.25</td>
<td>4.12</td>
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<tr>
<td></td>
<td>(3.30 - 5.44)</td>
<td>(3.21 - 5.11)</td>
<td>(3.50 - 4.97)</td>
<td>(0.84 - 3.32)</td>
<td>(0.78 - 2.02)</td>
<td>(2.95 - 5.76)</td>
</tr>
<tr>
<td>6 - 12</td>
<td>4.24</td>
<td>4.38</td>
<td>3.77</td>
<td>2.70</td>
<td>2.30</td>
<td>2.93</td>
</tr>
<tr>
<td></td>
<td>(3.35 - 5.37)</td>
<td>(3.54 - 5.43)</td>
<td>(3.05 - 4.67)</td>
<td>(1.62 - 4.52)</td>
<td>(1.61 - 3.27)</td>
<td>(2.07 - 4.15)</td>
</tr>
<tr>
<td>12 - 24</td>
<td>3.89</td>
<td>5.37</td>
<td>3.05</td>
<td>1.69</td>
<td>3.40</td>
<td>2.43</td>
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<td></td>
<td>(3.21 - 4.72)</td>
<td>(3.21 - 4.72)</td>
<td>(2.56 - 3.63)</td>
<td>(1.02 - 2.78)</td>
<td>(2.64 - 4.37)</td>
<td>(1.32 - 3.76)</td>
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<tr>
<td>24 - 48</td>
<td>3.63</td>
<td>5.17</td>
<td>3.05</td>
<td>1.25</td>
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<td>(3.04 - 4.33)</td>
<td>(4.84 - 6.51)</td>
<td>(2.97 - 4.06)</td>
<td>(1.02 - 2.78)</td>
<td>(2.97 - 4.06)</td>
<td>(1.92 - 3.26)</td>
</tr>
</tbody>
</table>

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

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

Results: A total of 150,175 women (16% Eur, 47% EAf, 13% WAf, 13% SAf, 1% 5Am, 3% NAm and 2% CAmCRB) were included. Median age at ART initiation ranged from 33 years in SAf to 40 years in NAm. The proportion of injecting drug users was highest in NAm (18%) and Eur (7%). Only 16% of the women in NAm were of white ethnicity, while 63% and 17% were Black and Hispanic, respectively. Ethnicity data were available for 45% of European women, 26% of whom were Black, largely migrants. Median
**TUPDC0103**


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**Background:** South Africa is one of the many countries most affected by the HIV/AIDS epidemic in the world and has one of the most extensive anti-retroviral (ART) rollouts in sub Saharan Africa. This programme was rolled out in 2003. This paper reports the trends in HIV/AIDS mortality pre-and-post ART rollout in South Africa.

**Methods:** Vital registration cause of death data from Statistics South Africa were adjusted for under-reporting of deaths using demographic methods. Miss-attributed HIV/AIDS deaths were identified by regress excess mortality on a lagged indicator HIV antenatal clinic prevalence. Background trends in the source-cause (causes to which HIV/AIDS deaths were misclassified) mortality rates were estimated from the trend in cause-specific mortality experienced among 75-84 year olds. Death rates were calculated using mid-year population estimates and the WHO world standard age-weights.

**Results:** In 1997, 60 336 (14.5%) of deaths were attributed to HIV/AIDS; this number peaked in 2006 at 283 564 (68.1%) and decreased to 153 661 (29.1%) by 2012. Between the ages of 25-34 years females had higher death rates compared to males. This pattern was reversed in those 45 years and older. The male rates for 65+ years continued to increase until 2010 with little age difference in mortality levels over the age of 45 years by 2012 (Fig).

**Fig 1:** HIV/AIDS death rates by sex and age group for 1997, 2000, 2006 & 2012

Female death rates peaked in 2005, while males in 2006. Females and males had similar death rates in the earlier period, however males had higher rates than females. While death rates for Black Africans were similar to the national profile, coloureds, whites and Indians had higher rates among males for the entire study period.

**Conclusions:** HIV/AIDS is the leading cause of death in South Africa even though the number of HIV/AIDS deaths have almost halved since the ART rollout. Our study highlights high male HIV/AIDS mortality rates in the 45+ year olds by 2012. Treatment and prevention programmes should strategize how to target this risk group.

**TUPDC0104**

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

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**Background:** With increasing access to antiretroviral therapy (ART), there is a likely shift in mortality causes among people living with HIV (PLHIV). There are sparse data on mortality patterns among PLHIV in Zimbabwe.

**Methods:** A retrospective cohort study was conducted at Newlands Clinic in which routinely collected data for patients enrolled and followed up between February 2004 and December 2017 were abstracted from the clinic’s database. Patient follow up was commenced from the day of the first clinic visit until exit by death, transfer out, loss to follow up or voluntary cessation of ART. A team of doctors grouped causes of death as communicable AIDS related illness (ARI), malignancies, chronic non-communicable diseases (NCD), non-AIDS related illness or other. Multinomial logistic regression was used to compare change in mortality cause with year of death as the independent variable.

**Results:** A cohort of 7,845 (62.7% female, n=4,918) patients was followed up for 40,996 person-years (PY). Median enrolment age was 33 years (IQR 19 - 42). Among 896 patients who died, cause of death was unknown for 130 (14.5%). Male patients had a 28% higher risk of dying than female patients (HR 1.28, CI 1.12 - 1.46, p<0.01). Overall, the most common cause of death was tuberculosis (n = 113, 12.6%), followed by Cryptococcal meningitis (n = 73, 8.1%). The majority of patients died within the first year of enrolment (n = 531, 59.3%), 239 (21.3%) of these of ARI and 82 (7.2%) of NCDs. While ARI remained the most common cause of death throughout the period, NCDs and malignancies increased in relative proportion (Figure) (p< 0.01, p=0.04 respectively). There was a significant decline in crude mortality rate from 365/100 PY in 2004 to 35/100 PY in 2017 (IRR 0.10, CI 0.05 - 0.20, p<0.01).

**Fig 2:** Distribution of cause of death over time

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

**TUPDC0105**

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

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**Background:** Coinfection by HCV is one of the most common comorbidities in HIV-infected patients. There are currently limited data on trends in cause-specific mortality in subjects co-infected by HCV and HIV compared to subjects only infected by HIV.

**Methods:** We studied trends from 2000-14 in overall and cause-specific mortality, stratified by HCV status, among HIV-positive adults within the Collaboration of Observational HIV Epidemiological Research Europe (COHERE). Eligible participants were treatment naive at start of ART and had at least one anti-HCV antibody test result at baseline. defined as the date of cohort recruitment for patients with known HCV status at recruitment, or if unknown, the date of first HCV test after recruitment. Follow-up was divided into calendar periods 2000-2007 and 2008-2014. Cause-specific mortality, based on a simplified algorithm adapted from the CoDe coding system, was categorized as: AIDS-related (ARR), Liver-related (LR), Non-AIDS malignancies (NADM), Non-AIDS infections (NAI), cardiovascular, and psychiatric. Adjusted Mortality Rate Ratios (ARR) with 2000-2007 as reference were stratified by HCV status using
multivariable Poisson regression. We used chained equations multiple imputation of missing data including Cause of Death.

Results: 64,209 patients of whom 2,774 died (mortality rate (MR) 8.5/1,000py) were included. 7% males. 48% MSM, 13% HCV-positive, median age 36 years (IQR 29–44), median baseline CD4 383 cells/μL. At 2007-14, the table shows cause-specific MR per period and the aRR comparing 2008-14 with 2000-07 by HIV status. MR were substantially higher in HCV-coinfected patients for all causes of death and in both periods. All-cause, ART and NAD mortality declined from 2000-07 to 2008-14 for both mono and co-infected individuals. Cardiovascular mortality increased almost two-fold among HCV-positives whereas it remained practically constant among HCV-negatives (interaction p=0.022). LR decreased in both populations although the relative decrease was larger among HCV-negatives (interaction p<0.001).

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

TUPDc0106
Mortality and cause of death among HIV patients in London in 2016


Background: Since 2013, the London Mortality Study Group has conducted annual reviews of deaths among people with HIV to reduce avoidable mortality and improve the quality of patient care. Methods: All London trusts commissioned by NHS England to provide HIV care reported 2016 data on patients who died. Data were submitted using a modified Causes of Death in HIV (CoDe) reporting form. Cause of death was categorised by a pathologist and two clinicians.

Results: There were 206 deaths reported across 20 trusts. 77% of these were among men and the median age at death was 56 years. At the time of death, 85% (134/165) of people were on ART, 61% (113/185) had a CD4<350 cells/mm3 and 24% (47/192) a VL<200 copies/ml. Cause was established for 80% (164) of deaths. Non-AIDS malignancies were the most common cause of death followed by AIDS-defining illnesses. Where reported (n=18), risk factors in the year before death included: smoking (37%), excessive alcohol consumption (19%), non-injecting drug use (IDU) (2017), IDU (17%) and opioid substitution therapy (6%). Co-morbidities were common (n=200): 33% had a history of depression, 33% chronic hypertension, 27% dyslipidemia, 18% HBV/HCV co-infection and 14% diabetes. Almost half of deaths were reported as sudden (44%, 79/177) and 36% (64/187) as unexpected. 60% (163/270) of expected deaths were in hospital. Two thirds of expected deaths (54/78) had a prior end-of-life care discussion, though this information was only available for 57%.

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

TUPDc0101
Self-reported violence, perpetrators, and post-violence care received by key populations in the Integrated MARPs HIV Prevention Program in Cross River State, Nigeria 2016-2017

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

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

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

Conclusions: Violence was defined as use of force/power that resulted in actual/threatened sexual, physical or emotional harm. Perpetrators were categorized into state actors e.g. police and healthcare workers and non-state actors e.g. family and sexual partners. Post-violence care was classified into mental health, legal services and medical care which included PEP, STI and HIV testing and treatment.
**TUPDD0102**

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

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**Background:** HIV, substance misuse, and partner violence (PV) have long been characterized as a syndemic—interacting and reinforcing epidemics—among key populations such as drug-involved women and female sex workers. There is a nascent recognition of PV as part of the syndemic among MSM, but there is very limited research specifically focused on the key population of Black men who have sex with men (MSM).

**Methods:** A sample of adult Black MSM (N=1,043) completed a screening assessment for a randomized clinical trial of couple-based HIV intervention for Black MSM in New York City. Respondents provided self-report data on experiencing and perpetrating PV (CTS2 supplemented with gay- and HIV-specific forms of PV), and the following outcome variables: self-reported HIV status, number of male sexual partners, condomless anal intercourse (CAI), and substance misuse. We tested hypotheses that PV would be significantly associated with more adverse levels of each outcome variable.

**Results:** Table 1 presents prevalence for PV among the sample by type, experiencing vs. perpetration, and lifetime vs. past 30 days (“current”). 38.3% and 23.2% experienced lifetime and current PV respectively, and 39.2% and 23.5% reported lifetime and currently perpetrating PV respectively. Hypotheses were validated for currently experiencing PV and perpetrating PV as follows: not knowing one’s HIV status (AOR: 5.1, 95%CI: 2.1-11.7 and AOR: 3.2, 95%CI:1.4-7.3 respectively); greater number of male sexual partners (b=3.6, 95%CI:2.9-4.6 and b=3.1, 95%CI:2.1-4.1 respectively); greater number of CAI (b=6.4, 95%CI:2.9-9.8 and b=3.7, 95%CI:0.3-7.2 respectively); binge drinking (AOR:2.1, 95%CI:1.6-2.9 and AOR:2.1, 95%CI:1.5-2.8 respectively); and illicit substance use (AOR:2.5, 95%CI:1.6-4.1 and AOR:3.4, 95%CI:2.1-5.6 respectively). While physical and sexual PV associations were stronger for HIV status, gay-related PV associations were larger for sexual risk behaviors.

**Conclusions:** The high rates of PV and its multiple associations with HIV risks and substance misuse found in this study underscore the urgent need to address PV as a central factor in the syndemic that underlies Black MSM being and remaining a key, HIV-affected population. Behavioral aspects of combination prevention need to address PV—paying particular attention to gay-specific forms of PV—in order to reduce the HIV and health disparities experienced by Black MSM.

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**TUPDD0103**

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

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**Background:** Violence is a known risk factor for HIV. In Zambia, where the prevalence of HIV is high (12%) and that of gender-based violence (GBV) even higher (43%), female sex workers (FSW) are particularly susceptible to both outcomes due to their contact with multiple male clients. However, limited data is available on the precise risk factors for violence against Zambian FSW, which would support the implementation of interventions to mitigate against them. We investigate the prevalence and correlates of violence against FSW from their male clients.

**Methods:** The Zambia-Emory HIV Research Project (ZEHRRP) recruited 555 HIV-negative FSW aged 18-45 into a cohort study. FSW were recruited from known hotspots in Ndola and Lusaka between September 2012 and March 2015. At baseline, FSW were asked to provide information on demographics, lifetime sexual history and any previous exposure to violence from their male clients. Forward stepwise logistic regression was used to model the relationship between the outcome (violence from clients, y/n) and potential predictors. The final multivariate model controlled for age, education, age at first sexual encounter, number of years as a sex worker and lifetime number of sexual partners.

**Results:** From a total of 498 responses, the prevalence of violence against FSW by their male clients was 37% (n=185). In the fitted model, the highest likelihood of FSW facing violence is noted when sex takes place at the client’s home (AOR: 2.47, 95%CI: 1.62-3.77, p<0.001). The odds of encountering violence are doubled for FSW whose first ever sexual encounter was physically forced in relation to those who engaged willingly (AOR: 2.09, 95%CI: 1.18-3.60, p<0.05). FSW who consume alcohol have an almost two-fold increase in odds of experiencing violence from clients compared to their counterparts (AOR: 1.94, 95%CI: 1.13-3.32, p<0.05).

**Conclusions:** HIV prevention interventions for FSW should broaden their scope to address risk factors such as alcohol consumption, location of sex and history of sexual abuse. This would better inform healthcare workers on how to meet FSW needs. Risk reduction education for both FSW and their clients is required to redress gender norms that heighten the risk of violence and HIV.
TUPDD0104

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

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Background: Transgender women experience gender-based violence (GBV) from an early age and face barriers to accessing services, resulting in poor health outcomes including the highest HIV prevalence of any key population. To inform HIV policies and services, trans women worked with LINKAGES (led by FHI 360, supported by USAID and PEPFAR), UNDP, and University of the West Indies to document GBV and transphobia in healthcare, education, and legal settings.

Methods: Trans women, trained as data collectors, conducted 74 structured interviews in El Salvador, Trinidad and Tobago, Barbados, and Haiti in 2016. We conducted qualitative applied thematic analysis to understand the nature and consequences of GBV and transphobia and descriptive quantitative analysis to identify the proportion who experienced GBV in each setting.

Results: A high proportion experienced GBV in education (82%), healthcare (82-91%), police/judicial system (83-87%), and other state institutions (86-88%). Emotional abuse was the most common in all settings; participants also experienced economic, physical, and sexual violence, and other human rights violations. Emotional abuse included gossiping, insults, and refusal to use their chosen name. At school, participants were physically threatened and assaulted, harassed in bathrooms, and denied education. In healthcare, participants were given lower priority and received substandard care. Healthcare workers and police blamed participants’ health and legal problems on them “because of the way I am” and denied them services. From police, participants also experienced physical and sexual assault, theft, extortion for sex or money, and arbitrary arrest and detention. Participants had difficulty obtaining and using identification cards and passports, sometimes being forced to alter their appearance or being denied an identification card. All violence was clearly linked to gender identity and expression.

Conclusions: These findings demonstrate a need for policies protecting trans women’s rights and interventions addressing GBV against trans women. Given that GBV increases HIV risk, decreases HIV treatment adherence, and prevents trans women from accessing health services, HIV service providers need training to provide nondiscriminatory services and screen for and address GBV among trans clients. Integrated interventions addressing both HIV and GBV could help reduce KPs’ burden of HIV, increase service utilization, and respect, promote and fulfill their human rights.

TUPDD0106


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Background: People who inject drugs (PWID) experience multiple risk factors for mortality. Yet, we know little about causes and predictors of death among PWID in Tijuana, Mexico, an area with high levels of drug injecting and dynamic changes in policy/law enforcement responses to substance abuse. This study examines rates, causes, and predictors of mortality among PWID.

Methods: Data come from a community-based cohort of PWID aged ≥18 who injected drugs in the past month. Mortality was confirmed by death certificate over 78 months during 2011-2017. Predictors of mortality were identified using Poisson regression with empirical variance estimation, controlling for sex.

Results: Among 863 participants, there were 133 deaths (57 confirmed, 76 unconfirmed), with an incidence rate (IR) of 1.82 deaths per 100 person-years (95% Confidence Interval (CI)=1.35, 2.29) for confirmed deaths and 3.94 for unconfirmed deaths (CI=3.27, 4.60). Confirmed deaths resulted from homicide/trauma (26%), overdose (26%), septic shock (18%), HIV-related causes (9%), organ failure from chronic substance use (9%), and Hepatitis C (7%). In multivariate analysis of confirmed deaths, being stopped/arrested by police for drug selling/trafficking was a highly significant predictor of mortality (Rate Ratio (RR)=6.05, CI=2.22, 16.49); 5.3% of deceased PWID were stopped vs. 0.5% of survivors. Baseline HIV seropositivity (7% among deceased vs. 2.7% among survivors) was associated with 4X higher risk of mortality (RR=4.09, CI=1.38, 12.29); mortality IR was 2.7X higher among HIV+ PWID. PWID living in Tijuana for longer durations were at increased risk for mortality (RR=1.03 per year, CI=1.01, 1.05), while stopping injection for a period of 16 months was protective (RR=0.38, CI=0.17, 0.81). 14% of PWID who died stopped injecting vs. 19.6% among survivors.

Conclusions: In addition to overdose and HIV prevention efforts, attention needs to be paid to structural conditions that potentiate mortality risk. Cessation of injection, even for short periods, was associated with lower risk of mortality, indicating a need for improved access to medication-assisted treatment to reduce injecting. Our results also highlight the potential role for police in reducing PWID mortality and the need to transform police encounters from a source of harm to a source of harm reduction.

TUPDD0105

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

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Background: HIV prevalence in Estonia is one of the highest in Europe (419 cases per million). It is primarily spread among people who inject drugs (PWID), and women represent 40% of new HIV cases as of 2013. Despite the WHO treatment guidelines, HIV treatment, especially among PWID, starts on late stages. In August 2017 a qualitative study was conducted, 20 of them were then transcribed and 37 analyzed through thematic content analysis. To ensure personal data protection and participants’ safety, their names were coded and there is no reference to their real names in the report. All of the respondents were female, aged 26-46 years old, mean age 35 years.

Results: The women interviewed reported that they did not want to get tested or start ART because of the stigma associated with HIV and cases of people’s HIV status being disclosed at their workplace or at the workplaces of relatives and partners. The disclosure of drug dependence and/or HIV status was the main reason for women’s unemployment. In 25 cases drug use alone became grounds for the limitation/deprivation of child custody. Low level of protection from violence and the exclusion of drug user women from shelter programs has been discovered. Women also reported regular police abuse, street drug testing and arbitrary arrest. These systematic human rights violations deter women from health services, including HIV and drug treatment, and create mistrust to social protection services and the police.

Conclusions: Drug laws and drug enforcement practices, combined with stigma related to drugs and HIV, are the main drivers of systematic and serious violations of the human rights of women who use drugs which undermine Estonia’s efforts in HIV prevention, care and treatment.
TUPDDo202
Adolescent and young people’s participation and representation in clinical trials: Lessons from a community-wide HIV testing and treatment study, the HPTN 071 (PopART) study


Background: Community Engagement (CE) is imperative to research for both instrumental and ethical reasons. However, adolescents’ and young people’s (AYP) participation in research conducted in Africa is infrequent. It is poorly understood how to meaningfully involve AYP in research, promoting critical dialogue between researchers and AYP. HPTN 071 (PopART) is a community based trial in 21 study communities in Zambia and South Africa. The trial includes a nested ancillary study (2016-2017) to evaluate AYP’s (15-24 years) uptake of HIV-related services.

Description: Formative research was conducted to identify AYP-specific community stakeholders and AYP possible interventions in consultation with AYP representatives and the existing adult Community Advisory Boards (CABs). Consultations resulted in the creation of 12 AYP-only CABs (aCABs) in Zambia and one AYP-only CAB in South Africa. These CABs met monthly. We report on data collected through group discussions (n=8) and in-depth interviews (n=63) conducted among aCAB members in Zambia in 2017 exploring their perceptions of the aCAB’s role in the study. We also reflect on our experiences of establishing and maintaining AYP participation and representation processes from the onset to preliminary results dissemination.

Lessons learned: AYPs were enthusiastic to serve as representatives. However, their participation was constrained by high mobility and the requirement for parental/guardian permission to attend meetings. They requested for formation of AYP-only CABs and not just the inclusion of AYP representatives in adult CABs. Some AYP intervention strategies were both suggested and implemented by them. AYP CABs sought to protect the privacy and confidentiality of AYP research participants and respect their autonomy. For example, they recommended waiver of parental consent for 15-17-year-olds in a survey and rejected the offer of incentives to research participants. AYP leadership, involvement in decision making and determination of specific study activities represented a significant achievement especially in the context of research in Africa where AYP voices are rarely considered.

Conclusions/Next steps: AYP in Africa are capable of participating meaningfully in research that directly impacts their lives. While challenges to participation in research exist, researchers should be encouraged to invest in meaningful partnerships with AYPs. CABs with only AYP representatives are one such strategy.
and experiences of multiple stakeholders on the role of the CAB and the relationship between the CAB and research centre staff in the study setting.

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

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

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

**TUPDD0204**

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

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

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

**Results:** Of 452 citations identified, 108 studies were included in the analysis (93 via database search, 15 via other methods). Forty-eight studies (44.4%) described stakeholder engagement in high-income countries, 30 (27.8%) in middle-income countries, and 9 (8.3%) in low-income countries (mixed location/indiscriminable; 21 studies; 19.2%). Fifteen distinct methods for stakeholder engagement were identified, including individual (e.g. interviews) and group (e.g. community advisory boards) strategies. Thirty-five types of stakeholders were engaged, with approximately half of studies (54.6%) engaging HIV-affected stakeholders (e.g. people living with HIV, at-risk for HIV, or related populations of interest). We observed greater frequency of stakeholder engagement in later stage HIV clinical trials (54.6%) (Figure 1). Fewer studies described stakeholder engagement in high-income countries (27.8%) (Figure 1). Lessons learned: All 29 global sites utilize multiple recruitment strategies successfully, but the strategies used vary by region. The most effective recruitment strategy across global sites was referrals (2.4:1 screening to enrollment ratio). The least effective was Print Materials/Ads in Peru/Switzerland/US (5:1), followed by the Internet in Africa/US (12:1). While sites generated a similar number of screening appointments using face to face outreach (719 in Peru/Switzerland/US, 717 in Africa), they represent strikingly different percentages of the total number of persons screened during this period (26% in Peru/Switzerland-US, 50% in Africa). In the internet in Africa (12:1), sites generate a similar number of screening appointments using face to face outreach (719 in Peru/Switzerland/US, 717 in Africa), they represent strikingly different percentages of the total number of persons screened during this period (26% in Peru/Switzerland-US, 50% in Africa). The internet represents the greatest difference between regions, 43% of total enrollments in Peru/Switzerland-US and 8.1% in Africa.

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

(Figure 1 Number of studies conducting stakeholder engagement to inform each of the 7 stages of HIV clinical trial research)

**TUPDD0205**

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

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

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

**Lessons learned:** All 29 global sites utilize multiple recruitment strategies successfully, but the strategies used vary by region. The most effective recruitment strategy across global sites was referrals (2.4:1 screening to enrollment ratio). The least effective was Print Materials/Ads in Peru/Switzerland/US (5:1), followed by the Internet in Africa/US (12:1). While sites generated a similar number of screening appointments using face to face outreach (719 in Peru/Switzerland/US, 717 in Africa), they represent strikingly different percentages of the total number of persons screened during this period (26% in Peru/Switzerland-US, 50% in Africa). The internet represents the greatest difference between regions, 43% of total enrollments in Peru/Switzerland-US and 8.1% in Africa.

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

**TUPDo0206**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Figure 1: Density mapping in Mumbai compared - 1km radius sampling (left) versus more precise 500m radius sampling (right) showing clear high-density areas.
Results: An average of 3,830 online Grindr users were counted across metropolitan Mumbai. The highest number of online users was counted on midday Saturday and Sunday. On weekdays, counts increased later in the day. The second mapping revealed high-density locations of dating app use including several time-bound areas and 6 consistent areas with 23 or more online users within 500 meters of each coordinate (Figure 1).

Conclusions: This activity successfully identified physical clusters of online MSM at specific times of dating app usage, and estimated total online users in Mumbai. The LINKAGES program in India used these results to guide outreach to MSM on Grindr at high density locations through peer- and advertisement-based approaches that will be combined with location-specific referrals for services.

TUPDE0104 Optimizing access for the last mile: Geospatial cost model for point of care viral load instrument placement in Zambia

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Background: Viral load monitoring programs have been scaled up rapidly throughout Africa, but little attention has been paid to how to optimize viral load access to the most remote healthcare facilities (the “last mile”). For the hardest-to-reach facilities in Zambia, we compared the cost of placing point of care (POC) viral load test instruments at or near facilities to the cost of an expanded sample transportation network (STN) to deliver samples to centralized laboratories.

Methods: Using data from the Zambian viral load program, we developed a geospatial optimization model that first optimized a STN for centralized labs for 50% of estimated viral load volumes, at a cost per test of $23.86. Exploratory cluster analysis was then conducted to identify ideal facilities for POC instrument placement amongst the remaining 10% of volumes. Optimal placement maximized both viral load coverage and instrument utilization. We evaluated the full cost (test and transport) per test under three scenarios:

1) POC placement at all facilities identified for POC;
2) an optimized combination of true on-site POC placement and “near POC” placement at facilities acting as POC hubs; and
3) integration into the centralized STN to allow use of centralized labs.

Results: Exploratory cluster analysis yielded optimal POC placement that covered 35% of total viral load volumes. Scenario 2 resulted in a cost per test of $37.97, 21% less than the cost per test of true-POC available at all of the same facilities (Scenario 1, $47.95). This is due to increased POC instrument utilization when an instrument can act as near-POC (median 23% instrument utilization). Compared to only true-POC (11%), Scenario 3 was the most costly at $53.2 per test, due to high transport costs under the centralized model ($31.40 per test compared to $4.80 per test in scenario 2).

### Table 1

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
<th>Test Cost (IQR)</th>
<th>Sample Transport Cost (IQR)</th>
<th>Projected annual number of tests conducted (% of total viral load volume)</th>
<th>Total cost of scenario (IQR)</th>
<th>Savings from using optimized POC and near-POC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>POC at all facilities</td>
<td>$47.95 (46.83-50.54)</td>
<td>$0</td>
<td>59,892 (3.5%)</td>
<td>$2.87m ($2.80m-$3.03m)</td>
<td>$597,465</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>Optimized combination of POC and near-POC</td>
<td>$37.97 (36.40-40.28)</td>
<td>$4.80 (4.61-5.28)</td>
<td>28.26 (28.26-35.01)</td>
<td>$2.27m ($2.19m-$2.41m)</td>
<td>$3.19m ($2.19m-$3.11m)</td>
</tr>
</tbody>
</table>

### Conclusions

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

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

TUPDE0105 Transgender resource map

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Background: Transgender people face daily harassment and discrimination, which impacts their ability to access and receive services like healthcare. In addition to this, Transgender people face additional challenges when receiving services due to lack of competence and prejudice from service providers, especially medical care. It is no surprise this group faces the largest burden in new HIV infections in the United States. Very little has been done to ensure Transgender people are connected to quality and competent social and health services. Calen-Lorde Community Health Center, a leader in Transgender care in the United States, describes its approach to addressing these inequities using an innovative technology approach.

Description: Utilizing GIS (geographic information systems) software, Calen-Lorde’s Population Health team mapped the geographic location and distribution of its Transgender patients in New York City’s 5 boroughs by census tract. Simultaneously, all transgender specific resources and linkages kept by the clinic for referrals were mapped by address (Figure 1). The map allows individuals to search for specific services available in a given location. Services included things like Behavioral health resources, transgender surgery information, legal assistance and others.

### Figure 1

Trans Resource Guide Locations

- Trans Supportive Services
- Electrolysis and Wax Removal
- Medical/Health Referral Services
- Legal Services
- Housing Services

Lessons learned: Transgender specific resources were available and abundant in New York, however they were mainly concentrated in the downtown central area of Manhattan, while most patients inhabited the farther regions of the city. Interactive maps and GIS technology allows our supportive staff to link patients to services and come up with outreach strategies to avoid discrimination and harassment. These maps
provide an opportunity to invite business into high-needs areas, helping to bridge inequities. Through this program, we are able to understand how to allocate resources in a strategic and targeted approach.

Conclusions/Next steps: GIS technology can be successfully utilized to bridge determinants of health in transgender communities. Innovative approaches are needed to help ensure transgender communities have the tools to connect to service that will support and treat them with dignity.

**TUPDE0106**

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

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**Background:** Scaling-up voluntary medical male circumcision (VMMC) becomes trickier as coverage increases and the number of eligible men decreases. IntraHealth International, with CDC funding, used geographic information system (GIS) mapping with information from community experts to identify geographical areas in Tanzania with large numbers of uncircumcised men for targeted service delivery.

**Description:** We collected 2016 ward-level male population projection data in the four IntraHealth-supported regions and shape files with geo-referenced points (e.g., ward boundaries, road networks, forests/vegetation, water bodies) from the National Bureau of Statistics. The geo-coordinates of health facilities were extracted from the national health facility registry and DATIM GIS interface and used to geo-reference facility locations. We subtracted 2011-2016 service delivery data on circumcised men from the PROMIS database to establish estimations of uncircumcised men in the respective wards of the four regions. Geo-coded data and shape files were overlaid into GIS software (ArcGIS Pro Esri 2017) and analyzed to create maps of facility locations, coverage and areas with high concentration of uncircumcised men where demand creation and VMMC scale-up were prioritized.

**Lessons learned:**
- Maps showed over 61% of uncircumcised men were located in 40% of the wards within the four regions.
- Community experts provided additional socio-economic factors needed for consideration in planning VMMC outreach campaigns such as accessibility, availability of water/electricity for sterilization of instruments, and availability of lodging for service providers.
- The number of men circumcised annually increased three-fold from 67,414 in 2016 to 225,093 in 2017; over 92% were aged 10-29 (PEPFAR data).
- The project achieved these results with a $7.1 million budget, an average cost of US$31.12 per client, significantly lower than the national estimate of US$50 and US$59.36, respectively.

**TUPDX0101**

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

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**Background:** Concerns have been raised that HIV pre-exposure prophylaxis (PrEP) will lead to ‘risk compensation’ that MSM will use condoms less frequently, and increase their sexual risk because of PrEP). In England it has been argued that the drop in HIV incidence can be partially credited to PrEP-related activism and the initiative taken by MSM as early adopters of informal, online-purchased, generic PrEP. This suggests the contrary; namely, that PrEP provides an opportunity for men who have sex with men (MSM) to take individual responsibility for their own sexual health. However little research has examined the issue of ‘responsibility’ in PrEP users.

**Methods:** An ethnography of PrEP in the United Kingdom has been carried out since 2016, using interviews, focus groups, and participant observation with policymakers, researchers, clinicians and PrEP users. As part of this, a formative qualitative project was conducted in partnership with PrEP activists to inform an intervention to support informal PrEP users. Focus groups were held with 20 MSM, based in London, who obtained PrEP informally, to explore their accounts and experiences of sourcing and using generic PrEP. This presentation reports findings from the focus groups in the context of the broader ethnography.

**Results:** In participants’ accounts responsibility was not a single idea but an overarching theme for framing different concerns: control over their own health, relationships with other MSM and the gay community, and citizenship. The responsibility they felt towards themselves created uncertainties about their sexual risk without PrEP and on PrEP. Their responsibility towards their communities was put into practice through information-sharing and peer support of other potential PrEP-users. The few clinics that supported their informal PrEP use were seen as taking on the State’s responsibility for their health as citizens.

**Conclusions:** The policy conditions in England, and the lack of access to PrEP if given rise to a widespread practice of informal PrEP sourcing and use. This is a self-directed form of prevention, yet has extended the responsibility of PrEP beyond individual PrEP users to a collective responsibility of PrEP shared by MSM communities, and by PrEP providers to adequately support early adopters and informal users.

**TUPDX0102**

PrEP in the real world: What are we learning?

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**Background:** Use of geographic information system mapping for the tools to connect to service that will support and treat them with dig-viciniti. Innovative approaches are needed to help ensure transgender communities have the tools to connect to service that will support and treat them with dignity.

**Conclusion/next steps:** Coupled with qualitative socio-economic information from community experts, interactive GIS mapping ensures efficiency in planning and monitoring for high-impact large-scale interventions at a minimum cost. Project designs should consider using interactive GIS maps to make strategic decisions for targeted high-impact interventions.
TUPDX0102
Attitudes regarding HIV, PrEP and condom use jointly predict risk compensation among men who have sex with men - findings from the VicPrEP implementation project, Melbourne

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

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

Results: Frequency of condom use for anal sex with casual partners decreased significantly over one year follow-up (Baseline Median = 3.0, IQR = 2.0-4.0; 12 month Median = 2.0, IQR = 1.0-3.0; Wald Chi²(df=4) = 21.03, p < 0.001). In the first 3 months of using PrEP, multivariable analysis found that MSM who found HIV a more serious condition and found it more important to remain HIV-negative were more likely to continue condom use, as were MSM more concerned about adverse effects of PrEP. MSM who considered PrEP critical for personal HIV prevention and MSM who experienced more adverse impacts of condom use on sex were less likely to use condoms.

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

TUPDX0103
The new MTV generation: Using methamphetamine, Truvada and Viagra to enhance sex and stay safe

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

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

Results: During 2017, concurrent MTV use was reported by 6.0% of participants: 31% used methamphetamine and ViagraTM or other erectile dysfunction medication (MV only) and 11.2% used TruvadaTM as PrEP (T only). MTV prevalence in the cohort over time is shown in Figure 1. In multivariable analysis, compared to use of MV only’, MTV was independently associated with CLAI with casual partners (aOR=3.31;95%CI=1.82-6.00). Greater social engagement with other gay men (aOR=3.47;95%CI=1.41-8.56) and having more sexual partners (aOR=1.44;95%CI=1.18-1.76) and ‘fuckbuddies’ (aOR=2.30;95%CI=1.10-4.82) were independently associated with use of ‘MV only’. MTV prevalence in the cohort over time is shown in Figure 1. In multivariable analysis, compared to use of T only, MTV was independently associated with being older (aOR=3.95;95%CI=1.55-10.03) and engaging in group sex (aOR=3.19;95%CI=1.82-6.00). Greater social engagement with other gay men (aOR=4.44;95%CI=1.18-17.6) and having more sexual partners (aOR=2.30;95%CI=1.10-4.82) were independently associated with use of MTV compared to use of ‘MV only’ or ‘T only’. MTV prevalence in the cohort over time is shown in Figure 1. In multivariable analysis, compared to use of MV only’, MTV was independently associated with being older (aOR=3.95;95%CI=1.55-10.03) and engaging in group sex (aOR=3.19;95%CI=1.82-6.00). Greater social engagement with other gay men (aOR=4.44;95%CI=1.18-17.6) and having more sexual partners (aOR=2.30;95%CI=1.10-4.82) were independently associated with use of MTV compared to use of ‘MV only’ or ‘T only’.

Conclusions: The addition of PrEP mitigates the increased HIV risk associated with party drug regimens, and these data demonstrate that this harm reduction strategy is being utilised by GBM. Interventions that promote harm reduction strategies, including the use of PrEP during chemsex, could help reduce HIV transmissions within this at-risk population.
Background: Hepatitis C virus (HCV) prevalence was 4.8% among HIV-negative men who have sex with men (MSM) starting pre-exposure prophylaxis (PrEP) in the Netherlands. We studied the HCV incidence rate (IR), characteristics of newly infected individuals, HCV genotype distribution and phylogenetic clustering among MSM and transgender persons (TGP) who use PrEP in the Netherlands.

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

Results: The median follow-up was 1.76 person years (py) (IQR 1.57-1.98). We diagnosed 12 incident HCV infections, all in MSM. 6 primary infections and 6 re-infections. The overall HCV IR was 1.9/100 py (95%CI 1.1-3.4). The IR of primary infection was 1.0/100 py (95%CI 0.5-2.2) and of re-infection 25.5/100 py (95%CI 11.5-56.8). Incident HCV infections were of genotype 1a (n=9), 4d (n=1), 3a (n=1) and 3a (n=1). Phylogenetic analysis revealed that 8/9 HCV-1a infections were part of 4 large MSM-specific HCV-1a clusters containing MSM with and without HIV (Figure 1). Full characterization of HCV sequences from the Amsterdam PrEP project will be included in Table 1.

Conclusions: The HCV IR is relatively low in Amsterdam PrEP participants. The main routes of HCV transmission were within MSM clusters. The occurrence of re-infection and the high incidence of MSM-specific HCV-1a clusters containing MSM with and without HIV is alarming. Prompt treatment as well interventions to lower HCV-related behavior should be offered to MSM on PrEP and TGP.

TUPDX0105

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

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

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

Results: Of the five CRPs that enrolled patients on PrEP in Q1, only two reported enrolling KPs. This increased to 8 of 13 CRPs in Q2 but decreased to 6 of 9 CRPs in Q3. In Q2, 503 KPs newly initiated PrEP (66% of all results) and in Q4, 3,717 KPs newly initiated PrEP (34% of all results) (Figure 2).
All PrEP enrollment increased 1,133% from Q1 to Q4; 1,768% among GP and 642% among KPs. Among the KP groups, enrollment increased 445% among FSW, 1,580% among MSM, and 341% among TG between Q1 and Q4.

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

**TUPDX0106**

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

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

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

**Results:** Age, BMI and CrCl were 42(34, 46) vs 57(55, 59) years; 30(24, 42) vs 36(27, 38) kg/m²; and 114(100, 192) vs 108(61, 138) mL/min for TGW vs CGW, respectively. E2 concentrations in TGW [252(73, 490)pg/ml] were consistent with peak E2 in a typical periovulatory phase. TFVdp:dATP was 7-fold lower in TGW vs CGW (p=0.006; Table 1). One TGW exhibited TFVdp:dATP below an EC90 target ratio of 0.29. FTCtp:dCTP did not differ between groups and was above an EC90 target ratio of 0.07 in all participants. A significant inverse association was observed for log₁₀E₂ and TFVdp:dATP (r= -0.77; p=0.04).

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

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

<table>
<thead>
<tr>
<th>Analyte</th>
<th>CGD (N=4)</th>
<th>TGW (N=3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFVdp (fmol/g)</td>
<td>185158 (76265, 223542)</td>
<td>53674 (23240, 1170302)</td>
</tr>
<tr>
<td>FTCtp (fmol/g)</td>
<td>17247 (5959, 23181)</td>
<td>138293 (16503, 289495)</td>
</tr>
<tr>
<td>dATP (fmol/g)</td>
<td>7532 (5331, 11301)</td>
<td>547827 (6166, 665011)</td>
</tr>
<tr>
<td>dCTP (fmol/g)</td>
<td>6099 (2890, 8058)</td>
<td>80097 (5768, 251048)</td>
</tr>
<tr>
<td>TFVdp:dATP</td>
<td>20 (14, 30)</td>
<td>2.7 (0.08, 3.8)</td>
</tr>
<tr>
<td>FTCtp:dCTP</td>
<td>2.8 (2.0, 2.9)</td>
<td>2.3 (1.2, 2.9)</td>
</tr>
</tbody>
</table>
TUPEA001
Evaluation of phylogenetic inference methods to determine direction of HIV transmission

BioInfoExperts, Thibodaux, United States, 1NIAD, Baltimore, United States, 2Division of Intramural Research, NIAID, NIH, Hamilton, United States, 3Johns Hopkins Univ. School of Medicine, Pathology, Baltimore, United States, 4HIV Trauma Science Facilitation Department, Washington, DC, United States, 5FHI 360, Science Facilitation Department, Durham, United States, 6Fred Hutchinson Cancer Research Institute, Vaccine and Infectious Disease Science Division, Seattle, United States, 7College of Medicine-Johns Hopkins Project, Blantyre, Malawi, 8Univ. of North Carolina at Chapel Hill, Medicine, Chapel Hill, United States, 9University of Zimbabwe, Harare, Zimbabwe, 10YRGCARE Medical Centre, Chennai, India, 11Chiang Mai University, Research Institute for Health Sciences, Chiang Mai, Thailand, 12Hospital Geral de Nova Iguacu and Laboratorio de AIDS e Imunologia Molecular (IOC/Fiocruz), Rio de Janeiro, Brazil, 13Instituto Nacional de Infectologia Evandro Chagas-NIH-Fiocruz, Rio de Janeiro, Brazil, 14CDC Division of HIV/AIDS Prevention, KEMRI-CDC Research Evaluation of phylogenetic inference methods to reconstruct HIV transmission networks, phylogenetic trees and sequence diversity

Background: It has been postulated that the direction of HIV transmission between two individuals can be determined by phylogenetic analysis of HIV sequences. This approach may be problematic, since HIV sequences from newly-infected individuals are often more similar to index sequences from samples collected years before transmission, compared to those from samples collected at the time of transmission. We evaluated the accuracy of phylogenetic methods for determining the direction of HIV transmission by analyzing next-generation sequencing (NGS) data from index-partner pairs enrolled in the HIV Prevention Trials Network (HPTN) 052 trial. HIV-infected index and HIV-uninfected partner participants were enrolled as serodiscordant couples; samples were analyzed from couples with index-to-partner transmission that was confirmed by genetic linkage studies.

Methods: NGS for HIV gp120 (HXB2 coordinates: 7691-8374) was performed using plasma samples from 39 index-partner pairs (78 samples collected within 3 months of partner seroconversion). Maximum likelihood trees were generated using the entire data set using FastTree v2. Topological patterns of HIV from each index-partner pair were analyzed.

Results: The analysis included 9,368 consensus sequences and 521,145 total sequence reads for the 78 samples analyzed. In 10% (4/39) of couples, the phylogeny was inconsistent with the known direction of transmission. In 26% (10/39) of couples, the phylogeny results could not discern directionality. In 64% (25/39) of couples, the results correctly indicated index-to-partner transmission in two of these 25 cases, only one index sequence was closest to the most recent common ancestor.

Conclusions: Phylogenetic analysis of NGS data from index-partner pairs enrolled in the HIV Prevention Trials Network correctly determined direction of transmission in 64% of the cases analyzed. In 36% of the cases, the phylogenetic topology did not support the known direction of infection, and in one-third of these cases the observed topology was opposite to the known direction of transmission. This demonstrates that phylogenetic topology alone may not be sufficient to accurately determine the direction of HIV transmission.
TUPEA004
Near full-length sequence analysis reveals no evidence of HIV-1 replication during therapy

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

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

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

TUPEA005
Many introductions but little transmission of HIV-1 non-B subtypes amongst heterosexuals in the Netherlands

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Background: An increasing proportion of newly diagnosed patients is infected with HIV-1 non-B subtypes, but little is known about the number, size, origin and composition of the transmission chains of these patients.
**TUPEA007**

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

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**Background:** CD8+ T cell-mediated escape mutations can reduce viral replication and alter HIV-1 disease progression. We investigated the impact of immune-driven sequence variation in Pol, a highly conserved and immunogenic protein essential for viral replication, on viral replication capacity (RC) and disease progression in a large population of infected individuals with HIV-1 subtype C, the most prevalent subtype worldwide.

**Methods:** 487 patient-derived RT-integrase NL4-3 recombinant viruses were generated by electroporation of a green fluorescent reporter cell line (GXR cells) with plasma-derived RT-integrase PCR products and pNL43ART-integrase. The replication capacities (RC) of recombinant viruses were determined by calculating the slope of increase in percent age infected cells, as measured by flow cytometry, from days 3–6 following infection.

**Results:** RT-integrase driven RC correlated significantly with viral load (r = 0.28; p < 0.0001) and Sanger sequencing of reverse transcriptase and protease genes.

**Conclusions:** Unexplained LLV despite active adherence counseling, effective therapy and frequent follow-up can be a consequence of production of defective HIV. The use of Sanger sequencing according to a low-level viremia protocol can be a valuable tool to immediately distinguish between production and replication. Although residual viral replication could not be ruled out in the majority of patients, none of them showed clear signs of evolution nor selection of drug resistance.

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**TUPEA006**

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

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**Background:** A minority of HIV-infected patients demonstrate persistent low level viremia (LLV) despite the use of ART. It is still unclear if LLV is the consequence of viral production by activated HIV-infected cells, ongoing viral replication in sanctuary sites with suboptimal drug penetration, or both. It is important to distinguish between production and replication because ongoing viral replication and evolution may result in treatment failure.

**Methods:** Viral phylogenetic analysis was used to identify and characterize distinct non-B transmission chains that circulate in the Netherlands. The first available polymerase sequence ≥750 nucleotides available per patient in the ATHENA cohort was selected; all available sequences from the Los Alamos National Lab HIV database were used to determine the phylogenetic context of non-B lineages in the Netherlands; and subtype-specific viral phylogenies were determined with FastTree. Each viral lineage was associated to geographic regions with maximum parsimony based on the location of sequenced individuals, or on self-reported location of HIV acquisition. Dutch subtypes were extracted; and interpreted as distinct transmission chains in the Netherlands.

**Results:** By June 1st 2015, 9106/23,861 (38%) patients had a sequence available; and 2176 (9.4%) patients had a non-B subtype strain of which 2039 in this study. Analysis by sample region had 1349 chains identified in the Netherlands (95%/CI 1352-1399), where the majority 92% (1242) consisted of only 1–2 individuals (95%/CI 92–93). The figure illustrates the size of all identified non-B transmission chains in the Netherlands with patients colored by risk group. Ten transmission chains had ≥10 individuals (95%/CI 7–12). Six of these spread predominantly amongst men having sex with men (MSM), included 40% (130/328) of all MSM in the study. 78% of Dutch origin, and 95% reported to be infected in the Netherlands. One cluster of 13 was mixed MSM and heterosexuals. Three large chains included predominantly heterosexuals, and included only 2% (33/1403) of all heterosexuals in this study. Overall 82% of heterosexuals in this study reported to be born abroad and 71% to be infected abroad. Only the 6 large national transmission chains among MSM were identified when the analysis was performed by region infection.

**Conclusions:** Viral phylogenetic analysis suggests that HIV-1 non-B infections amongst heterosexuals are predominantly introductions from abroad, whilst a few non-B subtypes formed sub-epidemics amongst MSM in the Netherlands.

**Viral fitness and resistance**
with lower RC (\( r = -0.25, p = 0.024 \)) and the association was stronger when limited to those in A list epitopes (\( r = -0.43, p < 0.001 \)). Similar findings were observed with viral load set point suggesting that most HLA-associated polymorphisms that naturally arise in integrase lower RC. In the codon by codon analysis, the most pronounced decreases in RC were at Pol codons 306, 412, 427, 452, 456 and 923.

Conclusions: The data suggest that RT-integrase-driven RC is clinically relevant. We identified immune-driven mutations in Pol that may significantly attenuate HIV. These data may inform which Pol epitopes are the most vulnerable for an attenuation-based vaccine.

**TUPEA008**

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

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**Background:** South Africa has the largest HIV combination antiretroviral therapy (cART) roll-out program worldwide, currently accessible to approximately 3.4 million people. Resistance-associated mutation (RAMs) against antiretroviral inhibitors is a major challenge to the success of cART. HIV-Integrase (IN) has been proven to be a viable target for highly specific HIV-1 therapy. There are currently three FDA-approved IN inhibitors (INIs): Raltegravir (RAL), Elvitegravir (EVG) and Dolutegravir (DTG).

**Methods:** Patients from a previously published study were re-analysed with additional sequencing on the IN gene. RAMs were confirmed using Stanford HIV Drug Resistance Database.

**Results:** We analysed 13 patients currently receiving RAL as part of their cART regimen. Analyses revealed RAMs were present in 38% (n=5/13) patients. The most common major mutation was Y143R. Of the five patients with RAMs, four had a Tg7a accessory mutation in combination with major mutation Y143R confers high level of resistance to RAL and are likely to be associated with low levels of EVG resistance. However, these mutations do not confer resistance to second-generation DTG, which was observed in 30.75% of samples (n=4/13). Genotypic analyses also revealed the absence of major and accessory RAMs at the rate of 53.8% (n=7/13) and do not confer resistance to INIs.

**Conclusions:** In the absence of a cure for HIV, long-term cART outcomes need to be monitored effectively for maximum efficiency. RAMs lead to therapy escape mutants, which can ultimately cause cART failure. In the South African context, INIs are potentially a viable option for salvage therapy. Of importance, no major resistance to second-generation DTG were detected. However, there is still a need for the surveillance of the RAMs and ensure that patients receive the best possible treatment and care.

**TUPEA009**

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

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**Background:** Galectin-3 (Gal-3) is a \( \alpha \)-galactoside-binding lectin with multiple functions. Limited information is available regarding the role of Gal-3 in HIV-1 infection. We previously reported that Gal-3 promotes HIV-1 budding and Gal-3 was localized in immunological synapse (IS) as well as membrane lipid rafts. Several components for IS formation were known to be involved in VS formation, such as lipid raft and LFA-1. Accordingly, we hypothesized that cellular Gal-3 may play a role in VS mediated HIV-1 transmission and infection.

**Methods:** Gal-3 control and knockdown primary human CD 4 \(^+\) T cells were generated using RNAi. Immunofluorescence staining and immunoblotting were used for validating VSs formation and their associated components colocalization with Gal-3. Membrane flotation and Laurdan staining were performed to evaluate Gal-3 regulatory effects on polarization of membrane lipid rafts. LFA-1 and HIV viral proteins. Cell-to-Cell transmission and confocal live image observation were conducted to validate VSs formation and HIV cell-cell transmission efficiency correlated with Gal-3 expression. Mass spectrometry was performed to search the potential Gal-3 regulatory components relevant to VSs formation.

**Results:** Immunofluorescence staining and immunoblotting indicate that HIV-1 infection up-regulated Gal-3 expression and Gal-3 was colocalized with Gag. Env and LFA-1. LFA-1 and Gal-3 knockdown significantly reduced the colocalization of these proteins and VSs formation (~20% reduction) (p< 0.05). Membrane flotation data indicates that Gal-3 expression promoted colocalization and engagement of Gag, Env and LFA-1. Alix and flotillin-1 (lipid raft marker) in lower sucrose density fractions. Laurdan staining results indicate significant higher lipid raft polarization toward intercellular contact regions in Gal-3 expressing CD4\(^+\) T cells.(p< 0.001). Live image observation showed that Gal-3 associated with Gag from HIV-1 infected donor cells to the uninfected target cells via VSs. Cell-to-Cell transmission data indicates that Gal-3 knockdown in primary CD4\(^+\) T cells significantly reduced VS mediated HIV-1 transmission(p< 0.01). Mass spectrometry analyses indicate that cholesterol, sphingomyelin and phosphatidylycholine significantly ameliorated in Gal-3 knockdown CD4\(^+\) T cells compared with control groups (p< 0.01).

**Conclusions:** This study indicates that HIV-1 infection up-regulates Gal-3 to be utilized for facilitating VSs formation as well as HIV-1 cell-cell contact transmitted infection.
Viral replicative cycle (reverse transcription, integration, viral assembly and maturation)

TUPEA010

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

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Background: South Africa, with 7.1 million people infected, has the largest HIV-1 population worldwide. Whilst approximately 3.4 million people are currently receiving combination antiretroviral therapy (cART). Although HIV-1 subtype C predominates in the region, we have seen an increased detection of non-C and unique recombinant form viral strains within the Western Cape Province. The emergence of HIV-1 drug resistant strains in South Africa is inevitable as cART coverage continues to increase.

Methods: In this study we analyzed the Protease (PR), Reverse Transcriptase (RT) and Integrate (IN) regions of HIV-1 for diversity and resistance-associated mutations (RAMs) with a laboratory based PCR and Sanger sequencing protocol. Two hundred HIV-1 virus (VL) samples, from the Cape Winelands, West Coast and Overberg districts of the Western Cape Province were received from the National Health Laboratory Services (NHLS), with a VL of 2000 copies/mL and above.

Sequence-specific subtype analyses were executed with the REGA HIV subtyping tool 3.0. Sequences were screened for RAMs using the Stanford University HIV Drug Resistance Database (HIVdb) 8.1.

Results: We successfully PCR amplified 170 (82.9%) PR, 166 (80.9%) RT and 143 (81.5%) IN fragments. We could successfully sequence 173 (88.4%) of the samples included. HIV-1 subtype C was predominant (n = 144; 93.7%), with 5.3% of other subtypes detected. This includes A (n = 2; 1.3%), B (n = 4; 2.6%), D (n = 1; 0.7%) and H (n = 1; 0.7%). No major RAMs were detected against PR and IN inhibitors. Minor RAMs were detected in 4 PR (3.7%) and 15 IN (16.1%) sequences analysed. RAMs against RT inhibitors were detected in 63 (61.7%) of the sequences analyzed.

Conclusions: As the national cART program continues to expand, HIV-1 diversity, viral load monitoring and drug resistance screening remains critical to the success of cART outcomes and reducing transmission rates. Subtype C is still the driving force of the epidemic in South Africa. Sequence analyses confirm that the majority of patients receiving VL testing have major RAMs against RT inhibitors used in first-line cART. Better surveillance systems for HIV diversity and drug resistance testing are required to ensure optimal success of cART.

TUPEA011

Resolving the intersection of HIV and the actin cytoskeleton

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Background: Direct cell-to-cell transmission of HIV is orders of magnitude more efficient than infection by cell-free virus, and is now recognized as a major mode of viral spread. Since this mechanism is strongly dependent on host cell motility and intercellular interactions, HIV uses multiple strategies to hijack the cellular actin cytoskeleton. Manipulation of actin dynamics leads to cell-type specific changes in leukocyte shape and behaviour that, together, promote overall spread of the infection. However, the involved mechanisms remain poorly understood at the molecular level.

Methods: Our study follows a systematic approach to evaluate the contribution of host actin regulatory proteins in the context of cell-cell HIV spread and cytoskeletal manipulation. To this end, we combined the power of CRISPR/Cas9 gene edition with high-resolution fluorescence microscopy, live cell imaging and self-developed viral transfer assays, to interrogate the loss-of-function phenotype of over 50 cytoskeletal regulators in infected myeloid cells (U937).

Results: Our results confirmed striking and versatile manipulation of the cytoskeleton by HIV, in particular via Rac1 and Cdc42 activated pathways. We also show the involvement of direct actin regulators in HIV-driven shifting of cellular actin pools into diverse membrane protrusion structures associated with cell motility and cell-cell contacts (e.g. Formins, filopodia, Arp2/3 vas, vavels, WAVE - pseudopodullar). Furthermore, we partially characterize the mechanisms by which certain regulators enhance or decrease cell-cell viral transfer (e.g. Dia, Rac1, cofilin, among others).

Conclusions: Our findings contribute to resolving the complex interactions between HIV and our cytoskeleton. The systematic nature of our study, combined with the use of cell types that are biologically relevant for HIV and of methods that allow total target-protein depletion, represent novel contributions to this field. A better understanding of these processes increases our ability to identify host proteins, rather than viral components, that can be targeted in the fight against HIV. This not only reduces the probability of drug resistance, but also allows to capitalize resources from other areas of medical research (e.g. aberrant Rac1 activation is shared by HIV, infection, cardiovascular/neurodegenerative disease and cancer).

Transcriptional and gene expression regulation (including regulatory genes)

TUPEA012

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

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Background: Downregulation of CD4 and tetherin by the HIV-1 Vpu protein allows virus-infected cells to evade host immunity and promotes viral egress; however, little is known about the functional diversity of Vpu among HIV-1 subtypes.

Methods: Plasma samples were collected from chronic ART-naive HIV-infected individuals from Uganda and Canada. HIV-1 RNA was extracted and Vpu sequences amplified by nested RT-PCR. Amplicons were cloned into an expression vector that features separate promotors driving Vpu and GFP. Vpu clones were functionally assessed by flow cytometry for their abilities to downregulate CD4 and tetherin following transfection into an immortalized CD4+ CEM-T-cell line. Each Vpu activity was normalized to that of negative empty vector, set to 1.0 and positive Vpu NL4-3 strain, set to 1.0. Controls, such that values below 1.0 indicate reduced function. Vpu sequence polymorphisms associated with functional variation were identified using codon analysis based on Mann–Whitney statistics.

Results: A genetically diverse panel of 238 Vpu sequences was cloned and phylogenetically authenticated. Clones represented four major group M subtypes (A [n=49], B [89], C [18] and D [72]) as well as 1 H and 10 group O subtypes. Only positive (Vpu NL4-3 strain, set to 1.0) controls, such that values below 1.0 indicate reduced function. Vpu sequence polymorphisms associated with functional variation were identified using codon analysis based on Mann–Whitney statistics.

Results: Our genetically diverse panel of 238 Vpu sequences was cloned and phylogenetically authenticated. Clones represented four major group M subtypes (A [n=49], B [89], C [18] and D [72]) as well as 1 H and 10 group O subtypes. Only positive (Vpu NL4-3 strain, set to 1.0) controls, such that values below 1.0 indicate reduced function. Vpu sequence polymorphisms associated with functional variation were identified using codon analysis based on Mann–Whitney statistics.
Conclusions: Our results highlight the extent to which global HIV-1 sequence diversity may impact critical Vpu functions. Analysis of natural polymorphisms associated with Vpu function may identify novel motifs associated with natural variation in protein activity that contribute to differences in the disease outcome.

TUPEA013
HIV-1 p55Gag interaction with Dicer induces a dysregulation of specific micro RNAs and other small non-coding RNAs
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Background: Human immunodeficiency virus type 1 (HIV-1) p55Gag polyprotein is the minimal component required for the virus assembly. During the HIV-1 replication cycle, p55Gag interacts with different cellular RNAs and proteins, possibly disrupting several cellular pathways. RNA interference (RNAi) is a post-transcriptional gene silencing process in mammalian cells that controls cell differentiation, development, and immunity. The RNA Induced Silencing Complex (RISC) is composed of Dicer, TRBP, and Ago2 proteins that mediate the formation of micro RNAs (miRNAs), which target mRNAs. The RNAi pathway is functional during HIV-1 replication, but its activity can be modified. Our hypothesis is that subtle modifications may lead to the modifications of miRNAs processing or activity, and consequently of mRNA levels. Our objectives are to: (i) identify interactions between HIV-1 proteins and components of the RNAi pathway and (ii) characterize how these interactions induce modifications in the quantity and quality of miRNAs and other non-coding RNAs.

Methods: We used indirect immunofluorescence, Proximity Ligation Assay (PLA) and co-immunoprecipitation (co-IP) to characterize protein-protein interactions. We determined the cleavage capacity of Dicer using a catalytic assay with miRLet7-c and mir29a. We identified miRNAs and other small RNAs bound to Dicer by using RNA immunoprecipitation and sequencing (RIP-seq) followed by bioinformatics analysis.

Results: We identified that HIV-1 p55Gag co-localizes with Dicer by immunofluorescence on a confocal microscope. By co-immunoprecipitation, we show that the two proteins interact in an RNA-independent fashion. By PLA, we determine that p55Gag-Dicer interaction occurs mainly in the cytoplasm and we quantify the interaction (P<0.001). Our results show that Dicer catalytic activity is not impaired by p55Gag for the amount or size of miRNAs Let7-c and mir23a. Sequencing analysis shows a dysregulation of the production of specific miRNAs and other small ncRNAs when p55Gag interacts with Dicer.

Conclusions: We have demonstrated by different methods that HIV-1 p55Gag interacts with Dicer. RIP sequencing analysis shows that p55Gag interaction with Dicer changes the binding of several miRNAs and ncRNAs to Dicer, indicating a dysregulation of the incorporation of these miRNAs in the RISC. Our data contribute to the understanding of how HIV-1 can alter cellular gene expression.

Innate immunity
TUPEA014
DDX3 senses abortive HIV-1 RNA transcripts and enhances immunity against HIV-1
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Background: Antiviral immune responses are paramount in limiting HIV-1 replication. However, antiviral immune responses are actively inhibited since the virus blocks viral sensing by RNA sensors. Recently, it was discovered that novel RNA helicase DDX3 senses HIV-1. Interestingly, upon HIV-1 infection the virus integrates in the host genome and during transcription initiation of the virus, abortive HIV-1 RNA transcripts are formed. Abortive HIV-1 RNA transcripts are transported out of the nucleus and are sensed by DDX3, which subsequently results in the induction of antiviral IFN and interferon-stimulated genes (ISGs). Whether abortive RNA transcripts can also induce other innate and adaptive immune responses remains unknown. Studying the effect of DDX3 targeting in immune cells can provide new insights for vaccine design strategies.

Methods: We investigated innate and adaptive immune responses of human monocyte-derived dendritic cells (DCs) upon stimulation with various abortive RNA ligands of DDX3. We studied whether triggering of DDX3 with synthetic abortive HIV-1 RNA constructs induces antiviral IFN and ISG, DC maturation and limit viral replication capacity. This was examined by qPCR and flow cytometry techniques.

Results: Here we show that triggering DDX3 by synthetic HIV-1 abortive RNA induced antiviral innate and adaptive immunity in human DCs. Upon stimulation with abortive HIV-1 RNA, DCs show IFN-dependent maturation by increased CDB8 expression levels. In addition, stimulation of DCs with abortive RNA leads to the activation of adaptive immune responses by inducing various cytokines. Strikingly, stimulation with abortive HIV-1 RNA strongly inhibits replication capacity of HIV-1 infected DCs. These findings show that triggering of the HIV-1 sensor DDX3 with abortive viral transcripts induces antiviral innate and adaptive immunity.

Conclusions: We identified HIV-1 sensor DDX3 as key player in the induction of antiviral immunity by (i) activation of IFN and ISG responses, (ii) induction of DC maturation, (iii) induction of adaptive cytokines and (iv) decreasing viral replication capacity. Triggering of DDX3 could direct T helper skewing towards a type I immune response. Therefore, triggering this HIV-1 sensor is important to activate both innate and adaptive immunity against HIV-1 and targeting of DDX3 is important for vaccine design.

TUPEA015
Antiretroviral therapy effect on lymphocyte numbers and phenotypes in HIV infected children
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Background: Antiretroviral therapy (ART) leads to restoration of CD4+ T cells however, the effect on other T cell subsets has not been studied in HIV infected children. Our objective was to investigate the effect of ART on circulating lymphocyte numbers and phenotypes in HIV infected Ugandan children.

Methods: Peripheral blood mononuclear cells were prepared from 34 ART-naïve and 40 ART-experienced malnourished children and from 27 ART-naïve and 43 ART-experienced well-nourished children (WNC) with HIV infection. Malnutrition was defined as weight-for-height z score below 2 standard deviations of that expected for age or mid-upper arm circumference < 12.5 cm with no edema. ART-experienced children had received ART for ≥ 6 months. Cells were stained with monoclonal anti-CD4+CD8+, CD4+CD8- (double negative, DN) and CD4+CD8+ (double positive, DP) T cells, B cells, natural killer (NK) cells, invariant natural killer T (iNKT) cells and the V1, V2 and V3 T cell receptors. Frequencies and absolute counts of CD4+ T cells were significantly different between ART-naive and ART-experienced children. Cells were stained with monoclonal antibodies specific for CD3, CD4, CD8, CD16, CD56 and the V24J18, V1, V2, and V3 T cell receptors. Frequencies and absolute counts of CD4+, CD8+, CD4+CD8- (double negative), CD4+CD8+ (double positive). DP T cells, B cells, natural killer (NK) cells, invariant natural killer T (iNKT) cells and the V1, V2 and V3 subsets of T cells were assessed using multicolor flow cytometry and data analysis by Prism version 7

Results: CD4+ T cell frequencies and numbers were significantly higher in both malnourished (P<0.0001 and 0.0002, respectively) and WNC (P<0.0003 and 0.02) who received ART compared to ART-naïve children.
While absolute numbers of NK cells were lower in the ART-experienced malnourished children compared to ART-naive malnourished children (P=0.03) and absolute numbers of B cells were lower in ART-experienced WNC compared to ART-naive WNC (P=0.02). Interestingly, the frequencies and absolute numbers of CD4+ T cells were significantly reduced in both malnourished (P=0.06 and 0.03) and WNC (P=0.002 and 0.020) on ART compared to their ART-naive counterparts. The frequencies and numbers of CD8+ T cells were lower in ART-experienced malnourished (P=0.02 and 0.02) children compared to ART-naive malnourished children. DBD T cells, DP T cells, INK T cells, V2 and V3 T cells were found at similar frequencies and numbers in ART-naive and ART-experienced patients from both cohorts.

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

TUPEA016 Neutrophil dynamics during the highly pathogenic SIVsab infection of pigtailed macaques

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

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

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

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

TUPEA017 SAMHD1 has a central role in restricting HIV-1 in macrophages and is responsive to interferons, viral sensing and tyrosine kinase inhibition

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

Methods: CD14+ monocytes were isolated from whole blood of healthy donors and differentiated for seven days in medium containing 10% pooled human serum. Mature, adherent macrophages were incubated with various interferons or pharmacologic agents, then analyzed for SAMHD1 protein and T952 phosphorylation or infected with HIV-1. To determine the role of SAMHD1-mediated, IFN-induced HIV-1 restriction, cells were treated with exogenous deoxynucleosides or virus-like particles containing the SIV protein, Vpx.

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

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

TUPEA018 Evidence for elevated inflammation in young gay and bisexual men

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

Methods: Data were collected as part of the RADAR cohort of YMSM (aged 16-29) in Chicago from 2015-2017. HIV-positive participants were matched 1:1 with an HIV-negative participant based on demographic factors. C-reactive protein was assayed for all HIV-positive and matched HIV-negative participants. Cytokine panels (GM-CSF, IL-1β, VEGF, IFN-α, MIP-1α, MIP-1β, IFN-G, IL-10, IL-12/17α, IL-1β, IL-6, TNF-A) were completed for all HIV-positive participants and a subset of the HIV-negative partici-
Humoral immunity (including broadly neutralizing antibodies)

TUPEA019
Neutralizing antibody response in HIV-1 CRF02_AG infected subjects
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Background: One of the greatest challenges in the HIV-1 vaccine field remains the design of immunogens able to elicit antibodies that can neutralize diverse HIV-1 strains. Neutralizing antibodies are a critical component of the protective immunity required for developing an effective HIV-1 vaccine. In addition, it is necessary to design vaccine antigens which induce a potent and broadly neutralizing antibody response against various HIV-1 strains. So far, neutralizing Ab studies have mainly covered subtypes B and C. Here we evaluate neutralizing Ab response in HIV-1 CRF02_AG which is the most prevalent subtype in Cameroon.

Methods: Samples longitudinally collected (spanning on 7 years, 2001 - 2008) from 5 patients infected with HIV-1 CRF02_AG (ART naive) were used for this study. We assessed their breadth and potency for heterologous neutralization. We performed TZM-bi neutralization assay using 2 primary viruses (both HIV-1 CRF02_AG), one T cell (Bal26) and five bcr (T250, Q23.17, Tro.11, Zm249 and X2131) viruses. Neutralization curves were shown as nonlinear regression fits calculated in GraphPad Prism. IC50 values were determined in the fitted curves for the reciprocal plasma dilutions at 50% neutralization.

Results: Neutralization responses remained weak for all the longitudi- nal plasma samples with IC50 values not exceeding 39 (plasma dilution) for primary viruses. One patient out of five exhibited a good neutralizing response for all the time points and to almost all the pseudovirus strains used. Participant SK008 had the highest neutralization capacity, which corresponded to a drop in viral load in participant SK-008. The two participants did not map to the tested epitopes.

Conclusions: A higher than expected percentage of study participants developed bNAbs. Participant SK008 had the highest neutralization capacity and should be sequenced longitudinally, along with autologous virus, to assess virus/host co-evolution. Neutralization profiles suggest a switch in antibody specificity and viral escape. Antibodies may be target- ing novel epitopes or targeting alternative locations on known epitopes.

TUPEA020
Broadly neutralizing antibodies and their specificities in chronic HIV-1 subtype C infection
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Background: There is a global need for an effective HIV-1 vaccine and this may be achieved by eliciting broadly neutralizing antibodies (bNAbs). The development of bNAbs occurs in only 10-30% of HIV-1 infected individuals. However the mechanism that leads to the development of bNAbs is unknown. The purpose of the study was to identify individuals that developed broadly neutralizing antibodies, determine their specificities on the viral envelope, and characterize the longitudinal kinetics of these bNAbs.

Methods: Twenty antiretroviral naive individuals with chronic HIV-1 subtype C infection were screened for bNAbs at 3 years post enrolment. A standard panel of 18 HIV-1 pseudoviruses (6 subtype A, 6B and C) was used to screen the participants using the TZM-bi luciferase reporter gene assay. To characterize the kinetics of bNAbs over time, the individ- uals that developed bNAbs were followed up longitudinally for approxi- mately 7 years post enrolment. Plasma viral loads and CD4+ T cell counts were measured using Roche Amplicor assay or the Roche Ultrasensitive assay, and Trucount technology respectively. Specificity of the antibodies was determined using site-directed mutagenesis on known bNAb target epitopes.

Results: Forty seven percent of individuals developed bNAbs that neutralized all 38 pseudoviruses. In contrast, Bq51 neutralized at least half of the pseudoviruses. Participants SK008 and SK034 antibodies neutralized with high potency and breadth across heterologous viruses. The antibody longitudinal neutralization profiles illustrated peaks in neutralization, which corresponded to a drop in viral load in participant SK-008. The two participants did not map to the tested epitopes.

Conclusions: A higher than expected percentage of study participants developed bNAbs. Participant SK008 had the highest neutralization cap- ability and should be sequenced longitudinally, along with autologous virus, to assess virus/host co-evolution. Neutralization profiles suggest a switch in antibody specificity and viral escape. Antibodies may be target- ing novel epitopes or targeting alternative locations on known epitopes.

TUPEA021
Broadly neutralizing plasma antibodies obtained from an Indian donor with specificity to linear epitopes in V1 and V4 region of viral Env preferentially neutralize HIV-1 clade C
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Background: Broadly neutralizing antibodies (bNAbs) developed in few individuals infected with HIV-1 are providing viral clues towards design and development of prophylactic and therapeutic vaccines. HIV-1 subtype C which accounts for majority of global infection majorly circulating strain in India. In an IAVI Protocol G study, we examined the basic neutralization breadth of plasma antibodies obtained from an anti-retroviral naive Indian donor chronically infected with HIV-1 subtype C.

Methods: Neutralization breadth of the plasma antibodies was exam- ined using a panel of 50 envelope (Env)-pseudotyped viruses in a TZM- bi assay. Antibody specificities was assessed by using chimeric Envs prepared between sensitive and resistant HIV-1 clade C Env. depletion by monomeric and trimeric soluble Env proteins and competitive pep- tide inhibition assay by ELISA and TZM-bi neutralization assay.

Results: Among 1,031 RADAR participants, 148 (14.4%) were identified as HIV-positives. No difference in CRP was observed between those infected and uninfected with HIV. HIV status was negatively associated with IL-15 (p < 0.001) and positively associated with VEGF (p < 0.001). IL-12p70 (p < 0.001), IL-18 (p < 0.001) and TNF-α (p < 0.001). CRP was significantly as- sociated with BMI (p < 0.001), however, it was not associated with drug or alcohol use, rectal gonorrhea or chlamydia, viral load, nor anti-retroviral therapy use. Psychosocial factors (e.g. depression, perceived stigma, etc) were minimally associated with VEGF, IFN-γ, and IL-12p70, but not with CRP. In adjusted linear regression models, any receptive anal sex and any condoms less receptive anal sex were both found to be signifi- cantly associated with IL-6 but not CRP.

Conclusions: In this analysis, we observed few significant associations with biomarkers of inflammation among YMSM. These findings suggest that factors responsible for elevated systemic inflammation among this population may be more complicated than previously thought. Further research needs to be conducted in this population to understand this phenomenon and to mitigate associated comorbidities.
TUPEA022

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

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Background: It is generally assumed that the induction of broadly neutralizing antibody (bNAbs) requires long periods of antigen exposure, an observation that complicates vaccine design. We have previously reported the identification of patients who displayed broadly neutralizing susceptibility of viruses to plasma of this particular individual. Such information will facilitate rational optimal designing of antigen bait towards successful isolation of bNAbs from this individual and also informed novel vulnerabilities associated with immune evasion in the course of natural infection.

TUPEA023

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


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

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

Results: Out of 70 samples screened, 28 (40%) showed neutralization activity, among them 8 (11%) had broad and potent neutralization response and 20 (29%) showed cross-reactive neutralization response 11 (55%) of these cross-reactive plasma samples exhibited strong binding affinity to RSC3 core protein, of which 7 plasma samples showed reduced (>3 fold) affinity towards RSC3/EP363N probe (negative control) indicating presence CD4bs-specific neutralization response. In addition, two of these plasma samples from chronically infected individuals (slow progressors-LT-VNP28 & LT-VC 12) showed stronger (>3 fold) affinity towards RSC3/CG3/Y mutant probe, suggesting presence of VRC01-like antibodies (Table 1).

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

TUPEA024
Characterization of the humoral response directed against the Antisense Protein of HIV-1 in patients

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

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

Results: High ASP-Ab levels were found in 20% of patients from Burkina Faso and in 30% of South African patients. Deletion of the cytoplasmic N-terminal domain of ASP did not impair the detection of ASP by patients’ antibodies, contrary to deletions of predictive transmembrane and extracellular domains of ASP. Interestingly, one patient displayed antibodies recognizing all the deleted-forms of ASP and also showed very low viral load. Otherwise, two patients presented a progressive rise of the ASP-Ab levels after treatment cessation, which was followed by a decline in viral load.

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

Cellular immunity

TUPEA025
The lower spare respiratory and glycolytic capacity of peripheral blood mononuclear cells from MSM is not associated with CMV infection

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

Methods: PBMCs were obtained from men having sex with men (MSM) (n = 40) and BBD (n = 26). The immune phenotype (T cell differentiation CD45RA/CCR7/CD27; senescence CD27/CD28/CD57) was determined (n = 40) and BBD (n = 26). The immune phenotype (T cell differentiation CD45RA/CCR7/CD27; senescence CD27/CD28/CD57) was determined by flow cytometry. The cell energy metabolism of PBMCs was analyzed using the Seahorse XF96 Analyzer. Oxygen consumption rate (OCR) was measured to determine mitochondrial respiration and the extracellular acidification rate (ECAR) was analyzed to determine glycolysis.

Results: Immune phenotyping revealed a significant increase in CD4 and CD8 effector memory T cells (CD45RA/CD27/CD27CCR7) and CD8 effector T cells (CD45RA/CD27/CD27CCR7) in MSM as compared to BBD. Furthermore, a significant increase in CD4 and CD8 T cell senescence (CD27/CD28/CD57) was observed.

Analysis of the cell energy metabolism revealed that mitochondrial respiration was comparable between BBD and MSM, however lower spare respiratory capacity was observed in MSM (OCR: BBD 56.71 ± 24.76 vs MSM 36.65 ± 19.45, p = 0.0004). The glycolytic capacity was significantly decreased in MSM (ECAR: BBD 7.65 ± 3.09 vs MSM 4.64 ± 1.54, p = 4.5 x 10^-6). Multivariate analysis showed that CMV infection was associated with increased proportions of CD8 effector memory, CD8 effector and senescent T cells, but not with lower spare respiratory and glycolytic capacity in MSM.

Conclusions: We observed that MSM had higher proportions of effector memory and senescent CD4 and CD8 T cells as compared to BBD, which could largely be attributed to high prevalence of CMV infection in MSM. Furthermore, we observed a significant decrease in spare respiratory and glycolytic capacity of PBMCs from MSM, which is indicative for a decreased proliferative ability of these cells. The lower spare respiratory and glycolytic capacity was not associated with CMV infection.
TUPEA026
TGF1 enhances R5 tropic HIV infection in activated and resting memory CD4 T cells through upregulating CCR5 expression
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Background: TGF1 is upregulated in both acute and chronic HIV-1 patients. The level of TGF1 is associated with AIDS disease progression. However, whether TGF1 contributes to HIV pathogenesis remains largely unknown. Here, we found that TGF1 upregulates one of the major HIV coreceptors, CCR5, in memory CD4 T cells. Therefore, we hypothesize that TGF1 may facilitate R5 tropic HIV-1 infection in memory CD4 T cells through inducing CCR5 expression.

Methods: Memory CD4 T cells were isolated from peripheral blood mononuclear cells. Activated CD4 T cells were prepared by culturing in IL-2 and IL-15 for 4 days. Resting CD4 T cells were enriched by the depletion of CD25, CD69, and HLA-DR positive cells. TGF1 treatment was done for 3 days. Phenotype changes of the cells were analyzed by flow cytometry. The HIV susceptibility of the cells was studied by using pseudovirus and live-replicating virus. For viral outgrowth assay (VOA), infected resting CD4 T cells were stimulated by anti-CD3/anti-CD28/IL-7/IL-15 followed by co-culturing with MOLT-4-CCR5 cell line for 7 days. The viral load was detected by TaqMan qPCR.

Results: Our result shows that TGF1 enhanced the percentage and MFI of CCR5 expression in both activated or resting memory CD4 T cells. This increase was inhibited by the TGF1 type 1 receptor antagonist - SB343542. Indicating that the increase in CCR5 expression is TGF1 dependent. To evaluate the effect of TGF1 on CD4 T cells during HIV-1 infection. TGF1 stimulated CD4 T cells were infected with pseudotyped virus with R5 tropic HIV-1 envelope. We found that HIV-1 infection was significantly increased in TGF1 stimulated activated memory CD4 T cells. In contrast, TGF1 has no effect when the cells were infected with VSV enveloped pseudovirus. These results suggest that TGF1 promotes HIV infection through upregulating CCR5 expression. Due to the low HIV transcription efficiency in resting CD4 T cells, we assessed its susceptibility towards infection by HIV-1 in vitro, followed by VOA. Consistently, TGF1 also facilitated HIV infection in resting CD4 T cells.

Conclusions: Our results provide a new insight that TGF1 facilitates R5 tropic HIV-1 infection in activated or resting memory CD4 T cells through upregulating CCR5.

TUPEA027
Changes in circulating gamma delta T cell subset numbers in immunological and virological responders and non-responders among HIV-infected children on antiretroviral therapy
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Background: Peripheral blood mononuclear cells were isolated from 24 ART-experienced patients with HIV infection, of whom 4 were immunological non-responders with CD4 T cell counts < 200/μl of blood. 4 were immunological intermediate responders (200-500 CD4 T cells/μl) and 34 were immunological adequate responders (≥500 CD4 T cells/μl). Of the 42 patients, 10 had detectable viral loads. 120 copies/ml and 12 patients did not. Cells were stained with monoclonal antibodies specific for CD3, V1, V2, and V3 T cell receptor chains. Frequencies and absolute counts of V1, V2 and V3 subsets of T cells were assessed using multicolor flow cytometry.

Results: The frequencies of V1 T cells were significantly lower in the patients who achieved an immunological response compared to the immunological non-responders (P=0.02). These cells were also found at lower frequencies in the virological responders compared to the non-responders (P=0.02). In contrast, V2 T cells remained depleted in the immunological non-responder groups compared to the responders (P=0.05). The frequencies and numbers of V3 T cells were similar in all patient groups except in the intermediate responders.

Conclusions: V1 T cells are expanded in patients with HIV infection and their numbers decrease in patients with good immunological and virological responses to ART. In contrast, V2 T cells are depleted in HIV infection and they remain decreased in patient with a virological non-response, suggesting that they may become infected and killed by HIV.

TUPEA028
Antiviral activity correlates with the phenotype and polyfunctionality of stimulated CD8+ T-cells from HIV+ subjects who initiated cART at different time points after acute infection
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Background: HIV functional cure will largely depend on the capacity (natural or artificially modulated) of CD8+ T-cells (CD8TC) to eliminate remaining infected cells, despite effective cART.

Aim: to evaluate the antiviral capacity of expanded HIV-specific CD8TCs, from HIV+ subjects with different timing of cART initiation after the acute phase of infection.

Methods: PBMCs from 26 HIV+ subjects on cART for 1 year were obtained. Twelve initiated treatment during chronic infection (Deferred Treatment, DT) and 13 within four months post-infection (Early Treatment, ET). PBMCs were stimulated with peptides pools spanning Nef and Gag proteins during 14 days. CD8TC phenotype (CD8+ T-cells) to eliminate infected cells, despite effective cART.

Conclusions: Peripheral blood mononuclear cells were isolated from 24 ART-experienced patients with HIV infection, of whom 4 were immunological non-responders with CD4 T cell counts < 200/μl of blood. 4 were immunological intermediate responders (200-500 CD4 T cells/μl) and 34 were immunological adequate responders (≥500 CD4 T cells/μl). Of the 42 patients, 10 had detectable viral loads. 120 copies/ml and 12 patients did not. Cells were stained with monoclonal antibodies specific for CD3, V1, V2, and V3 T cell receptor chains. Frequencies and absolute counts of V1, V2 and V3 subsets of T cells were assessed using multicolor flow cytometry.

Results: The frequencies of V1 T cells were significantly lower in the patients who achieved an immunological response compared to the immunological non-responders (P=0.02). These cells were also found at lower frequencies in the virological responders compared to the non-responders (P=0.02). In contrast, V2 T cells remained depleted in the immunological non-responder groups compared to the responders (P=0.05). The frequencies and numbers of V3 T cells were similar in all patient groups except in the intermediate responders.
Conclusions: Different CART initiation timing affected CD8TCs phenotype and polyfunctional activity. However, it did not affect direct and indirect antiviral activity. VIA magnitude correlated with CD8TC memory/effector differentiation profile, while VA was also associated with polyfunctionality, particularly with degranulation capacity. Overall, Nef emerged as an interesting candidate for therapeutic formulations aimed to modulate HIV-specific CD8TCs response since Nef-specific cells showed the best performance in our model.

TUPEA029 Comprehensive analysis of TCR cross-recognition against Gag Tlg

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Background: T cells receptors (TCR) play a crucial role in HIV-1 disease outcome as they recognize and facilitate the elimination of virus-infected cells. The ability of TCR to recognize HIV-1 escape variants also contributes significantly to long-term control. The TCR repertoire is highly diverse and sequence characteristics associated with enhanced cross-recognition of HIV-1 escape variants are poorly understood. To examine this, we characterized the function and selection of Tlg-specific TCR clones isolated from B*81:01 and B*42:01 individuals.

Methods: TCR repertoire from B*81:01 and B*42:01 individuals were examined using single cell sequencing. TCR alpha/beta clones from 3 B*81:01 and 3 B*42:01 individuals were transfected into Jurkat “effector” cells along with an NFAT-driven luciferase reporter and a CDR expression plasmid. “Effector” cells were co-cultured with target cells expressing B*81:01 or B*42:01 pulsed with all possible single amino acid TGL variants (N=180). TCR reactivity was quantified by luminescence. TCR recognition profiles were examined using hierarchical clustering and principal component analysis (PCA).

Results: Collectively, the TCR clones responded to 111 (of 171, 65%) Tlg peptide variants. Individual B*81:01 clones responded to 76, 62, and 103 variant peptides, while B*42:01 clones responded to 57, 55, and 63 variant peptides. Limited TCR reactivity against variants at positions 2, 5 and 6 suggested that they served as crucial sites for HLA binding or TCR contact. Hierarchical clustering analysis of TCR function indicated that one public B*42:01 clone grouped with the three B*81:01 clones. Similar results were found using PCA, where the public B*42:01 clone was placed in closer proximity to the B*81:01 clones. These four TCR clones also displayed better recognition of naturally occurring TGL escape variants, indicating that they may play an important role in limiting disease progression. Conclusions: This in vitro system provides a novel tool to characterize the function of TCR. Clustering TCR clones according to their peptide recognition profiles may aid in the identification of sequence features associated with enhanced antiviral activity, which would support the development of vaccines or therapeutics designed to prevent or eliminate HIV-1 infection.

TUPEA030 Selective immune cell depletion of mycobacterium tuberculosis (MtB) in whole-blood bactericidal assay (WBA)

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Background: Whole-blood bactericidal assay (WBA) is an established ex vivo model which is used to test anti-mycobacterial efficacy of new drugs. Killing in this model includes a contribution from human immune cells although the exact nature of that contribution is not known. We investigated the effects of individual cell types on the growth of MtB in WBA using immuno-magnetic depletion approach.

Methods: Blood drawn from 8 healthy volunteers was depleted, in separate experiments, of macrophages, neutrophils, natural killer (NK), CD4+, CD8T, B and dendritic (DC) cells using specific monoclonal antibodies through a commercialised column-free magnetic platform (STEMCELL, EasySep®). Extent of depletion was measured by cell cytometry and fluorochrome-conjugated antibodies. Depleted blood was inoculated with MtB, with and without rifampin, and incubated for 72 hours. Quantity of viable MtB was determined converting BACTEC® MGIT® time to positivity (TTP) values to estimates CFU change, using a standard curve of TTP vs inoculum size.

Results: Most cell lines were successfully depleted (>75%). CD15 and CD123 cells were not successfully depleted (25.8% and 35.1% respectively); results from these are not reported. The difference in MtB growth from non-cell-depleted blood (log10 CFU), with and without rifampin present is shown in Table 1.

In the absence of rifampin, depletion of neutrophils, DCs, macrophages and NK cells increased MtB colony count in WBA, with neutrophil depletion having the greatest impact. In the presence of rifampin, depletion of neutrophils, DCs and macrophages enhanced bactericidal activity of the drug compared to intact whole blood.

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

TUPEA031 An increased of T cell immunity in HIV-infected patients: A post-hoc analysis of the IPROTECT1 therapeutic vaccine Phase II study

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Background: 3S is a highly conserved motif of HIV-gp41 protein that induced expression of NKp44L, a ligand of an activating NK receptor, on CD4+ T cells. High level of anti-3S antibodies (Abs) is associated with lower HIV-1 disease progression. Preclinical studies in infected macaques demonstrated that anti-3S Abs are associated with CD4 T cell protection. VAC-3S is a therapeutic vaccine composed of 3S motifs-coupled with CRM97 carrier in aluminium salt adjuvant. Previous Phase 1 study demonstrated the safety of VAC-3S.

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

<table>
<thead>
<tr>
<th>Cell type depleted</th>
<th>Growth difference</th>
<th>95% CI, p value</th>
<th>Growth difference</th>
<th>95% CI, p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutrophils (CD16b)</td>
<td>+0.62</td>
<td>0.45, 0.80, p&lt;0.0001</td>
<td>-0.30</td>
<td>-0.59, -0.02, p&lt;0.041</td>
</tr>
<tr>
<td>DC (CD11c)</td>
<td>+0.47</td>
<td>0.27, 0.68, p&lt;0.001</td>
<td>-0.10</td>
<td>-0.19, -0.02, p&lt;0.021</td>
</tr>
<tr>
<td>macrophages (CD14)</td>
<td>+0.23</td>
<td>0.10, 0.35, p&lt;0.003</td>
<td>-0.20</td>
<td>-0.35, -0.04, p&lt;0.018</td>
</tr>
<tr>
<td>NK (CD56)</td>
<td>+0.15</td>
<td>0.07, 0.23, p&lt;0.002</td>
<td>-0.08</td>
<td>-0.23, 0.07, p&lt;0.253</td>
</tr>
<tr>
<td>CD4T</td>
<td>+0.22</td>
<td>-0.01, 0.44, p&lt;0.058</td>
<td>+0.03</td>
<td>-0.08, 0.12, p&lt;0.544</td>
</tr>
<tr>
<td>CD8T</td>
<td>+0.09</td>
<td>-0.05, 0.23, p=0.145</td>
<td>0.00</td>
<td>-0.12, 0.13, p=0.981</td>
</tr>
<tr>
<td>CD19B</td>
<td>+0.13</td>
<td>-0.08, 0.35, p=0.173</td>
<td>+0.04</td>
<td>-0.08, 0.16, p=0.4352</td>
</tr>
</tbody>
</table>

(Table 1: Difference in MtB growth (log10 CFU) vs non-cell-depleted blood)
Conclusions: This work demonstrates that IL-7 production by intestinal epithelial cells is upregulated by inflammatory signals and identifies endothelial cells as one of the chemokine-expressing cell types under IL-7 stimulation.

TUPEA033
Genital inflammation and cervical T-cell activation associated with sexually transmitted infections in adolescent girls and young women at high risk of HIV infection

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Background: Sexually transmitted infections (STIs) increase the risk of HIV transmission and acquisition, but the underlying mechanisms are not fully known. Adolescent girls and young women (AGYW) are a key population disproportionately susceptible to HIV and other STIs. We hypothesised that STIs increase genital inflammatory cytokine concentrations and activated T-cells in AGYW.

Methods: In a cohort of 298 AGYW (16-22 years) from Cape Town and Soweto, South Africa, Chlamydia trachomatis (igenic and L-serovar specific assays), Neisseria gonorrhoeae, Treponema pallidum and Trichomonas vaginalis were measured from vulvovaginal swabs using multiplex PCR, and HSV-2 serology was performed. Bacterial vaginosis (BV) was diagnosed using Nugent scoring. Concentrations of 44 cytokines were measured from genital secretions by Luminex. Cervical T-cell activation and proliferation markers (CCR5, CD38, HLA-DR, and Ki67) were measured from fresh cytobrushes using flow cytometry.

Results: Overall, 115/298 (38.6%) of these AGYW from South Africa had ≥1 STI (90% having multiple STIs) and all were asymptomatic. T. vaginalis and C. trachomatis were the most inflammatory infections, both significantly associated with 10/44 cytokines being elevated compared to controls. C. trachomatis was more inflammatory in Cape Town-based AGYW while T. vaginalis was more inflammatory in Soweto. Interestingly, having detectable genital HSV-2 DNA was not associated with genital inflammation, was more inflammatory in Soweto. Interestingly, having detectable genital HSV-2 DNA was not associated with genital inflammation, but the underlying mechanisms are not fully known. Adolescent girls and young women (AGYW) are a key population disproportionately susceptible to HIV and other STIs. We hypothesised that STIs increase genital inflammatory cytokine concentrations and activated T-cells in AGYW.
TUPEA034
Differential genital inflammation associated with Chlamydia trachomatis sequence types in adolescent girls and young women at high risk of HIV infection

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Background: Chlamydia trachomatis is highly prevalent in young people, with significant genetic diversity that may influence pathogenesis. C. trachomatis increases HIV risk in adolescent girls and young women (AGYW), and causes reproductive complications. We hypothesized that different C. trachomatis strains could increase genital inflammation, which could influence HIV acquisition risk.

Methods: We enrolled 298 AGYW (15-22 years) from Cape Town (CPT) and Soweto, Johannesburg (JHB) South Africa (WISH cohort) who were tested for C. trachomatis (including L-serovars), Neisseria gonorrhoeae, Trichomonas vaginalis, Mycoplasma genitalium, Herpes simplex virus (HSV)-2, Haemophilus ducreyi and Treponema pallidum using multiplex PCR. Forty-four cytokines were measured in genital secretions by Luminex. The sequence types of C. trachomatis were determined using multispecies sequence typing based on five non-housekeeping and the ompA genes (CPT n=52, JHB n=23).

Results: C. trachomatis was the most prevalent bacterial infection, found in of AGYW 41.6% in Cape Town and 17.4% in Soweto. It was associated with significantly elevated concentrations of 10/44 cytokines compared to their STI/BV-negative counterparts, including IL-1α, IL-6, TNF-α, IP-10, MIG, G-CSF, HGF, SCF, IFN-γ and IL-4. C. trachomatis was more inflammatory in Soweto (n=26) than in Cape Town (n=62). MLST was performed successfully on 75/BB cases, and 34 different sequence types (ST) (including 7 genovars) were detected. Of these, 15 were novel types. The three most common ones were ST12d (n=12), ST530b (n=11) and ST3 (n=9). There were no significant differences (p=0.187) in distribution by three most common ones were ST12d (n=12), ST530b (n=11) and ST3 (n=9). There were no significant differences (p=0.187) in distribution by

Conclusions: C. trachomatis was highly prevalent in this at-risk population and was associated with a robust inflammatory profile, although inflammation was sequence type-dependent. Understanding the mechanism through which C. trachomatis may increase inflammation and possibly HIV acquisition could be important in reducing HIV risk.

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

TUPEB035
Laboratory development of a modified ELISA assay for HIV-1 incidence estimation

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Background: BED HIV-1 Capture EIA (BED-CEIA) was developed by US CDC to detect potential recent HIV-1 infections. Despite limitations of high cost and complicated operation procedures, it has been widely used in multiple cross-sectional analyses worldwide for HIV-1 incidence estimation. It was the only approved diagnostic kit for research use worldwide. In our study, we established a modified version of BED-CEIA named BED HIV-1 Capture Chemiluminescence Enzyme Immunoassay (BED-CCLEIA).

Methods: Biotinylated HIV-1 gp41 Peptides of subtype B, E and D were synthesized separately and biotinylated by Beijing Scligt Biotechnology. HIV-1 seroconversion panels were from BBI Diagnostics (Panel Z) and China national standards materials (PRB926, PRB954), with total 4 specimen. Reproducibility and stability study of BED-CCLEIA were conducted. Reliability analysis was made with clinical specimen and HIV-1 Seroconversion Panels mentioned above.

Results: Our BED-CCLEIA exhibited a good concordance with BED-CEIA in experiment with controls from BED-CEIA (r=0.995). Its intra-run CV was less than 10%, and inter-run CV was less than 15%, stability study within 6 days at 37°C found no loss of the standardized values. Controls and Calibrators were made and displayed a close RLU values with those from BED-CEIA. 95% confidence intervals had no significant difference with BED-CEIA.

A total of 246 HIV-1 serum samples and 4 recent HIV-1 infection samples were tested by BED-CCLEIA. the sensitivity and specificity was 96.2% and 80.1% respectively compared with BED-CEIA, the accuracy rate was 87.4%. The results of consistent analysis indicated that the two methods achieve better coherence with a Kappa value of 0.75. Likewise, both the two identified the 4 specimens as recent infections.

Conclusions: Our modified assay displayed similar performance characteristics to the BED-CEIA in laboratory experiments. Further studies should be done to define the cut off value and window period which are applicable for HIV incidence analysis in China.

TUPEB036
Implementation lessons of integrating early infant diagnosis of HIV at point of care using Xpert® HIV-1 Qual in four public hospitals in Myanmar

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1 Burnet Institute, Yangon, Myanmar, 2 Burnet Institute, Melbourne, Australia, 3 School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia, 4 National Health Laboratory, Yangon, Myanmar, 5 Kirby Institute, University of New South Wales, Sydney, Australia, 6 National Center for STD Control, Nanjing, China, 7 International Centre for Reproductive Health ICRHI, Department of Obstetrics and Gynaecology, Ghent University, Ghent, Belgium

Background: Low coverage and delays in result communication of early infant diagnosis (EID) of HIV with centralized laboratory-based testing using dried blood spots has led to delays in treatment initiation. Point-of-care (POC) EID testing could improve timely treatment initiation, but differences in health systems could impact feasibility. We assessed the challenges and enablers to implementing the POC Xpert® HIV-1 qualitative assay in Myanmar.
TUPEBo38

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

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Background: HIV diagnosis relies on detecting HIV-specific antibody, viral antigens, genome, or whole virions. Certain rare individuals with persistently indeterminate test results have to live with uncertainty as to their true HIV status, and their best clinical management remains unknown. This may become increasingly an issue with the widespread availability of PrEP, PEP and early ART initiation, potentially delaying or altering the development of HIV-specific antibodies. We describe a new national referral clinical service, established to explore novel diagnostic algorithms and offer counseling and management of individuals with persistently indeterminate HIV test results.

Description: Eligible individuals were referred to our clinic by their medical provider via the Virus Reference Department of Public Health England, with the following results: multiple “reactive” or indeterminate HIV antibody tests on different platforms with indeterminate Western Blot profiles, in the absence of confirmed HIV RNA, DNA or p24 antigen tests. Additional blood was drawn for repeat multiple HIV antibody EIAs including in-house typing assays: HIV Western blot, HIV RNA (including ultralow copy HIV RNA to 1 copy/ml) HIV DNA (total and sorted CD4+ T-cells) including multiple primer sets, p24 antigen; infection screen including EBV, CMV, VZV, HTLV, HBV, HCV, STS; auto-antibodies; immune activation markers; HLA-DR and CD25 expression on CD4 and CD8 cells and CD4, CD8 counts and CD4:8 ratio.

Lessons learned: The first six individuals attended the service between October 2017 and January 2018; five were diagnosed with HIV infection, with one awaiting further investigation. Western blots sometimes yielded greater clarity, no co-infections were found, and CD4 counts and T-cell activation markers were normal. Ultra-sensitive RNA viral load and DNA testing on freshly-processed samples were useful adjuvants to traditional tests (see table).

<table>
<thead>
<tr>
<th>Patient</th>
<th>HIV-1 EIAs (Murex)</th>
<th>HIV Western blot</th>
<th>HIV RNA Ultra-sensitive</th>
<th>HIV DNA</th>
<th>CD4 count (300-1400)</th>
<th>CD4:8 ratio (4.6-16.9)</th>
<th>CD8 DNA (5.7-38.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.5 p17, p24, gp41, gp160</td>
<td>1 +ve</td>
<td>807</td>
<td>2.0</td>
<td>5</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>15.1 p17, p24, gp41, gp160</td>
<td>0 ve</td>
<td>785</td>
<td>2.5</td>
<td>8</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>16.5 p17, p24, p53, p66, gp41, gp120, gp160</td>
<td>9 +ve</td>
<td>811</td>
<td>2.0</td>
<td>7</td>
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<tr>
<td>4</td>
<td>6.4 p17, p24, p53, p66, gp41, gp120, gp160</td>
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<td>1359</td>
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<tr>
<td>5</td>
<td>11.3 p24, gp160</td>
<td>17 ve</td>
<td>1498</td>
<td>2.9</td>
<td>6</td>
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<tr>
<td>6</td>
<td>8.1 p24, gp120, gp160</td>
<td>0 ve</td>
<td>839</td>
<td>2.1</td>
<td>5</td>
<td>17</td>
<td></td>
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</tbody>
</table>

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

TUPEB040
Performance evaluation of a point-of-care (POC) CD4 test device (VisiTest® CD4) for use in resource-limited settings

V. Vishwakarma1, K. Kanthamani1, P. Nandagopal2, H. Syed Iqbal1, J. Forbes1, S. Sunil Suhasi1, E. Valenter1, S. Crowe1, C. McMurrin1, D. Anderson1, P. Balakrishnan2
1YRG Centre for AIDS Research and Education, Voluntary Health Services, Chennai, India. Infectious Diseases Laboratory, Chennai, India. 2Omega Diagnostics, Scotland, United Kingdom. 3Johns Hopkins University School of Medicine, Infectious Diseases Laboratory, Baltimore, United States. 4Burnett Institute and Monash University, Melbourne, Australia

Background: CD4+ T lymphocyte counts remain the most common surrogate marker indicating immune status and disease progression in HIV-infected individuals. Although WHO guidelines recommend antiretroviral therapy (ART) irrespective of CD4 levels, establishing the CD4 count is still important for prioritization of ART and monitoring in many settings. Laboratory-based CD4 measurement with the initial investment in flow cytometric technology, infrastructure requirements and expensive reagents makes it unaffordable for many resource-limited countries like India. Point-of-care (POC) CD4 testing would reduce costs and increase the likelihood of retention in care.

Methods: We evaluated the performance of the VisiTest®CD4 lateral flow POC device using both finger-prick and venous blood samples from patients (n=200) attending the HIV clinic at YRG CARE, Chennai, from May to September 2017. VisiTest®CD4 test compares the patient blood test line intensity to that of a reference line of 350 cells/µL (Figure 1). The results of finger-prick and venous blood samples from each patient were assessed visually and compared with CD4 counts in the same venous blood sample measured by NAVIOS flow cytometer (Beckman Coulter, CA, USA). VisiTest®CD4 results were available within one hour.

Results: In our study, 123 were males and 77 were females and their median age was 40 years (IQR 36-48). Of 200 patients, 144 had a CD4 count of <350 cells/µL and 56 had a CD4 count of >350 cells/µL by flow cytometry. The specificity and sensitivity of the VisiTest CD4 test was calculated by comparing the POC test with flow cytometric results. Concordance between flow cytometric CD4 and VisiTest CD4 was higher using venous blood versus finger prick samples (97 vs. 84%) (Table 1).

Conclusions:

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

<table>
<thead>
<tr>
<th>VisiTest®CD4 Test (Visual reading)</th>
<th>Flowcytometry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venous blood</td>
<td>Fingepick blood</td>
</tr>
<tr>
<td>&lt;350 cells/µL</td>
<td>&gt;350 cells/µL</td>
</tr>
<tr>
<td>&lt;350 cells/µL</td>
<td>&gt;350 cells/µL</td>
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<tr>
<td>&lt;350 cells/µL</td>
<td>&gt;350 cells/µL</td>
</tr>
<tr>
<td>Sensitivity %</td>
<td>97%</td>
</tr>
<tr>
<td>Specificity %</td>
<td>68%</td>
</tr>
<tr>
<td>Positive predictive value</td>
<td>89%</td>
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<tr>
<td>Negative predictive value</td>
<td>91%</td>
</tr>
<tr>
<td>Efficiency</td>
<td>89%</td>
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</tbody>
</table>

(Table 1. Performance characteristics of VisiTest®CD4 Test)
Viral load measurement (e.g. point of care diagnostics)

TUPEB041 Achieving the 3rd 90: Monitoring of viral load testing in Jhpiego- MCSP facilities in Haiti: A program intervention

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Background: To achieve the 3rd 90, Haiti introduced viral load testing in July 2016, as the primary laboratory testing method to monitor HIV viremia in ART clients. Data indicated that 92,294 patients were on ART. Of those, 61,092 (65%) benefited from viral load testing, available in 95% of ART facilities. The low testing rate was due to lack of training and education offered to providers and clients. Jhpiego-Maternal Child Survival Program (MCSP) provided technical assistance to health facilities throughout Haiti, focusing on building the capacity of front line providers to offer routine viral load testing, and to act promptly if a patient’s viral load is detectable. The testing has empowered providers to seek better longitudinal care for their clients.

Description: From October 2016 to September 2017, Jhpiego-MCSP project scaled up routine viral load testing in 42 facilities by training providers. A viral load reporting tool was developed to facilitate registration of clients, and to track clients testing eligibility. The tool involved adults and children on ART for 6 months, pregnant women on ART for 4 months, clients undetectable for 1 year, and with clinical failure. Also, assistance was provided with the transport of laboratory specimens, as well as a return of test results to the clinicians. Jhpiego-MCSP educated clients during support group meetings to improve knowledge of viral load testing. Finally, the project collected and analyzed data in Excel, to monitor clients’ clinical status.

Lessons learned: From October 2016 to December 2017, 12,027 clients received ART (13% men; 85% women of those, 7,897(66%) had a viral load test and received their results. A total of 5,026 (64%) achieved viral suppression (< 1000 copies/ml). All results were received within a 15-day time frame, through email accounts, set up by the national laboratory (LNSP). 2,868 clients with detectable viral (>1000 copies/ml) were monitored closely to reinforce adherence to ART.

Conclusions/Next steps: The utilization of the viral load test as a clinical management tool, contributes to ensure proper care of people living with HIV. However, viral suppression rates are low, indicating clearly that more supportive counseling and innovative strategies are needed for epidemic control of HIV in Haiti by 2020.

TUPEB042 Field evaluation of the Biocentric® platform for HIV viral load testing utilizing plasma samples in Swaziland: A diagnostic accuracy study

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1Ministry of Health (National Reference Laboratory), Mbabane, Swaziland, 2Clinic of Medicine, Abidjan, Cote d’Ivoire, 3Center for Disease Control, Abidjan, Cote d’Ivoire, 4Center for Disease Control, Abidjan, Cote d’Ivoire

Background: Monitoring the viral load is detectable. The testing has empowered providers to seek better longitudinal care for their clients.

Methods: From 10/2016 to 03/2017, paired plasma samples were collected prospectively from pre-ART and ART patients at Nhlangano and Lobamba health centres. Samples were tested blindly on the national reference method (Roche) and compared to the Biocentric assay at two labs (Nhlangano Lab-1, Mbabane Lab-2). Laboratory staff in Lab-1 were experienced with the Biocentric method and staff in the newly established Lab-2 were newly trained. We calculated precision (correlation, Bland-Altman) and accuracy (sensitivity, specificity) using the WHO-recommended VL threshold of 3.0 log10 (1000 copies/ml). In addition, the positive (PPV) and negative predictive (NPV) values were calculated assuming that 20% of VLs are detectable in patients on ART.

Results: In total 370 patients participated, of whom 354 (96.2%) paired samples were successfully analysed. Seventy (21%) samples had a VL>3.0 log10, on the reference standard. The correlation between both methods was high (r=0.93, p<0.01) and the Bland-Altman analysis showed a minimal mean difference (±0.02 log10), 95% limits of agreement -1.15 to 1.11. Overall sensitivity and specificity were 88.6% (78.7-94.9) and 98.3% (96.1-99.4). Sensitivity was higher in Lab-1 (100% [71.6-100]) compared to Lab-2 (86.4% [75.0-94.0]) and specificity was similar (Lab-1: 97.9% [94.6-99.4]; Lab-2: 99.3% [94.9-100.0]). For both labs combined, the PPV was 92.9% (84.5-96.9) and the NPV was 97.2% (94.7-98.5). The PPV was similar between Lab-1 (92.1% [81.6-98.3]) and Lab-2 (95.6% [95.6-99.4]), and the NPV was higher in Lab-1 (100%) compared to Lab-2 (96.7% [93.9-98.2]).

Conclusions: The diagnostic performance of the Biocentric assay was comparable with the reference Roche assay. Inter-laboratory differences indicate however, that attention should be paid to provision of sufficient trainings and quality control processes during the scale-up of VL testing.

TUPEB043 Increased access to HIV viral load testing among ART patients in Côte d’Ivoire (2015 to 2017)

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1Center for Disease Control, DGH'T, Abidjan, Cote D’Ivoire, 2Center for Disease Control, Abidjan, Cote D’Ivoire, 3Center for Disease Control, DGH’T, Abidjan, Cote D’Ivoire

Background: Côte d’Ivoire use of HIV Viral load (VL) for the monitoring of patients receiving antiretroviral therapy (ART) began in 1998 as a pilot program under the UNAIDS/Ministry of Health Drug Access Initiative (DAI). From 2002 to 2014, VL testing was available to less than 10% of patients for immunologic and/or clinical failure monitoring, and was accessible only in Abidjan the capital. Following WHO 2015 guidelines and the need to increase access to VL testing, CDC used the lab in the box approach to scale-up and decentralize access to VL testing.

Methods: We analyzed 2015-2017 VL test results from aggregate patient data obtained from the laboratory information system of 15 VL laboratories. Testing coverage and viral load suppression rate by age group, gender and region were assessed. VL was measured using plasma on the Roche Ampliprep Cobas Taqman 48&96; patients had access to VL testing every 6 months during the first year and yearly thereafter.

Results: A total of 221,990 patients received ART nationally between October 2015 and August 2017, with a 12-month retention rate of 86%. Access to at least one VL test per year increased from 14% to 61% for a total of 334,877 patients during the study period, including 41.5% from districts outside of Abidjan. The number of laboratories increased from 6 to 15 in the same period. Among patients with access, 74% were female and 5.6% children (0-14 years). Seventy seven percent of tested patients achieved VL < 1000 copies/ml (95% CI: 65-82); the VL suppression rate was similar for female and male, 78% and 77% respectively. While children and adolescents (15-19 years) had the lowest rate at 56% and 55% respectively, young adults (20-24 years) rate was 67%, and patients 25 years, 71%.

Conclusions: The experience of Côte d’Ivoire provides evidence that routine VL can be achieved using appropriate scale-up strategies such as lab in the box, minimized reagent stock out, and a strong sample transportation system. The low rate of VL suppression in children and adolescents is a challenge that needs to be addressed in order to minimize appearance of HIV drug resistance strains.
TUPEB044
Are all patients on antiretroviral treatment having their HIV viral load monitored? Gaps analysis in Latin America and the Caribbean

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

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

Lessons learned: All reporting countries have routine VL monitoring policly; 10% (3/31) reported partial implementation (Belize, Bolivia and Haiti). Most countries (80%: 25/31) have VL lab capacity; only Organization of Eastern Caribbean States (OECS) countries outsource VL testing to an external lab (Barbados). Most countries (61%: 19/31) recommend biannual VL monitoring. 32% (10/31) annual and 2 countries more frequent monitoring (Costa Rica, Bahamas). Comparing annual estimated VL volumes (based on people on ART and VL testing frequency in national policies; Data reported by 22 countries) 59% (13/22) countries performed ≥75% of the estimated volume (regional median 59%), while four (El Salvador, Grenada, Mexico, Peru) exceeded their estimated amount. VL coverage (proportion on ART with at least one VL test/year; data reported by 24/31 countries) showed a regional median of 82.4% (Range: 77.7–100). 42% countries (10/24) reporting VL coverage ≥75%: 3 countries with ≤ 50% (Cuba, Ecuador, Haiti: VL coverage was 83.8% in Latin America to countries and 74.5% in the Caribbean (4p), 84.7% in men; 87.6% in women; 80% in children < 15; 82.6% in persons ≥15).

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

TUPEB045
A method to analyze tenofovir alafenamide (TAF) in hair for adherence monitoring

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

Methods: Hair samples were collected from patients on TAF/FTC-based therapy with HIV-1 RNA < 40 copies/ml for 16 months and >95% adherence (reported by patient and provider). TFV and FTC were extracted from hair (~1 mg) using 50% methanol containing trifluoroacetic acid and hydrazine dihydrochloride at 37°C overnight in a shaking water bath. The solution was evaporated and then injected into liquid chromatography/tandem mass spectrometry (Shimadzu LC-10A pump coupled to a Waters Quattro Ultima triple quadrupole mass spectrometer) using a reverse phase column (Syringar Polyaryle, 4 µm, 4.6x150mm). The linear dynamic standard curve range for TFV was 0.002-4 ng/mg hair and FTC was 0.02-4 ng/mg hair.

Results: The Figure shows sample chromatograms of hair TFV and FTC concentrations in 3 patients on TAF/FTC-based treatment. Hair from each individual were run in replicate 10 times with an average TFV concentration of 0.0023 nanograms/milligram (ng/mg) (standard deviation (SD) 0.0018, coefficient of variation (%CV 5.14) in patient A; 0.0490 ng/mg (SD 0.0242; %CV 4.90) in patient B; 0.0533 ng/mg (SD 0.0021; %CV 3.94) in patient C. FTC concentrations also shown (Figure).

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

TUPEB046
A method to quantify dolutegravir, poised to become first-line therapy worldwide, in small hair samples as a metric of adherence and exposure

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

Methods: Hair samples were collected from HIV-infected patients on DTG-based regimens with long-standing virologic suppression (HIV-1 RNA < 40 copies/ml) and provider-and self-reported high adherence for analytical development and optimization. Sample preparation consisted of the incubation of hair (2 mg) in acidified methanol containing 13C1,15N-DTG (internal standard). The sample was evaporated to dryness and reconstituted. DTG was then extracted via liquid-liquid extraction using methyl tert-butyl ether and ethyl acetate. The organic layer was evaporated to dryness, reconstituted, and analyzed by the LC-MS/MS. A method to analyze DTG was developed and validated following the guidelines of the US Food and Drug Administration (FDA) using a calibration range of 10-500 ng/mg. Within-run variability (%CV) was < 20% for all analytes and between-run variability (%CV) was < 10% for all analytes. The limit of quantification was 10 ng/mg.

Results: The Figure shows the chromatograms of hair TFV and FTC for 3 patients on TAF/FTC-based antiretroviral therapy.

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

Lessons learned: All reporting countries have routine VL monitoring policies; 10% (3/31) reported partial implementation (Belize, Bolivia and Haiti). Most countries (80%: 25/31) have VL lab capacity; only Organization of Eastern Caribbean States (OECS) countries outsource VL testing to an external lab (Barbados). Most countries (61%: 19/31) recommend biannual VL monitoring. 32% (10/31) annual and 2 countries more frequent monitoring (Costa Rica, Bahamas). Comparing annual estimated VL volumes (based on people on ART and VL testing frequency in national policies; Data reported by 22 countries) 59% (13/22) countries performed ≥75% of the estimated volume (regional median 59%), while four (El Salvador, Grenada, Mexico, Peru) exceeded their estimated amount. VL coverage (proportion on ART with at least one VL test/year; data reported by 24/31 countries) showed a regional median of 82.4% (Range: 77.7–100). 42% countries (10/24) reporting VL coverage ≥75%: 3 countries with ≤ 50% (Cuba, Ecuador, Haiti: VL coverage was 83.8% in Latin America) countries and 74.5% in the Caribbean (4p), 84.7% in men; 87.6% in women; 80% in children < 15; 82.6% in persons ≥15).

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

TUPEB047
Antiretroviral drug resistance among Nigerian men who have sex with men

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

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

Results: From 3 April 2013 to 23 February 2016, 299 participants underwent HIVDR testing. Participants had median age 24 (interquartile range [IQR] 21–27) years, median CD4 350 (IQR 244–475), and mean HIV RNA 4.7 (standard deviation 0.73) log10 copies/mL. Among the 144 ART-naïve participants, 78 (54.2%) were <25 years old and 31 (21.5%) had CD4 >500 cells/μL. SDRMs were observed among two of 66 (3.0%) ART-naïve participants in Lagos and nine of 78 (12.0%) in Abuja. Of the 155 ART-experienced participants, 151 (97.4%) were prescribed ART at the time of HIVDR testing. Among ART-experienced participants, high-level resistance to NNRTIs was detected in 22 (14.2%) and NRTI resistance in 13 (8.4%). The most common mutations were K103N and M184V (Table). No major PI resistance mutations were detected.

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

TUPEB048
HIV Integrase inhibitors resistance in treatment naive HIV-1 infected populations in Taiwan: Impact of next generation sequencing

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Background: Although HIV Integrase Strand Transfer Inhibitor (INSTI) resistance is low in HIV-1 infected treatment naive population. As the use of INSTIs becomes more widespread, continued surveillance of primary INSTI resistance may be warranted. The aim of this study was to monitor the prevalence of INSTI resistance in Taiwan by using population sequencing and Illumina MiSeq sequencing.

Methods: A prospective study was conducted in antiretroviral therapy naive HIV-1-infected individuals at VGHKS from January 2013 to December 2017 in Taiwan. Drug resistance mutations were determined by ViroSeq™
system. In-house PCR was used for genotyping INSTI resistance. Illumina MiSeq sequencing were used for measurement of INSTI resistances (≥1%) and compared the results with those from population sequencing. The drug resistance associated mutations were defined by the 2017 IAS-USA HIV drug resistance associated mutations list and the integrase substitutions with a Stanford HIVdb score ≥10 to at least one INSTI.

Results: Among the total of 224 HIV-1 infected treatment naïve patients who had tested for resistance in 2013 to 2017, of whom 97% were infected by MSM and 3% were infected by heterosexuals. Subtype B HIV-strains were found in 96% of the individuals and subtype CRF01_AE in 4%. The prevalence rate for NRTI, NNRTI, PI and INSTI resistance was 4%, 5.8%, 0.4% and 0.9%, respectively. The most common INSTI resistance associated mutation was G163R (0.3%) and E138A (0.3%). Among the 38 patients who simultaneously Illumina MiSeq sequencing and population sequencing, none had INSTI resistance associated mutation but the Illumina MiSeq sequencing detected 3 more INSTI resistance associated mutations (G163R 3.2%, S153Y 1.3% and Y143H 2.6%).

Conclusions: Our findings showed a low rate of HIV drug resistance to INSTIs (0.9%) in treatment naïve patients. Illumina MiSeq sequencing detected more INSTI resistance associated mutations at a low frequency. The clinical implications need further study.

TUPEB049 Patterns of antiretroviral drug resistance in a rural HIV-1 infected cohort: Amajuba District, South Africa

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Background: One of the largest threats to the WHO 90/90/90 targets in HIV infection is the development of antiretroviral drug resistance. This is particularly of importance in rural underserved areas compared to urban settings. We explored the frequency and types of Drug Resistance associated Mutations (DRMs) in an HIV infected population in rural Northern Kwazulu-Natal, South Africa.

Methods: Cross sectional, descriptive study of an adult cohort (>15 years) attending the Advanced Care HIV Clinic at Madadeni Hospital who underwent genotype HIV resistance testing by DNA sequencing performed at the Albert Luthuli Durban and Charlotte Maxeke (Johannesburg) Hospitals Referral Laboratories. Stanford HIV Database algorithm was applied.

Results: 47 specimens from 50 patients were available: 5 treatment naïve patients, 12 first Line Art Failure (TDF + FTC/3TC + EFV/NVP) and 28 second Line Art Failure (AZT + FTC/3TC + LPV/r/ATV/r) were analyzed. Female: male ratio was 1.82. Mean age = 42.9 (Range = 15-58). Wild type virus was confirmed in all treatment naïve patients. First Line treatment failure cases showed high level resistance to EFV/NVP. 50% were fully susceptible to ETV/RIL. ZDV associated DRM were absent in 12/14 cases (85.7%) and TDF resistance was present in 12/14 (85.7%) and 9/14 (64.2%), respectively. Among 28 successfully amplified specimens from second line ART failure patients, PI associated DRM were detected in 20/28 (71.4%). Among these, most common major PI mutations were M46I (71.4%) and V82A (67.1%) and 15/28 (53.6%). Concerning DRV resistance, 13/28 (46.4%) demonstrated full susceptibility, 3/28 (10.7%) intermediate level resistance and 12/28 (42.8%) low level resistance.

Conclusions: Currently recommended First and Second Line ART regimens in the South African context remain valid, however the accumulated resistance strains to DRV is concerning and demonstrates need for early detection of virological failure and optimization of adherence counseling and support, particularly in rural areas. First Line INSTI-based regimen will likely be needed in the way forward to achieving the 90/90/90 strategy success.

TUPEB050 HIV drug resistance analysis by Next Generation Sequencing among HIV infected pregnant women from Buenos Aires, Argentina

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Background: HIV-1 genotypic resistance testing is recommended in pregnant women to identify mutations associated with drug resistance, improving the selection of antiretroviral therapy (ART). Next Generation Sequencing (NGS) genotyping is able to detect minority variants (MVs) which cannot be detected by standard sequencing (SS) techniques as TRUGENE (Siemens). MVs have been shown to increase the risk of virological failure but its clinical use is still controversial. We aimed to evaluate the performance of NGS in a retrospective study from a cohort of HIV-infected pregnant women.

Methods: Baseline plasma samples collected during 2008-2014 corresponding to 40 naïve patients from a cohort of HIV-infected pregnant women were included in the present study. The median viral load was 4.2 log copies/mL and the median CD4 cell count was 390 cells/mm3. All samples previously genotyped by TRUGENE HIV-1 Genotyping Kit were sequenced using a PHAC protocol on a MiSeq sequencer (Illumina). Bioinformatics analysis was performed using the HyDRA software for different thresholds of sensitivity (NGS 1% and NGS 20%) and resistance mutations were identified according to WHO guidelines (TDRMs) and Stanford University major mutation lists (DRMs).

Results: 100% of sensitivity and specificity was observed between TRUGENE and NGS at 20% threshold. In addition, at NGS 1% MVs were detected, increasing the number of patients from 20 to 35% for TDRMs and from 25 to 42.5% for DRMs. The highest number of MVs was observed in the protease gene (table 1), representing less than 5% of the viral population for each patient. Thirty one patients received ART; of them 96.7% received boosted protease inhibitor (PI)-based therapy, with an adequate virological response in 86.6%.

Conclusions: NGS increased the detection of resistance mutations, mostly in the protease gene. Such mutations had a low frequency (<5%) within the viral population for each patient and were not associated with virologic failure. Considering its high genetic barrier, detection of additional mutations by NGS may not predict an impact in the efficacy of boosted PI-based ART on this population. Despite this, NGS technology may improve drug resistance surveillance.

<table>
<thead>
<tr>
<th>Drug and mutation type</th>
<th>Trugene (%)</th>
<th>NGS 1% (%)</th>
<th>Percentage change in mutation prevalence with NGS (1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All TDRM</td>
<td>8 (20)</td>
<td>14 (35)</td>
<td>+75%</td>
</tr>
<tr>
<td>All DRM</td>
<td>10 (25)</td>
<td>17 (42.5)</td>
<td>+70%</td>
</tr>
<tr>
<td>IP TDRM</td>
<td>1 (2.5)</td>
<td>6 (15)</td>
<td>+500%</td>
</tr>
<tr>
<td>IP DRM</td>
<td>1 (2.5)</td>
<td>6 (15)</td>
<td>+500%</td>
</tr>
<tr>
<td>NNRTI TDRM</td>
<td>2 (5)</td>
<td>10 (25)</td>
<td>+100%</td>
</tr>
<tr>
<td>NNRTI DRM</td>
<td>2 (5)</td>
<td>10 (25)</td>
<td>+50%</td>
</tr>
<tr>
<td>NNRTI TDRM</td>
<td>6 (15)</td>
<td>7 (17.5)</td>
<td>+17%</td>
</tr>
<tr>
<td>NNRTI TDRM</td>
<td>6 (15)</td>
<td>7 (17.5)</td>
<td>+17%</td>
</tr>
</tbody>
</table>

(Table 1: Number of patients with drug associated mutations for NGS (1%) and Trugene)
TUPEBo51
Validation of a cost effective and sensitive HIV-1C integrase genotyping assay

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Background: Increasing access to highly potent antiretroviral (ARV) drugs necessitates the need for more sensitive monitoring of HIV drug resistance in Low and Middle Income Countries (LMIC). Botswana was one the first countries to introduce dolutegravir (DTG) based combination antiretroviral therapy (cART) as first line regimen. We optimised and evaluated an in-house integrase drug resistance assay (IH-Int) evaluated and compared to a commercially assay in Botswana with a background of HIV-1C infection.

Methods: We used 61 specimens from treatment naïve patients enrolled in a previous completed study. Specimens were tested using either ViroSeq® Integrase Genotyping kit (IVD) following manufacturers recommendations and an IH-Int. Drug resistance mutations were analysed using the Stanford HIV drug resistance database. We compared the concordance in mutations calls and amino acid sequence similarity between the two assays. The pairwise nucleotide and amino-acid identity were analysed using Mega 7.0.26.

Results: Among 61 specimens tested with IH-Int, 56 (92%) successfully amplified and for the 52 tested by VS, 42 (81%) successfully amplified. The lowest viral load detected by VS was 431 copies/ml and IH-Int, 528 copies/ml. A total of 23 paired sequences showed a concordance of ≥96% in terms of major and minor INSTI mutations. One mutation, E92Q, was detected by VS and not detected by the IH-Int. The mean amino acid identity was 99.73% (96.67% and 99.63% ISD - 0.98%). All participants were infected with HIV-1C. The per test of IH-Int was 40-700USD and for VS 200-300 USD.

Conclusions: The IH-Int assay had a high amplification success rate and high concordance with the commercial assay. It is significantly more affordable than the commercial assay. Our assay has the needed specifications for routine monitoring of participants on Dolutegravir based regimens in Botswana.

TUPEBo52
Next generation sequencing of pooled samples provides comparable data to sanger sequencing for the detection of HIV protease inhibitor mutations

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Background: Clinical characteristics of HIV-1-infected patients with multidrug resistance to antiretroviral therapy - first results from the LOWER study

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Background: The objective of the LOWER study is to analyse the clinical and virological characteristics of HIV-1-infected patients (pts) with multidrug resistance (MDR) to antiretroviral therapy (ART).

Methods: From April to November 2017, this nation-wide study has enrolled pts with extended resistance in 13 large HIV centres in Germany. For inclusion, signed informed consent and documented evidence of major resistance-associated mutations (RAMs) to 13 ART classes of NRTIs, NNRTIs, PIs or INSTIs were mandated. In this sub-analysis, a first description of the cohort is provided.

Results: Of 243 pts (226 males, 25 females) with documented extended resistance, 208 (85.6%) had RAMs affecting NRTIs, NNRTIs and PIs, while 12 (4.9%) had RAMs affecting NNRTIs and INSTIs or PIs triple class resistance, TCR. The remaining 23 (9.5%) pts had RAMs affecting four classes (quadruple class resistance, QCR). Patient characteristics are depicted in Table 1. Median age was 55.1 years and median time since first HIV diagnosis was 24.6 years. Many pts had advanced HIV disease and extensive exposure to ART. In the vast majority, ART had been initiated prior to 2000 and had included exposure to mon- or dual therapy with nucleoside analogues. Only 7 patients had initiated ART after 2007, among them one patient with OCR. Of all patients with TCR and QCR, 89.5 % and 65.2 %, respectively, had a current HIV-RNA level below 50 copies/ml only 7 patients had exhausted current treatment options. Of all patients, less than 3% showed a profound immune deficiency of less than 200 CD4-cells/µl.

Conclusions: In this large cohort of pts with extended resistance representing 25-30 % of all HIV-1 infected pts with MDR in clinical care in Germany, the vast majority had acquired MDR with insufficient ART regimens prior to 2000. Incident MDR is a rare event in Germany and the rate of pts with exhausted options remains low. Our results emphasize the caveats in the design of clinical trials testing new treatment options in patients in need for further options.
TUPEB054
Satisfaction with anal cancer screening among men who have sex with men who are at risk for and living with HIV in Abuja, Nigeria

1Ministry of Health, Swaziland National AIDS Programme, Mbabane, Swaziland, 2University Research Co LLC, Mbabane, Swaziland, 3Swaziland National Reference Laboratory, Mbabane, Swaziland

Background: Swaziland has made progress in controlling the dual TB and HIV epidemic through the implementation of TB/HIV collabora-
tive activities. Through the collaboration, 90% of PLHIV are routinely screened for TB. However, case detection remain a challenge despite increasing median CD4 count (CD4) among those initiating ART. We therefore conducted a study to evaluate diagnostic performance of Xpert-MTB/RIF (GeneXpert) by CD4 against sputum culture.

Methods: A cross sectional study was conducted from April to September 2015 at 4 health facilities. Participants attending ART clinics who screened positive for TB using the 4-symptom-based screening tool were enrolled for TB diagnostic evaluation. Two sputum samples were collected for GeneXpert and TB culture using MGIT. Blood was collected for CD4 testing using FACS Calibur. All samples were tested at National Reference Laboratory. Sensitivity and specificity analyses were done to evaluate GeneXpert. Logistic regression was done to determine factors associated with a true-positive GeneXpert (GeneXpert MTB-detected culture-positive). All analyses were done in STATA 12. Proportions, adjusted odds ratios (aOR) with 95% confidence intervals (95%CI) and p-values (p) were reported.

Results: There were 390/417 (94%) participants with sputum collected. 367 (94%) and 356 (94%) had valid culture and GeneXpert results respectively. Thirty (8%) had TB culture-positive results. Of the 30, 15 (50%) had MTB-detected by GeneXpert. The sensitivity of GeneXpert was 78% at CD4 100 but decreased to 67% and 27% at CD4 of 100–< 200 and CD4>200 cells/mm3 respectively. The specificity was consistently 100% at all CD4 levels. Positive predictive value was 100% for CD4 >200.

In multivariable analysis, GeneXpert was more likely to be truly-pos-
itive among those with CD4 > 100 compared to those with CD4 < 100 (aOR=15.47 (95%CI=1.95-121.34), p= 0.003). Those who were overweight (BMI> 18.5) were more likely to have a true positive GeneXpert compared to those with normal BMI of 18.5-25 (aOR=5.67 (1.50-21.45), p-value=0.011. Sex was not a significant factor (see Table).

TUPEB065
Effect of CD4 count on the performance of GeneXpert test for tuberculosis (TB) in people living with HIV (PLHIV) in Swaziland: A cross sectional diagnostic study

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1Ministry of Health, Swaziland National AIDS Programme, Mbabane, Swaziland

Background: Swaziland has made progress in controlling the dual TB and HIV epidemic through the implementation of TB/HIV collabora-
tive activities. Through the collaboration, 90% of PLHIV are routinely screened for TB. However, case detection remain a challenge despite increasing median CD4 count (CD4) among those initiating ART. We therefore conducted a study to evaluate diagnostic performance of Xpert-MTB/RIF (GeneXpert) by CD4 against sputum culture.

Methods: A cross sectional study was conducted from April to September 2015 at 4 health facilities. Participants attending ART clinics who screened positive for TB using the 4-symptom-based screening tool were enrolled for TB diagnostic evaluation. Two sputum samples were collected for GeneXpert and TB culture using MGIT. Blood was collected for CD4 testing using FACS Calibur. All samples were tested at National Reference Laboratory. Sensitivity and specificity analyses were done to evaluate GeneXpert. Logistic regression was done to determine factors associated with a true-positive GeneXpert (GeneXpert MTB-detected culture-positive). All analyses were done in STATA 12. Proportions, adjusted odds ratios (aOR) with 95% confidence intervals (95%CI) and p-values (p) were reported.

Results: There were 390/417 (94%) participants with sputum collected. 367 (94%) and 356 (94%) had valid culture and GeneXpert results respectively. Thirty (8%) had TB culture-positive results. Of the 30, 15 (50%) had MTB-detected by GeneXpert. The sensitivity of GeneXpert was 78% at CD4 100 but decreased to 67% and 27% at CD4 of 100–< 200 and CD4>200 cells/mm3 respectively. The specificity was consistently 100% at all CD4 levels. Positive predictive value was 100% for CD4 >200.

In multivariable analysis, GeneXpert was more likely to be truly-pos-
itive among those with CD4 > 100 compared to those with CD4 < 100 (aOR=15.47 (95%CI=1.95-121.34), p= 0.003). Those who were overweight (BMI> 18.5) were more likely to have a true positive GeneXpert compared to those with normal BMI of 18.5-25 (aOR=5.67 (1.50-21.45), p-value=0.011. Sex was not a significant factor (see Table).

Conclusions: In Swaziland, CD4 count was an independent factor associ-
ated with true-positive GeneXpert test. Therefore as the HIV epidemic is controlled, efforts to improve and increase the pace of new TB diagno-
sis technologies should be prioritised to maximise TB case detection.

Table_Factors associated with true positive GeneXpert (MTB-detected culture positive) results measured against culture
TUPEB056
Anal oral and genital distribution of HPV in PrEP-users MSM: Results at baseline of the ANRS IPERGAY HPV sub-study
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Background: HPV infection has been well studied in HIV-infected men having sex with men (MSM), but is less known in HIV-negative subjects. We report preliminary results of a study that aimed to describe the molecular epidemiology of HPV in 3 different anatomic sites to better understand the natural history of HPV.

Methods: HIV-negative MSM enrolled in the ANRS IPERGAY trial were included in the HPV sub-study. Anal, oral and genital swabs were collected at baseline and every 6 months during a 2-year-follow-up for HPV genotyping. Anal cytology was obtained at baseline and after 18/24 months. HPV genotyping was performed using AnyplexTM II HPV28 (Geenege®) that detects 19 high-risk (HR) and 9 low-risk (LR) HPV genotypes.

Results: 164 participants were enrolled, median age 34.6 (IQR 27-42) years. The baseline prevalence of anal, oral and genital HPV infection was 92%, 12% and 33% respectively. The prevalence of anal, oral and genital HR-LR HPV was 83%/68%, 11%/3% and 25%/12%, respectively. Multiple infections were observed in 77%, 3% and 17% of anal, oral and genital sites, with a median of 4 genotypes at the anal site. Anal cytology was normal at baseline in 32%, ASCUS in 23%, ASCH in 1%, LSIL in 40%, HSIL in 4% of cases. Participants with normal cytology were infected with a median of 2.5 HR HPV genotypes (IQR=1-4) vs. 4 (IQR=2-6) (p=0.005) in participants with abnormal cytology. Abnormal cytology results were associated with HR16 (p=0.004), HR18 (p=0.049), LR11 (p=0.012) and LR66 (p=0.01). HPV included in the nonavalent vaccine (HR16, 18, 31, 33, 45, 52 and 68) LR 6 and 11 represented 38%, 43% and 36% of anal, oral and genital HR and 26%, 33% and 21% of anal, oral and genital LR, respectively.

Conclusions: High-risk HPV-negative MSM enrolled in the ANRS IPERGAY PEPI trial were heavily infected with HR and LR HPV at baseline; 2/3 of them presented with abnormal anal cytology. The number of detected HPV genotypes was associated with abnormal cytology, as well as HPV 16, 88, 11 and 61. Part of these infections could have been prevented by the nonavalent HPV vaccine.

TUPEB057
Diagnostic value of 18 FDG-PET/CT in undiagnosed opportunistic infections among symptomatic HIV/AIDS patients
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Background: Positron emission tomography (PET) with (F-18)-fluorodeoxy-glucose (FDG) is a sensitive tool for the localisation of pathology. However, the interpretation of FDG PET scans in HIV patients is challenging. We undertook this study to evaluate the diagnostic utility of 18 FDG-PET/CT scan in the diagnosis of opportunistic infections and correlate the SUVmax with specific opportunistic infections.

Methods: A total of 25 symptomatic HIV patients were enrolled in our prospective observational study. Patients were subjected to sequential investigative investigations according to our institute’s protocol for evaluation of PUO patients and those who remain undiagnosed underwent FDG PET scans and were then included in this study.

Results: The study population were predominantly males (64%, 16/25) with mean age of 36.5 ± 15.5 years (range 21 - 52 years). The median CD4 count was 225 cells / mm3 and majority of participants (72%) were on combined anti-retroviral therapy (cART). Predominant mode of transmission was through heterosexual contact (80%). Majority of our patients (92%) presented with fever of duration more than 3 weeks. All standard serological tests were inconclusive in our study population.

FDG-PET CT was contributory to diagnosis in 24/25 patients and was able to detect opportunistic infection/neoplasm in 18 patients with disease. The most common finding was lymphadenopathy (96%) but metabolically active lymph nodes were present only in 18 patients (72%). Of the 3 patients with normal PET uptake corresponding to a diagnosis of PML while one patient had no FDG uptake and presumed to have drug induced encephalopathy secondary to Efavirenz. Sensitivity of PET-CT in diagnosing opportunistic infections/neoplasms was 100% with specificity of 71%, diagnostic accuracy of 96%. HPV of 9% and NPV of 100%. In comparison, CECT was contributory to diagnosis in 9 patients only. Moreover, three patients with imaging features suggestive of TB in CECT were suspicious for malignancy by FDG PET CT and confirmed to be malignant subsequently.

Conclusions: 18 FDG-PET CT is a useful diagnostic tool helpful to differentiate infections and malignancy in HIV infected patients and localise the best possible site for biopsy.
**TUPEBo60**

Diagnostic accuracy of Xpert MTB/RIF in detecting pulmonary tuberculosis among people living with HIV at the research institute for tropical medicine

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**Background:** Tuberculosis is a leading killer among people living with human immunodeficiency virus (HIV). HIV-infected individuals with latent TB are approximately 20-30 times more likely to develop TB disease than those who are HIV uninfected, at a rate of 8-10% per year. In the Philippines, there are 1,799,390 cases diagnosed with tuberculosis, 98.6% of this is Pulmonary TB while extra pulmonary TB is the remaining 1.4%. At the Research Institute for Tropical Medicine (RITM), there have been about 5,000 cases of HIV since 1980’s. This study determined the diagnostic validity of Xpert MTB/RIF in identifying the presence of Pulmonary Tuberculosis among HIV patients at the Research Institute for Tropical Medicine.

**Methods:** This is a prospective cross sectional analytical study among HIV patients aged 19 and above who are infected with HIV and enrolled in RITM seen from January 2015 – March 2016. Patients with signs and symptoms of PTB were enrolled and submitted sputum for AFB smear. Xpert MTB/RIF and TB culture. This was processed following RITM protocol for pulmonary samples for Xpert MTB/RIF based on WHO guidelines.

All samples were processed for AFB smear and TB culture as part of the usual procedure for diagnosing PTB. Epi info was used for data entry program using single data entry system. Statistical analysis included the determination of sensitivity, specificity, positive predictive value, and negative predictive value of the Xpert MTB/RIF and AFB sputum smear using MTB culture as the gold standard. Categorical values were reported as frequencies and percentage while numerical values were reported as mean and standard deviation.

**Results:** A total of 272 patients were enrolled in the study. Xpert MTB/RIF has a sensitivity of 60.78% and specificity of 97.8%, high positive predictive value (89.57) and high negative predictive value (89.90). The turn around time for Xpert MTB/RIF and AFB smear is 4 and 6 days respectively. A prevalence (21.9/10) of culture-proven pulmonary TB was diagnosed in this patient population.

**Conclusions:** Use of Xpert MTB/RIF as a screening tool might effectively reduce the risk of MDR-TB in HIV care and treatment settings and improve the prognosis of affected patients.

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**TUPEBo59**

Xpert MTB/RIF for rapid diagnosis of extra-pulmonary tuberculosis in high HIV and tuberculosis burden settings

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**Background:** Ethiopia is known to have high prevalence of HIV and tuberculosis. The proportion of extra-pulmonary tuberculosis (EPTB) cases increased to 58% in HIV-infected patients. However, the diagnosis of EPTB remains challenging and EPTB cause excess mortality in people living with HIV.

The currently available tools are either low in sensitivity or require longer time to confirm EPTB. We determined the clinical utility of the Xpert MTB/RIF for the diagnosis EPTB in Ethiopia.

**Methods:** This study was carried out at a public tertiary care hospital in Ethiopia from August 2016 to June 2017. A total of 232 (68 HIV-positive and 164 HIV-negative) patients with clinically presumed of EPTB were included. Site-specific extra-pulmonary samples (98 lymph node aspirates, 83 pleural fluids, 38 cerebrospinal fluid and 33 peritoneal fluids) were collected and examined for TB by culture and Xpert MTB/RIF. The diagnostic accuracy of Xpert MTB/RIF was calculated compared to culture and stratified by HIV status and specimen types.

**Results:** Overall, 98 (42.2%) specimens were positive for M. tuberculosis by culture and 103 (44.4%) by Xpert MTB/RIF. There was higher proportion of EPTB cases among HIV-infected patients (48.5% versus 39.6%) than HIV-uninfected patients. The sensitivity of Xpert MTB/RIF for EPTB was 88% among HIV-infected patients and 52% among HIV-uninfected patients, with no statistically significant difference between the two groups. However, the Xpert MTB/RIF sensitivity was quite different among the specimen types. Xpert MTB/RIF has highest sensitivity for lymph node TB (91%), modest for TB meningitis (81%) and lowest for pleural (47%) or abdominal TB (43%). A negative Xpert MTB/RIF test on fluid specimens does not exclude the diagnosis of pleural or abdominal TB and patients with a high clinical probability of EPTB should be started on anti-TB treatment. The Xpert MTB/RIF specificity was high (92%) and not significantly affected by HIV-status or specimen types.

**Conclusions:** Xpert MTB/RIF is likely to be of greatest utility when diagnosing patients suspected of lymph node TB or TB meningitis, even in HIV-infected patients. Xpert MTB/RIF offered a rapid diagnosis and particularly important in life-threatening forms of EPTB, such as TB meningitis.

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**TUPEBo61**

Evaluation of a prototype cobas® MTB assay for use on the cobas® 6800/8800 Systems for the detection of Mycobacterium tuberculosis in a high burden HIV patient population


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**Background:** Mycobacterium tuberculosis (MTB) is the leading cause of infectious disease death worldwide, especially in persons living with HIV/AIDS (PLWH). Per WHO guidelines, all PLWH should be tested for MTB. The study objective was to initiate preliminary evaluation of a prototype cobas® MTB assay for use on the cobas® 6800/8800 Systems to detect MTB from sputum and sediment specimens in a high burden HIV population.
TUPEBo63
Predictive value of hepatitis C seropositivity or liver fibrosis scores to detect low CD4+ T-cells counts following treatment for HIV in Egyptians: A cross-sectional study

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Background: Hepatitis C viral co-infection and subsequent hepatic fibrosis development are thought to be associated with poor restoration of CD4+ T-cells. Less costly indicators of low CD4+ T-cell counts are needed in resource-limited settings. Our study aimed to assess whether or not an association exists between HCV seropositivity, calculated AST to platelet ratio index (APRI) or fibrosis-4 (FIB-4) score and low CD4+ T-cell counts < 200 cell/mm3 despite HIV viral load (VL) suppression.

Methods: This represents a cross-sectional study that comprised 94 patients living with HIV attending Imbaba Fever Hospital, Cairo, Egypt between June 2016 and May 2017. All patients received emtricitabine/tenofovir plus efavirenz for at least 6 months and had a suppressed VL. Among the 38 patients tested positive for HCV antibodies, demographic data, recent CD4+ T-cell counts, platelet counts and serum ALT and AST levels were collected. Patients with reactive hepatitis B surface antigen, body mass index > 30kg/m2 or reported regular alcohol intake were excluded. Patients with reactive hepatitis B surface antigen, body mass index > 30kg/m2 or reported regular alcohol intake were excluded.

Results: HCV/HIV co-infected patients were more frequently males (92.1% vs. 71.4%, p<0.01) and smokers (73.7% vs. 45.4%, p<0.001). They had significantly lower mean CD4+ T-cell counts (299.33 ± 150.72 vs. 412.53 ± 209.17) than HIV mono-infected patients (2038.68 ± 610.97 vs. 893.33 ± 381.69). In smear -/culture + patients, cobas identified 17/22 (77.3%) from sediment as well as raw sputum, compared to 100% & 97.3% Xpert and 97.3% & 100% Abbott, respectively. Among the HIV cohort (n=176), in smear +/culture - patients, cobas identified 52/52 (100%) patients with TB from sediment as well as raw sputum, compared to 100% & 98.1% and 95.5% & 97% Abbott respectively. Among the HIV cohort (n=176), in smear -/culture + patients, cobas identified 13/17 (76.5%) from sediment and 14/17 (82.4%) from raw sputum, compared to 76.5% & 70.6% for both Xpert and Abbott. Specificity was 95.5% & 97% for sediment and raw sputum, compared to 98.5 & 97.5 Xpert and 95.0% & 96.5% Abbott respectively. Among the HIV cohort (n=176), in smear +/culture + patients, cobas identified 73/73 (100%) patients with TB from sediment as well as raw sputum, compared to 98.5 & 97 Xpert and 98.6% & 96.8% Abbott compared to 98.5 & 97 Xpert and 98.6% & 96.8% Abbott respectively. Among the HIV cohort (n=176), in smear -/culture - patients, cobas identified 67/67 (100%) patients with TB from sediment as well as raw sputum, compared to 100% & 98.1% and 95.5% & 97% Abbott respectively.

Conclusions: The prototype cobas® MTB for use on the cobas® 6800/8800 Systems demonstrated comparable performance to existing technologies, for both raw sputum and sediment specimens. This investigational MTB assay offers an automated, high-throughput, polyvalent platform for laboratories serving high burden HIV populations.
TUPEB064
Evaluation of plasma glutathione levels in HIV-infected children in Benin City, Nigeria: A cross-sectional study

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Background: Glutathione is the most potent anti-oxidant in the human body and a principal tool for effective immune function in the normal population. Impaired glutathione metabolism as a result chronic oxidative stress during HIV infection has been shown to play a significant role in the disease pathogenesis and progression. While several studies have suggested HIV infection leads to glutathione deficiency, the evidence is inconclusive. Furthermore, there is dearth of literature on glutathione levels in HIV infected children in sub-Saharan Africa which has a high disease burden. Thus, the objectives of this study were to compare plasma glutathione levels between HIV infected and uninfected children and to determine if plasma glutathione has any relationship with WHO clinical and immunologic staging of HIV disease.

Methods: A cross-sectional study was conducted among 258 HIV infected children and their age and sex-matched controls in the two major hospitals (University of Benin Teaching Hospital and Central Hospital) that provide pediatric HIV care in Benin City between December 2015 and April 2016. Information was obtained using questionnaire. Almost all the HIV infected children (96.5%) were on antiretroviral therapy. Samples were collected in the morning and plasma glutathione levels were determined in both groups using the spectrophotometric method involving the Dithio-bis -2-nitrobenzoic acid/Glutathione reductase enzyme (DTNB/GR) technique. Data was statistically analyzed using paired t-test and spearman rank correlation.

Results: The mean ± SDI plasma glutathione level of the HIV infected children was 8.82 ± 2.39 µmol/L, and it was significantly lower than the mean ± SDI plasma glutathione level of the HIV uninfected, 13.11 ± 3.20 µmol/L (t1 = -17.35, p < 0.0001). Furthermore, there was no significant correlation between plasma glutathione and both WHO immunologic staging (r = 0.011, p = 0.869) and clinical staging of HIV (r = 0.653, p = 0.379).

Conclusions: The study supports the assertion that HIV/AIDS plays a pivotal role in causing glutathione depletion in infected children. Although it can be inferred that glutathione has no relationship with severity of HIV disease, further studies are needed to ascertain the benefit of glutathione supplementation in HIV infected children.

TUPEB065
Longitudinal change in leukocyte telomere length and mitochondrial DNA in people living with HIV

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Background: Premature aging is an important issue in people living with HIV (PLHIV). Telomere length (TL) shortening and alterations in the biogenesis of mitochondrial DNA (mtDNA) are recognized as markers of cellular aging. Our previous cross-sectional study showed significant leukocyte TL shortening and decreased leukocyte mtDNA in PLHIV compared with healthy controls. In this study, we measured longitudinal changes in leukocyte TL and mtDNA in PLHIV receiving combination antiretroviral therapy (cART), and examined the clinical parameters affecting these changes.

Methods: We recruited PLHIV who visited our hospital from February 2012 to March 2017, and 141 HIV-uninfected controls. All PLHIV had received cART for >6 months and had undetectable viral loads. Relative TL and mtDNA in leukocytes were estimated by quantitative real-time PCR. Linear regression analysis was used to determine the factors associated with longitudinal changes in TL and mtDNA. We assessed several variables associated with HIV infection (CD4, HIV-RNA before cART, cART (duration, regimen), and other clinical factors. We also measured TCR rearrangement excision circles (TREC) in peripheral blood to assess thymic output. Variables found to be important in univariate analysis were multivariate model candidates.

Results: Longitudinal assessment was possible in 276 cases. The median measurement interval was 45.5 months. At baseline and the second measurement, TL and mtDNA decreased significantly in PLHIV compared with the controls. The change in TL and mtDNA varied between PLHIV. During the follow up, TL recovered in younger PLHIV, while it shortened more in older PLHIV. Young age (≤ 50), renal function, TREC, and mtDNA were significantly positively related to the change in TL, and multivariate analysis showed that age, TREC, and mtDNA were independent factors. An NRTI sparing regimen, TREC, and TL were significantly positively related to the change in mtDNA, and each was an independent factor in multivariate analysis.

Conclusions: In our longitudinal study, TL and mtDNA recovery was positively correlated with TREC, which decreases with age and the progression of immunodeficiency in PLHIV. Our findings indicated that early ART with decreased toxicity can help improve outcomes among PLHIV.

TUPEB066
Plasma biomarkers of systemic inflammation and immune activation in advanced HIV infection in sub-Saharan Africa before and during antiretroviral therapy

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Background: Elevated plasma biomarkers of HIV-induced systemic inflammation and immune activation (IAI) are characteristic of untreated HIV infection, and residual IA during sustained viral suppression on antiretroviral therapy (ART) has been associated with non-AIDS events and mortality. However, data in African populations with advanced HIV are limited. We assessed to what extent ART reduces IA, and what factors are associated with residual IA during suppressive ART in a multi-country cohort.

Methods: We included HIV-1-positive adults from 5 African countries enrolled in the PASER-M cohort, who had plasma HIV-RNA ≥50 copies/ml after 12 months of ART (M12) on non-nucleoside reverse-transcriptase
Neurologic disorders

TUPEBO67
Peripheral neuropathy in HIV-1 in diverse resource-limited settings: Lost feet on the ground

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Background: Distal Sensory Peripheral Neuropathy (DSPN) is a common complication of HIV that may be a direct consequence of HIV infection, drug toxicity, or co-infections. The prevalence of DSPN in resource-limited settings (RLS) has not been studied comprehensively. Here we provide estimates of DSPN prevalence and severity in seven RLS countries for HIV+ ART-naive individuals compared to similar normative comparisons without HIV.

Methods: Participants from AIDS Clinical Trials Group (ACTG) 5199 (International Neurological Study (INS, n=860 HIV+)) and ACTG 5271, the International Neurocognitive Normative Study (NNIS, n=2400 HIV-), underwent the ACTG Neurological Examination to quantify presence, severity, and duration of neuropathy symptoms and signs (tingling, numbness, sensory loss; temperature, vibration, reflexes). HIV- normative data were used as comparisons to general population prevalence in these RLS settings. Associations between ART regimen and other covariates with neuropathy were estimated from generalized estimating equations.

Results: At baseline, 21.3% of HIV+ participants were diagnosed with DSPN, compared to 8.5% of HIV negative in the same settings (OR 4.6 - 95% CI 1.9; p=0.003). DSPN decreased after beginning ART: 20.3% week 48, 17.5% week 96, 15.3% week 144, 10.3% week 192 Most of the DSPN was of equivocal or subclinical severity (≥95%). Older individuals had higher odds of neuropathy (OR=1.49 (95% CI 1.25, 1.77) for each 10-year increment), whereas women were more likely to have DSPN than men (Males OR=0.70 (95% CI 0.49, 0.99, p=0.046)). The prevalence of DSPN over time did not differ by randomized ART regimen. CD4 or RNA.

Conclusions: There was substantial prevalence of DSPN in HIV+ prior to ART initiation when compared to normative HIV- in RLS. DSPN in milder forms is often not detected in clinical practice. DSPN prevalence decreased with ART over time. Identification of strategies to reverse including early ART initiation or to ameliorate residual DSPN symptoms may improve functioning in individuals in RLS allowing more ‘feet of the ground’.

|Presence and Level of Neurological Dysfunction Due to Neuropathy Over Time|

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Week 0</th>
<th>Week 24</th>
<th>Week 48</th>
<th>Week 72</th>
<th>Week 108</th>
<th>Week 144</th>
<th>Week 168</th>
<th>Week 192</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>656 (79.4%)</td>
<td>646 (80.00%)</td>
<td>639 (79.71%)</td>
<td>569 (61.03%)</td>
<td>509 (52.52%)</td>
<td>447 (49.41%)</td>
<td>447 (49.41%)</td>
<td>353 (39.71%)</td>
</tr>
<tr>
<td>Subclinical</td>
<td>175 (20.96%)</td>
<td>160 (19.75%)</td>
<td>153 (19.29%)</td>
<td>129 (13.92%)</td>
<td>102 (10.81%)</td>
<td>88 (9.93%)</td>
<td>80 (9.93%)</td>
<td>53 (6.07%)</td>
</tr>
<tr>
<td>Mild</td>
<td>1 (0.12%)</td>
<td>1 (0.12%)</td>
<td>1 (0.13%)</td>
<td>1 (0.14%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
</tr>
<tr>
<td>Severe</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
</tr>
<tr>
<td>Total evaluated</td>
<td>834</td>
<td>810</td>
<td>764</td>
<td>701</td>
<td>595</td>
<td>538</td>
<td>528</td>
<td>467</td>
</tr>
</tbody>
</table>

*Missing from evaluation* 26 (2.79%) 6 (0.74%) 8 (1.03%) 4 (0.57%) 0 (0.00%) 0 (0.00%) 0 (0.00%) 0 (0.00%) 0 (0.00%)
TUPEB068
Subjective and objective improvement on cognition after discontinuing efavirenz in asymptomatic HIV patients

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Background: Combination Anti-Retroviral Treatment (cART) toxicity has an effect on cognition in HIV, with Efavirenz as the most notable example. Little is known about the long-term effect of Efavirenz use in patients who do not report overt cognitive complaints. The aim of this study was to assess the effect of switching Efavirenz (EFV) to Rilpivirine (RPV) in cognitive asymptomatic patients. We hypothesize an improvement in neurocognitive functioning when discontinuing Efavirenz.

Methods: 54 virologically suppressed, cognitive asymptomatic male HIV-infected patients on TDF/FTC/EFV (Atripla) were included and randomized (2:1) to switch to TDF/FTC/RPV (Eviplera) (switch group) or continue on Atripla (control group) for 12 weeks. At baseline and week 12, all patients underwent a standardized extensive neuropsychological assessment (NPA), and filled in questionnaires on quality of life, participation or mood as measured by questionnaires. Interestingly, subjective improvement in everyday life after switch (discontinuing Efavirenz) made 74% of the switch group chose for a regime without Efavirenz after study completion.

Conclusions: Switching from Atripla to Eviplera resulted in objective cognitive improvement on group level in cognitive asymptomatic patients. There is a discrepancy in objective and subjective cognitive complaints in this asymptomatic group which makes it challenging to identify patients that would benefit from discontinuing Efavirenz at beforehand.

TUPEB069
Different association pattern of each cognitive impairment with age and time of infection in HIV-infected patients

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Background: Despite a number of epidemiologic reports of HIV-associated neurocognitive disorders (HAND), detailed clinical characteristics, especially when and who can have worsening in each different cognitive function, and what function can be improved by antiretroviral therapy (ART), are still unknown.

Methods: In a Japanese nationwide multicenter study of 17 facilities with 1,399 HIV-infected patients (HAND study), 728 participants completed 14 neuropsychological (NP) tests; Verbal Fluency (VF; category and letter), Digit Span (DS; forward and backward), Trail Making Test (TMT) A-B, Rey-Osterrieth Complex Figure Test (ROCF; copy, immediate and delayed recall). Story Memory Test (SMT; immediate and delayed recall). Digit Symbol Subset (DSS). Grooved Pegboard (GP; dominant and non-dominant).

Results: In visuospatial and motor function, the prevalence of lower score (declined one or more standard deviation) significantly increased along age and time since diagnosis (OR=0.001 and < 0.001 in all three ROCF and p=0.017 and 0.024 in GP (dominant), respectively) despite well-suppression of viral-load. Meanwhile, in VF letter, it decreased along age and time since diagnosis (p=0.001 and 0.005, respectively).

Also in multivariate analysis, older age was associated with lower score in all three ROCF and GP dominant [odds ratio (OR) 0.015 confidence interval (CI) 0.01 (0.01-0.01)] and 0.024 (0.01-0.01) in GP (dominat), respectively) despite well-suppression of viral-load. Meanwhile, in VF letter, it decreased along age and time since diagnosis (p=0.001 and 0.005, respectively).

Conclusions: Older patients in the late stage of HIV infection have higher risk of visuospatial and motor impairment despite ART. Meanwhile, younger patients in early stage of infection are more likely to have verbal impairment, which can be resolved by ART. Based on these findings, concise evaluation and appropriate supports can be established in accordance to individual background.
understood. We aim to investigate brain metabolic markers in HIV-infected individuals with or without ART compared to those in non-HIV-infected individuals with magnetic resonance spectroscopy (MRS).

Methods: From April 2013 through March 2015, 59 adult HIV-infected individuals including 37 with ART and 22 without ART and 24 age-matched healthy volunteers underwent MRI imaging and single-voxel 1H-MR spectroscopy at 3.0 tesla to obtain ratios of N-acetylaspartate (NAA), choline (Cho), myo-inositol (MI) and lactate (Lac) to creatine (Cr) in left frontal white matter (FWM), parietal white matter (PWM), and hippocampus. The effect of ART central nervous penetration (CPE) score on those ratios was also studied. All participants were evaluated for cognitive function with a standard neurologic examination and a 70-minute battery of neuropsychological tests based on the Frascati criteria. Kruskal-Wallis tests were used to compare brain metabolic markers between the groups. The associations between ART central nervous penetration (CPE) score and brain metabolic markers were assessed by regression analysis.

Results: No significant difference was observed in ratios of NAA/Cr, Cho/Cr, MI/Cr between the groups in FWM, PWM, and hippocampus. In contrast, Lac/Cr ratio in PWM was significantly higher in HIV-infected individuals not receiving ART than in HIV-infected individuals receiving ART and HIV-uninfected individuals (mean +/- SD, 0.35 +/- 0.25 in HIV-negative, 0.49 +/- 0.28 in HIV-positive with ART, 0.65 +/- 0.25 in HIV-positive without ART, p=0.047). Among HIV-infected individuals, 10 in 37 with ART and 3 in 22 without ART were diagnosed as asymptomatic neurocognitive impairment (ANI), which did not correlate with any brain metabolite ratios. For those on ART, CPE scores were not associated with any brain metabolite ratios.

Conclusions: Lac/Cr ratio was the highest in the group of HIV-infected individuals without ART, whereas other metabolites were similar across the groups regardless of ANI diagnosis or CPE score.

TUPEB071

The effect of alcohol consumption on specific neuropsychological testing domains in patients enrolled in the Neuropsychological Assessment in the Metabolic and Aging Cohort study (NAMACO)


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Background: HIV-associated neurocognitive disorders (HANDs) are diagnosed based on neuropsychological (NP) testing and functional assessment. The effect of active or previous alcohol consumption on HANDs development is unknown. The aim of this study was to examine the effect of alcohol consumption on NP function among well-treated HIV-positive persons.

Methods: We analysed 981 patients aged >45 years old enrolled in the NAMACO study (Neuropsychological Assessment in the Metabolic and Aging Cohort study, NAMACO). NAMACO is an ongoing, prospective, longitudinal, multicentre and multilingual study within the Swiss HIV Cohort Study (SHCS). NP testing was performed in five domains: motor skills, speed of information processing, attention/working memory, executive functions and verbal learning memory. Dichotomous and continuous outcomes for NP impairment were defined for each domain, then analysed per domain and after summarising domains. Alcohol consumption was scored using a validated Alcohol Use Disorders Identification Test (AUDIT-C) consumption quantity and frequency, and occurrence/absence of binge drinking. Logistic and linear regression models were applied to estimate alcohol effect on, respectively, dichotomous and continuous NP impairment outcomes. All models were adjusted for socio-demographic data.

Results: Most included patients (mean age 54.5 years, 80% men, 92% Caucasian) had undetectable viral loads (96% with < 50 copies/mL, median nadir CD4 180). Binge drinking (4.2% of patients) significantly negatively impacted motor skills (OR 2.3, P=0.015), speed of information (OR 2.1, P=0.02) and overall NP function (OR 1.88, P=0.06). A significant U-shaped effect of AUDIT-C score was observed for motor skills and overall function, and a non-significant trend was observed for executive functions and speed of information (Figure 1). Continuous outcome models demonstrated a significant effect of increasing AUDIT-C score and binge drinking on executive and overall functions.

Conclusions: This is the first study to examine the effect of alcohol consumption on specific NP domains as well as on NP performance overall, using a validated score. We observe that the NP domains of motor skills and executive function are impaired with increased consumption while other domains are preserved. In assessing with HANDs, it may be possible to assess the contribution of alcohol by restricting NP analysis to domains we observe to be impaired.

TUPEB072

Higher prevalence of neurocognitive impairment among aging HIV-infected women despite lower comorbidities than men

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1HIV-NAT, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand, 2Chulalongkorn Stroke Center, King Chulalongkorn Memorial Hospital, Division of Neurology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, 3SEARCH, The Thai Red Cross AIDS Research Centre, Bangkok, Thailand, 4Faculty of Medicine, Chulalongkorn University, Department of Medicine, Bangkok, Thailand.

Background: Neurocognitive impairment (NCI) is a major reason for poor quality of life and poor adherence among HIV-infected individuals. We assessed the prevalence and risk factors of NCI among aging HIV population. The association of subclinical atherosclerosis by common carotid intima-media thickness (cIMT) and other comorbidities was also studied.

Methods: This was a cross sectional study of HIV-infected Thai individuals aged 150 years who were followed in a prospective long term cohort at HIV-NAT, Thailand. Demographics, comorbidities, and cardiovascular risk factors were assessed. Cognitive performance was evaluated by the Thai version of the Montreal Cognitive Assessment (MoCA) with a cut-off of < 25/30 for diagnosis of NCI. Abnormal cIMT was defined as cIMT ≥0.9 mm or presence of carotid plaque.

Results: Among 377 participants (median [IQR] age of 54.4 [52.2-56.0] years, 37.5% female) enrolled, median CD4 was 614 (477-797) cells/µL, 97.2% had HIV RNA < 40 copies/mL, and the most common ART were TDF (84.3%) and efavirenz (58.3%). A total of 216 (60.5%) had NCI, and women had higher NCI prevalence than men (70.6% vs 54.3%, p=0.002). Women performed significantly worse than men in visuospatial/executive, naming, attention, language, abstraction, and orientation domains (p<0.05). More women had education lower than bachelor degree (82.1% vs 61.0%, p=0.001) and income < 300$/month (52.2% vs 31.8%, p<0.001); whereas more men had HBV infection (25.1% vs 14.9%, p=0.02), HCV infection (31.1 vs 6%, p=0.03), class C CDC classification (20.1% vs 9.2%, p=0.007), diabetes mellitus (21.1% vs 9.7%, p=0.005), hypertension (51.1% vs 29.1%, p=0.001), abnormal cIMT (6.4% vs 1.6%, p=0.042), and lower median CD4 cell counts (599 vs 675 cells/µL, p=0.01).

In multivariable regression analysis, women (adjusted odd ratio [aOR] 1.9, 95%CI 1.1-3.6, p=0.02), age ≥60 years (aOR 1.9, 95%CI 1.1-3.6, p=0.03), and education lower than bachelor degree (OR 2.2, 95%CI 1.3-3.6, p=0.002) were associated with NCI. cIMT and HIV related factors were not associated with NCI.

Conclusions: In our aging HIV-infected cohort, women was independently associated with NCI despite lower NCI risk. More research is needed to understand the differences in the pathology, risk factors, and patient outcomes of NCI between HIV-infected men and women.
Depression and other psychiatric manifestations
TUPEB073
Association between changes in hazardous drinking and subsequent antiretroviral medication adherence, HIV viral control, and condomless sex
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Background: Previous studies of people with HIV (PW/H) have found that hazardous drinking is common, and associated with condomless sex, worse antiretroviral (ART) adherence, and worse viral control. Here, we examined the association between changes in hazardous drinking and these outcomes in a sample of PW/H.
Methods: Participants included 614 PW/H from an HIV clinic in San Francisco, randomized to three alcohol interventions. The sample was 16% Hispanic, 10% Black, 63% White, 7% other; mean age of 49 years. Data included follow-up interviews at 6, 12 and 24 months, with self-reported alcohol measures (any days drinking over 4/5 drinks for women/men respectively, in the prior 30 days), any condomless sex with a negative/unknown status partner, ART adherence >95%, and HIV viral suppression (HIV RNA <75/mL). The primary exposure was change in alcohol use compared with baseline, categorized as an increase (any, and ≥3 days), decrease (any, and ≥3 days) or no change (reference). Odds ratios were obtained using GEE methods that accounted for repeated observations, adjusting for demographics.
Results: At 24 months, 40% reported a decrease in hazardous drinking frequency (≤20% 13 days); 9% reported an increase (≥4% 13 days), and 51% reported no change. In adjusted models, any increase in hazardous drinking was associated with lower rates of ART adherence >95% (OR = 0.67, 95% CI = 0.45, 0.99, p = 0.048), and greater odds of condomless sex (OR = 1.41, 95% CI = 1.0, 2.0, p = 0.053). Those who reported a greater decrease in drinking (reduced by ≥3 days), had better HIV viral suppression in bivariate analysis (p = 0.03), which was not significant in the adjusted analysis (OR = 0.65, 95% CI = 0.39, 1.11, p = 0.112).
Conclusions: In this sample of PW/H enrolled in a primary-care based alcohol intervention study, an increase in hazardous drinking was associated with worse ART adherence and higher prevalence of sexual HIV transmission risk behavior. Increased hazardous drinking should be an indicator to providers that PW/H are at risk for other problems such as worse HIV treatment adherence and condomless sex.

TUPEB074
Prevalence of depression and suicidal ideation among people living with hiv/aids in a tertiary health facility in Ibadan, Nigeria
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Background: Depression and suicidal ideation is a common public health problem among people living HIV/AIDS, triggering profound detrimental impacts on quality of life, treatment adherence, disease progression, and mortality. There is dearth of information about these psychiatric co-morbidities particularly in the developing country context. This study thus investigated the prevalence of depression and suicidal ideation among people living with HIV/AIDS (PLWHA) in Ibadan, Nigeria.

Methods: A cross sectional study was conducted among 141 respondents that were selected using a systematic sampling technique. Data on socio-demographic characteristics, depression and reported attempt to commit suicide were collected using a pretested interviewer-administered questionnaire. The prevalence of depression was assessed using a 10-item Edinburgh depression scale. Descriptive statistics was used to describe the general characteristics of the sample while predictors of depression were determined using the Chi-Square test and binary logistic regression. All analyses were performed at a statistical significance level of 0.05.
Results: The mean age of the respondents was 35.0 years (standard deviation = 11.0). One half of the respondents were female. About 63.8% of the respondents were currently married. About 68.8% of the respondents were had at least two living children. Most respondents were depressed, about 6.4% had ever attempted committing suicide. Gender (AOR = 3.72, 95% CI, 1.67 - 8.29), Ages 25-34 years (AOR = 4.50, 95% CI, 1.48 - 13.69), 35-44 years (AOR = 6.04, 95% CI, 2.01 - 18.14) and ≥ 45 years (AOR = 3.68, 95% CI, 1.05 - 12.93) independently predicted depression.
Conclusions: The finding of this study indicated that depression and suicidal ideation was common among PLWHA. These results identify potential targets to mitigate risk through establishment of psychological counseling services and promoting greater adaptation to living with HIV/AIDS.

TUPEB075
Results of anxiety and depression screening as part of routine HIV care
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Background: Anxiety and depression are prevalent comorbidities in HIV. In the Netherlands, suicide is an important cause of death among HIV patients. To enhance the quality of HIV care, we started screening routinely for depression and / or anxiety as part of a regular HIV quality of life questionnaire. Here we report the preliminary results.
Methods: Anxiety and depression were measured using the 14 items of the Hospital Anxiety and Depression Scale (HADS) with a cut-off score of 15 to identify people with a potential disorder. Participants were asked to complete the HADS by rating how they have felt on the basis of symptoms that had occurred in the week before their consultation.
Results: From November 2016 until December 2017, 1091 individuals participated. 1032 (94.1%) were male, median age was 50.9 yrs (range 20-81). HADS score was > 15 in 298 /1091 of cases (27.3%); 12-15 in 128 /1091 (11.7%); 10-12 in 152 / 1091 (13.9%); and < 10 in 666 /1091 (60.1%) patients. Psychiatric evaluation was performed in 52 /298 patients (17.1%). Resulting in a psychiatric diagnosis (5.7%) in 42 /298 patients (14.2%). 4 patients (1.3%) reported that they received psychosocial care and 110 /298 patients (36.9%) considered that a referral not necessary after discussion and with 83 / 298 patients (27.9%) the score was not discussed during the outpatient visits.
Conclusions: Regular assessment of mental health leads to earlier recognition of psychiatric disorders such as depression and an anxiety disorder which has proven to effectively prevent further deterioration. In 27.3% of cases, an elevated HADS score was observed, leading to a new psychiatric diagnosis in 48 patients. 4 patients did not receive a psychiatric diagnosis. In this case, it led to referral of 53 patients who otherwise wouldn’t have been in psychiatric care. In most other cases it initiated a conversation about the patients mental health and overall health related quality of life.
TUPEB076
Higher prevalence of depression among aging HIV-positive compared to HIV-negative individuals
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Background: Depression is associated with HIV infection in many ways: a risk for HIV acquisition, a comorbidity of HIV infection, progression to AIDS, and one of the major causes contributing to poor quality of life among HIV-positive individuals. We sought to assess the prevalence and risk factors of depression among aging people living with HIV.

Methods: This was a cross sectional study of aging (≥50 years) HIV-positive and HIV-negative Thai individuals enrolled at HIV-NAT, Thailand. Depression was evaluated by a 15-item depression screening test developed and validated by the Department of Mental Health, Ministry of Public Health of Thailand. A cut-off of ≥16/14 indicates clinical depression. Multivariable logistic regression was used to determine factors associated with depression.

Results: Among 358 HIV-positive and 103 HIV-negative participants, enrolled with median (IQR) age of 54.8 (52.1-59.1) years and 37.5% were female. 105 (22.8%) had depression. Median (IQR) duration since ART initiation was 16.1 (12.5-19.1) years. 57.2% had HIV RNA < 50 copies/mL, and 6.4% had lipodystrophy, in the HIV-positive participants. Compared to HIV-negative participants, HIV-positive participants more frequently had income lower than 5000 THB (75 USD) per month (22.9% vs 12.6%, p=0.02), were unemployed (18.4% vs 8.7%, p=0.02), had hypertension (42.7% vs 26.2%, p=0.002), and had depression (25.4% vs 13.6%, p=0.01). More HIV-positive than HIV-negative participants had feelings of disappointment and self-blame (39.8% vs 6.8%, p<0.002), loss of self-confidence (21.2% vs 5.8%, p<0.001), loss of interest (15.2% vs 8.1%, p=0.03), slower thinking (22.3% vs 40.8%, p=0.04), loss of appetite (15.9% vs 7.8%, p=0.04), and trouble falling asleep (27.3% vs 24.3%, p=0.01). In multivariable models, HIV-positive status adjusted odd ratio (aOR) 1.99; 95%CI 1.07-3.7, p=0.03) and income less than 5000 THB ($610) per month (aOR 1.89; 95%CI 1.12-3.13, p=0.01) were associated with depression. Among HIV-positive individuals, history of exposure to stavudine was associated with depression (aOR 1.88; 95% CI 1.02-3.45, p=0.04). Lipodystrophy was not associated with depression in HIV-positive individuals (p=0.5).

Conclusions: Depression is not uncommon among aging HIV-positive Thai individuals. HIV-positive status, low income and a history of stavudine use were independently associated with depression.

TUPEB077
Association between access to public distribution system, food security and depression among female sex workers in India
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Background: Food security is one of the important contributing factors among female sex workers (FSWs) to engage in risky sexual behaviors and mental health problems in developing countries. However, studies exploring the relationship between food security and mental health among FSWs in India are limited despite having potential program and policy implications. This study examines the prevalence of depression, and its association with FSW’s access to public distribution system (PDS) and their food security in India.

Methods: The study draws data from a large cross-sectional survey conducted in Nov-Dec 2017 among 3589 FSWs across five states of India. Besides collecting information on the FSWs background characteristics, other information were also collected such as food security, access to PDS in the past 12 months, and depression was assessed using CESD-R10 scale. Descriptive statistics, frequency, bivariate and multivariate logistic regressions were used for analysis.

Results: More than half of the FSWs (52%) were found to have depression in the past 12 months. FSWs from Tamil Nadu state experienced higher depression (66%) compared to other states. At the same time, approximately two-fifths of FSWs reported not having food security (42%) and not accessing PDS (41%). FSWs who did not have access to PDS (65% vs. 49%, AOR: 1.2, 95% CI: 1.1-1.4) and reported of food insecurity (68% vs. 39%, AOR: 3.2, 95% CI: 2.7-3.6) were more likely to be depressed than others. FSWs who belonged to the below poverty line category were more than two times higher likely to be depressed than their counterparts.

Conclusions: The study highlighted that depression is significantly associated with not having access to PDS and food insecurity among FSWs. The current HIV prevention activities in India require an integrated program approach to focus on addressing the mental health and social protection issues. To support this, the PDS should be strengthened among the FSWs as it has been one of the most important instrument of ensuring food security in India. To support this, interventions and research-based evidence will be highly needed to ensure that mental health issues are properly addressed among high-risk groups.

TUPEB078
Prevalence and treatment of insomnia in persons with HIV well engaged in medical care
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Background: Studies have shown a higher prevalence for rates of insomnia in persons with HIV infection than in the general population. High rates of comorbid psychiatric diagnosis in persons with HIV infection contribute to insomnia symptomatology. Effectively treating insomnia is important for increasing quality of life within this patient population.

Methods: This is an analysis of baseline data from a larger study of the effects of Mindfulness-based Stress Reduction on chronic insomnia in HIV-infected adults 45 years and older with virologic suppression. The participants were categorized as either positive for insomnia (I-POS) or negative for insomnia (I-NEG) at baseline by review of chart diagnosis of insomnia and/or medication prescribed for insomnia. I-NEG and I-POS subjects were compared at baseline on self-report measures of depression (Beck Depression Inventory-II, BDSS, anxiety (PROMIS), and fatigue (PROMIS).

Results: 84 subjects were recruited from HIV practices at Mount Sinai Health System. The subjects had a mean age of 58.2 years (SD=6.7) and were predominantly male (64%), and members of ethnic minority groups (57.1% black, non-Hispanic, 33.3% Hispanic). They had a mean CD4+ count of 620.7 cells/mm3 (SD=333.0) and 71.4% had a comorbid psychiatric diagnosis. Forty-three of the 84 patients (51.2%) had insomnia (I-POS). The I-POS and I-NEG groups did not differ significantly on baseline characteristics other than comorbid psychiatric diagnosis being higher in I-POS subjects (61.1%) than in I-NEG subjects (51.1%) (p=0.038). Being on an antiretroviral regimen containing efavirenz (n=7) was not related to a diagnosis of insomnia. There were no significant differences in baseline depression, fatigue, or anxiety scores between the I-POS group (means ± SD: 15.6 ± 2.2, 19.3 ± 9.9 respectively) and the I-NEG group (means ± SD: 14.9 ± 20.1, 18.1). Less than half (46.5%) of the I-POS participants were prescribed medication specifically to treat insomnia.

Conclusions: Older adults with HIV infection who are engaged in medical treatment and adherent to antiviral therapy with virologic suppression still report a high prevalence of insomnia. Comorbid psychiatric diagnosis is related to the prevalence of insomnia. Further research into additional treatment for insomnia, particularly non-pharmacologic (e.g., mindfulness based interventions and cognitive behavioral therapy for insomnia (CBT-I) is warranted in persons aging with HIV infection.
TUPEB079
Comparison of depression and anxiety between HIV-positive and HIV-negative people

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Background: People with HIV experience a high burden of mental health problems, but the extent to which this is due to HIV specifically is unclear. We compared the prevalence of depression and anxiety between people with HIV and a matched at-risk HIV-negative group.

Methods: HIV-negative individuals in the AURAH study, recruited from UK GUM clinics (2013-14) were matched (with replacement) to HIV-positive individuals in the ASTRA study, recruited from UK HIV-outpatients (2011-12). Individuals aged 30-69 years were included. Matching variables were: gender/sexual orientation; age; ethnicity; education level. Depressive symptoms [PHQ-9 score≥10], anxiety symptoms [GAD-7 score≥10], and depression overall [subject report of current medical or other therapy for depression, and/or major or other depressive disorder on PHQ-9], were compared between HIV-positive and HIV-negative groups, using logistic generalised estimating equations, adjusted for matching variables, accounting for repeated observations. The HIV-positive group was assessed overall, and split by: (i) ART/ VL status; (ii) time since HIV diagnosis.

Results: 2699 HIV-positive and 759 unique HIV-negative individuals (2699 matches with replacement) were included; mean age 45 years; 73% MSM; 16% women; 17% Black African ethnicity; 44% university education. Prevalences for HIV-positive versus HIV-negative were: 26.6% vs 11.6% for depressive symptoms (adjusted odds ratio, aOR[95%CI]: 3.26[4.33] vs 21.2% vs 10.9% for anxiety symptoms [GAD-7 score≥10]/21], and depression overall [subject report of current medical or other therapy for depression, and/or major or other depressive disorder on PHQ-9], were compared between HIV-positive and HIV-negative groups, using logistic generalised estimating equations, adjusted for matching variables, accounting for repeated observations. The HIV-positive group was assessed overall, and split by: (i) ART/ VL status; (ii) time since HIV diagnosis.

Conclusion: These results give further evidence that living with HIV has a considerable adverse impact on mental health. The effect was evident among those recently diagnosed, but longer time since diagnosis appears to be a crucial additional factor, which may reflect poorer HIV prognosis in earlier years and/or psychological, socio-economic or biological effects of ageing with HIV.

Malignancies (AIDS and non-AIDS)

TUPEB080
Burden and characteristics of cancer in an HIV cohort at Newlands Clinic, Zimbabwe: A cross sectional descriptive study

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Background: HIV-infected persons have increased risk of AIDS-defining (ADC) and non-AIDS defining cancer (NADC). However, the burden of cancer has not been documented in Zimbabwe. Thus, we described the burden, characteristics and outcomes of cancer in an HIV cohort in Zimbabwe.

Methods: Data from all cancer cases diagnosed (histologically) and recorded at Newlands Clinic between February 2004 to 30 October 2017 were abstracted. CD4 counts, viral loads. WHO-stage. antiretroviral therapy regimens (ART) and outcomes were analysed using SPSS and presented as frequencies, percentages, medians and interquartile ranges (IQR).

Results: A total of 8589 patients were seen during the study period and 185 cancers were recorded. These were presented illustrated in table 1) according to the following year bands (year of diagnosis): up to 2004 (pre-ART era), 2005-2010 (early ART era) and 2011-2017 (post-ART era).

Conclusions: WHO stage, CD4 count and ART use was related to cancer. The burden of cancer in this cohort was high. Active surveillance of cancer with early detection and treatment is recommended at all stages of HIV infection.

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Pre ART era (Up to 31 December 2004)</th>
<th>Early ART era (1 January 2005 - 31 December 2010)</th>
<th>Post ART era with increased cancer screening (1 January 2011-31 October 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cancer Cases</td>
<td>11 (90.0)</td>
<td>32 (80.0)</td>
<td>92 (68.6)</td>
</tr>
<tr>
<td>AIDS-Defining Cancer (%)</td>
<td>10 (90.0)</td>
<td>32 (80.0)</td>
<td>92 (68.6)</td>
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<tr>
<td>Kaposi’s Sarcoma</td>
<td>8 (72.7)</td>
<td>25 (62.5)</td>
<td>11 (11.9)</td>
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<tr>
<td>Non Hodgkins Lymphoma</td>
<td>2 (18.2)</td>
<td>6 (15.0)</td>
<td>40 (29.9)</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>1 (9.1)</td>
<td>8 (20.0)</td>
<td>42 (31.30</td>
</tr>
<tr>
<td>Non AIDS Defining Cancer</td>
<td>1 (9.1)</td>
<td>3 (7.5)</td>
<td>6 (4.5)</td>
</tr>
<tr>
<td>Anogenital</td>
<td>15 (11.1) (Penis, vulva, 5anal)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>5 (12.5) (Breast, Colon, Hepatoma)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 1: Cancer types according to the year of diagnosis.
TUPEBo81

The impact of HIV on hepatocellular cancer survival in Nigeria

E. Okeke1, M. Davwar Pantong1, B. Mullien1, M. Dugurun1, O. Agbagb1, A. Sagay2, R. Murphy3, C. Hawkins4
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Background: Hepatocellular carcinoma (HCC) is an increasing cause of mortality in HIV-infected patients. Despite the high prevalence of both HIV and HCC in Nigeria, the impact of HIV on HCC presentation and survival in this region is unknown. The aims of this study were to compare host and tumor characteristics between HCC patients with and without HIV and examine the impact of HIV on survival.

Methods: This prospective observational study was conducted at the Jos University Teaching Hospital, Jos, Nigeria. Adults >18yrs with a known HIV serostatus and diagnosis of HCC using AASLD criteria were enrolled between Sept-2015 and Sept-2017 and followed until Dec-2017. Demographic features, tumor characteristics, and survival were compared between HCC patients with and without HIV using Fisher’s exact or chi-square tests. Survival curves were generated using Kaplan-Meier plots and compared using the log rank test.

Results: 101 patients (50 HIV-infected and 51 HIV-uninfected) were enrolled (male 72%; median age 48 IQR 35-60). 60% HIV-infected patients were receiving ART. 90% had CD4 counts > 200/mm3 at the time of HCC diagnosis and 25% had HIV RNA < 50 copies/mL. 70% HIV-infected and 75% HIV-uninfected were infected with chronic HBV (HBsAg+). Most patients (98%) had ≥ 2 symptoms of HCC at presentation. Survival at three months was 22% and 48% in HIV-infected and -uninfected patients. The duration of symptoms prior to HCC diagnosis was significantly shorter in HIV-infected vs. HIV-uninfected patients (13 [IQR 54-130] vs. 155 [93-248] days; p<0.02). By the end of follow-up 10/10 (100%) HIV-infected and 9/10 (90%) HIV-uninfected had died. The probability of survival at three months was 22% and 48% in HIV-infected and -uninfected patients, respectively (p<0.02). Median time to death was significantly shorter in HIV-infected vs. -uninfected patients (23 [IQR 12-88] vs. 80 [IQR 26-177] days; p<0.04).

Conclusions: Extremely high rates of early mortality were observed in this relatively young cohort of Nigerian patients with HCC. HIV infection was associated with a faster disease course and significantly shorter survival. More aggressive HCC surveillance may be warranted in HIV-infected patients particularly if they are co-infected with chronic HBV.

TUPEBo82

Characteristics of HIV positive Rwandan women testing positive for human papillomavirus (HPV) and visual inspection after acetic acid (VIA): Implications for cervical cancer prevention in resource limited settings

G. Murenzi1, J.P. Sinausbau2, T. Rurangwa2, H-Y. Kim3, K. Anastas4, P.E. Castien, A. Adedimeji1
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Background: With expanded access to ARTs, HIV+ women in LMICs are living longer, but may have increased risk of invasive cervical cancer (ICC), the 2nd most common cause of cancer morbidity in LMIC women. While HPV vaccine is most effective in preventing ICC, generations of women already exposed to HPV will not benefit from vaccination. Thus, secondary prevention remains a necessary strategy to reduce incidence of ICC. Limited resources for prevention however require identifying optimal methods for screening, including understanding characteristics of women who are most at risk for ICC. This study describes the characteristics of women most at risk for HIV and VIA positivity after screening for ICC and cervical precancer.

Methods: We recruited 2478 HIV+ Rwandan women aged 30-54 years receiving care from selected health facilities located in Kigali. We evaluated screening tests (high risk HPV testing and VIA) traditional triage tests (HPV16/18/45 detection, VIA), and potential new biomarkers for triage (E6/E7, CINtec Plus (p16 and Ki-67) Dual Stain) of screen-positive women. All screen positive women undergo ascertainment to obtain unbiased estimates of specificity, sensitivity, and positive and negative predictive value. We conducted preliminary descriptive statistics to highlight associations between socio-demographic characteristics that predict HPV and VIA positivity.

Results: Overall, 2478 women were enrolled of which 653 (26%) tested positive for HPV (≥26, ≥422, ≥955) and VIA (≥560). Mean age was 39.5 for HPV+ and 40.9 for VIA+. Majority of women were married, lived in Kigali and of low socioeconomic status. Age, marital status, age of sexual debut, age when had first child and use of oral contraceptives were significantly associated (p<0.0001; 95% CI) with HPV+. Significant association was found between being married, low socioeconomic status, contraceptive use and pre-menopausal status and VIA+.

Conclusions: Understanding predisposing factors as well as characteristics of women most at risk for HPV and VIA could help inform the design of programs aimed at preventing ICC through early screening and detection using optimal strategies that maximize the use of scarce resources in LMICs.

TUPEBo83

Early detection of anal cancer in men who have sex with men (MSM) living with HIV by incorporating digital anorectal examinations (DARE) into routine HIV care. A prospective cohort study

J.J. Ong1,2, S. Walker1, A. Gruich1, J. Hoy3, T. Read3, C. Bradshaw3, S. Garland1, R. Hilman1, D. Templeton1, J. Hocking1, B. Eub3, B. Tees1, E. Choa4, C. Fairley5
1London School of Hygiene and Tropical Medicine, London, United Kingdom, 2Monash University, Melbourne, Australia, 3Kirby Institute, University of New South Wales, Sydney, Australia, 4The Alfred Hospital, Melbourne, Australia, 5Melbourne Sexual Health Centre, Melbourne, Australia, 6University of Melbourne, Department of Obstetrics and Gynecology, Melbourne, Australia, 7University of Sydney, Westmead Clinical School, Sydney, Australia, 8University of Melbourne, Melbourne, Australia, 9Prahran Market Clinic, Prahran, Australia, 10Victoria AIDS Council, Melbourne, Australia

Background: MSM living with HIV have the highest risk for anal cancer. The majority of anal cancers are detected in late stages where morbidity and mortality are high. We provide 'real-world' data on the feasibility of incorporating regular DARE into routine HIV care for MSM living with HIV. We monitored the referral rate to colorectal specialists, which may be a driver of cost.

Methods: In 2014, we recruited 327 MSM living with HIV, aged 35 and above, from Melbourne, Australia. Men were recruited from one major sexual health centre (n=187), two high HIV caseload general practices (n=118) and one tertiary hospital (n=22). Men were followed for two years and DARE was recommended at baseline, year 1 and year 2. Data were collected regarding patient and physician experience, and health service use. An ordered logit model was used to assess the relationship between sociodemographic factors and the number of DAREs received (1, 2 or 3). Potential confounding factors such as the site of recruitment, income level and HIV duration were also adjusted.

Results: Men had a mean age of 51 (SD=9) years, were Australian born (69%), current smokers (32%), and had a mean CD4 of 630 (SD=265) cells per mm3 with no significant differences between clinical sites. Overall, 262 (80%) men received all three DAREs. 312 (91%) received > 2 DAREs. 47 (14%) only had one DARE. The referral rate to a colorectal surgeon was 3.8 referrals per 100 DAREs. lowest in the sexual health clinic (1.7/100 DARE), followed by GP clinics (5.6/100 DARE) and the tertiary hospital (13.2/100 DARE). Potential confounding factors such as the site of recruitment, income level and HIV duration were adjusted.

Conclusions: Men who were age ≥50 years had significantly lower odds of receiving all three DAREs (aOR=0.45, 95%CI 0.25-0.79), compared to younger age groups. Men with a history of anal cancer had significantly lower odds of receiving all three DAREs (aOR=0.36, 95% CI 0.18-0.73), compared to those without a history.
Background: Antiretroviral therapy (ART) extends lifespan to near normal and has been associated with high rates of non-communicable diseases, particularly hypertension and heart disease. Limited data exist around rates of heart disease in stable patients on ART in sub-Saharan Africa.

Methods: Between June 2016 to October 2017, we performed blood pressure measurements, electrocardiograms (ECGs), and echocardiograms on HIV-infected adults (≥18 years) who were on ART ≥12 months, and were attending routine clinic visits, to evaluate rates of hypertension and undiagnosed heart disease. Surveys were performed to collect sociodemographic and lifestyle information. Uni- and multivariate logistic regression was used to evaluate predictors of echocardiographically-confirmed heart disease.

Results: A total of 202 individuals were evaluated, median age 45 years, IQR 39.52; 52% female, median duration on ART 6.8 years (IQR 4.6-8.8), 27% on medication for hypertension, and 71% of those with a viral load >1,000 copies/ml. Twenty-four percent of participants did not carry a diagnosis of heart disease. A total of 38% had hypertension with a mean systolic blood pressure of 131 mmHg. The most common findings were mild mitral, aortic, or tricuspid valve regurgitation (17%), left ventricular hypertrophy defined as septum or wall >1.2 cm (10%), reduced left ventricular systolic function defined by ejection fraction <50% (5%), and small pericardial effusion (5%). Predictors of an abnormal echocardiogram included older age, longer duration on ART, elevated blood pressure, abnormal ECG, and virologic failure (Table).

In multivariate analysis, older age (aOR:1.04, p=0.02), abnormal ECG (aOR:3.6, p=0.001), and virologic failure (aOR:27.7, p=0.003) remained significant.

Conclusions: Hypertension and undiagnosed heart disease were common in this cohort of HIV-infected individuals on ART in Malawi. ECG may be a simple screening tool to identify high-risk patients. Long-term follow-up is needed to determine whether mild abnormalities progress to clinically significant disease.
1) HIV-diagnosed cases had significantly higher odds of prevalent diagnoses for hypertension, asthma, type II diabetes, renal disease, stroke, myocardial infarction, and of multi-morbidity compared with age and sex-matched controls. (Table) Heart failure, COPD, peripheral arterial disease, or unstable angina did not appear more prevalent among HIV-diagnosed cases.

Conclusions: This large UK-based study of HIV-associated morbidity in almost nine thousand HIV-diagnosed cases is the first to include general population controls and is unique in demonstrating a substantially higher burden of co-morbidity and of multi-morbidity amongst HIV-positive population controls and is unique in demonstrating a substantially high-risk case versus the controls.

References:

TUPEB087
Is the risk of myocardial infarction in PLHIV associated with atazanavir or darunavir exposure?

D. Costagliola1, V. Potratz1, S. Lang1, N. de Castro1, L. Cotte1, X. Duval1, C. Duvivier2, S. Grabar3, M. Mary-Krause4, M. Partisani5, R. Ronot-Breggiore1, A. Simon1, P. Talltevin1, L. Weiss1, D. Zucman1, C. Kattams2,3,4, F. Raffi4, F. Boccara5, for the French Hospital Database on HIV (FHDH-ANRS CO4).

Background: This large prospective study of PLHIV associated with atazanavir (ATV) or darunavir (DRV) exposure.

Methods: Cases were patients who had a first validated MI between 2006 and 2012, using the European Society of Cardiology definition. Up to 5 controls were selected at random with replacement among patients with no history of MI, followed at the time of MI diagnosis (index date) in the same clinical center, matched with the case for age (± 3 years) and sex.

Conditional logistic regression models were adjusted for potential confounders not considered to be on the causal pathways between ARV and MI (sub-Saharan origin, family history of premature coronary artery disease, hypertension, smoking, current cocaine or IV drug use, body mass index, viral load (VL), CD4 nadir and CD4/CD8 ratio and for cumulative exposure to each antiretroviral drug (ARV).

Results: A total of 408 validated MI cases and 1250 controls were included. At enrollment in FHDH, 81% of participants were ARV naïve. Cases were mainly male (88%) with a median age of 49 years. All traditional cardiovascular risk factors were more frequent in cases than in controls. At the index date, 60% of cases and 76% of controls had a VL < 50 copies/mL (p=0.0070), the CD4 nadir was lower (161 vs 185/mm³, p=0.0387) and the CD4 count higher (941 vs 837/mm³, p<0.0001) in cases compared to controls, while no difference was observed for the current CD4 count.

TUPEB086
Effects of Nef exosomes on bystander uninfected cells

M. Rulenko1, B. Brichacek1, D. Sviridov1
1George Washington University School of Medicine and Health Sciences, Microbiology, Immunology and Tropical Medicine, Washington, United States, 2Baker Heart and Diabetes Research Institute, Melbourne, Australia

Background: Recent studies demonstrated that Nef is incorporated into extracellular vesicles (exosomes) produced by HIV-infected cells and that exosomal Nef has pathogenic activity against uninfected bystander cells. However, mechanisms of this activity have not been determined. Here we aimed to determine whether the effects of exosomal Nef mimic the effects of endogenously produced Nef.

Methods: Effects of exosomal Nef were studied using ABCA1−/− macrophages treated with Nef exosomes for 48 h. Exosomal proteins were analyzed by mass spectrometry. Cholesterol metabolism, in particular hsa-miR-27a-3p, exosomal Nef downregulated ABCA1, inhibited cholesterol efflux, and increased abundance of lipid rafts in MDM. MDM treated with Nef exosomes exhibited pro-inflammatory features producing increased amounts of IL-6 and TNF in response to LPS stimulation.

Conclusions: Nef exosomes released from HIV-infected cells suppress cholesterol efflux in macrophages and likely in other cells. This increases lipid raft abundance and promotes pro-inflammatory responses. Given that Nef is produced from infected cells even when virus production is fully blocked by anti-retroviral treatment, these findings may explain persistent inflammation observed in successfully treated HIV patients with undetectable HIV load.

Table 1

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>cases</th>
<th>controls</th>
<th>odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>152</td>
<td>94</td>
<td>1.65 (1.08-2.53)</td>
</tr>
<tr>
<td>Age &gt; 65</td>
<td>131</td>
<td>76</td>
<td>1.70 (1.05-2.73)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>88</td>
<td>48</td>
<td>1.83 (1.18-2.84)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>72</td>
<td>42</td>
<td>1.95 (1.30-2.93)</td>
</tr>
<tr>
<td>Obesity</td>
<td>69</td>
<td>39</td>
<td>2.02 (1.34-3.06)</td>
</tr>
</tbody>
</table>

| Table 1

TUPEB086
Effects of Nef exosomes on bystander uninfected cells

M. Rulenko1, B. Brichacek1, D. Sviridov1
1George Washington University School of Medicine and Health Sciences, Microbiology, Immunology and Tropical Medicine, Washington, United States, 2Baker Heart and Diabetes Research Institute, Melbourne, Australia

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Methods: Exosomes were purified by differential centrifugation from supernatants of Nef-transfected HEK293T cells. Exosomal RNA was assayed by RNAseq, and exosomal proteins - by mass spectrometry. Monocyte-derived macrophages (MDM) were differentiated for 6 days in the presence of M-CSF and treated with Nef exosomes for 48 h. ABCA1 expression was assayed by Western blot, cholesterol efflux - by release of radiolabeled cholesterol, and lipid rafts - using fluorescently labeled cholesterol toxin B subunit. HIV infection was analyzed by fusion assay, and cytokine release - by ELISA.

Conclusions: Exosomes derived from HIV-infected cells suppress cholesterol efflux in macrophages and likely in other cells. This increases lipid raft abundance and promotes pro-inflammatory responses. Given that Nef is produced from infected cells even when virus production is fully blocked by anti-retroviral treatment, these findings may explain persistent inflammation observed in successfully treated HIV patients with undetectable HIV load.

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TUPEB088
Association between CD4 cell count and blood pressure and its variation with Body Mass Index categories in HIV-infected patients

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Background: There are increasing reports of an association between low CD4 cell count in HIV infected patients and hypertension through mechanisms of persistent immune activation and chronic inflammation. Although a raised body mass index (BMI) is a known risk factor for hypertension, its effect on the CD4 count-blood pressure association has still not been fully elucidated. The aim of this study was to establish whether an independent relationship exists between CD4 count and hypertension and if this relationship is modified or confounded by BMI.

Methods: A secondary data analysis of a cross-sectional study carried out at a referral hospital of the South West region of Cameroon was conducted. This study enrolled two hundred HIV/AIDS patients to whom a standardized questionnaire was administered and a physical examination done. Standard WHO definitions of hypertension and BMI categories were used. A linear regression model and the Chi-square test were used to test for associations between continuous and categorical variables respectively, and a logistic regression model was used to assess for the association between CD4 cell count and hypertension while controlling for confounders.

Results: No linear association was observed between the log CD4 cell count and both systolic (p = 0.200, r = 0.12) and diastolic blood pressures (p = 0.123, r = 0.14) respectively. Patients with CD4 cell count ≥350 cells/µl were two and a half times more likely to have hypertension (OR = 2.50, 95% CI: 1.05 - 5.93, p = 0.032) and there was no independent relationship between CD4 count and hypertension after controlling for age, sex, family history of hypertension, BMI-defined overweight, HAART use and duration of HIV infection (AOR: 1.66, 95% CI: 0.48 - 5.71, p = 0.419).

Conclusions: This study did not identify any independent relationship between CD4 count and hypertension. Large prospective studies are therefore recommended to better explore this relationship between HIV-infection and CD4 cell count.

TUPEB089
Endothelial colony forming cell function is reduced and negatively associated with activated monocytes in HIV

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Background: HIV infection is associated with a higher risk of cardiovascular disease, perhaps due to inflammation from higher levels of activated intermediate monocytes, or endothelial colony forming cells (ECFC), were negatively associated with the numbers CD14+16+ monocytes in HIV-infected patients. We sought to extend these findings by assessing the effects of HIV and CD14+16+ monocytes on actual ECFC function to generate new blood vessels.

Methods: We prospectively obtained blood samples from 15 HIV-healthy volunteers, 8 HIV-ART-naive patients, and 15 HIV-ART+ patients who were virologically-suppressed while receiving a standard TDF/FTC/INSTI regimen (Table). Using ANOVA, we compared the effects of plasma from these three groups on ECFC proliferative capacity function parameters (network area, cell area, network length, network branch points) using IncuCyte assays. We also performed Pearson correlations to identify associations between these ECFC functional parameters with CD14+16+, CD14+16+, and CD14dim16+ monocyte subsets from these same groups.

Results: ECFC proliferative capacity parameters were significantly worse in HIV+/ART- patients compared to HIV- controls and HIV+/ART+ patients (Table), even when adjusted for demographics, CD4, HIV-1 RNA, and classic CVD risk factors (smoking, BMI, lipids). Network length and branch points were also worse in HIV+/ART+ compared to HIV- controls. In the HIV+ patients, each ECFC proliferative capacity parameter was negatively correlated with proportions of CD14+16+ monocytes (r = -0.66; all p< 0.05), with similar correlations in the individual HIV+/ART- and HIV+/ART+ groups; no correlations were found with the other monocyte subsets. No significant correlations between ECFC functional parameters and monocyte subsets were found in the HIV- group.

Conclusions: The ability of ECFC to generate new blood networks were significantly impaired by plasma from untreated HIV and ART-treated HIV when compared to HIV-negative, healthy volunteers. These functional parameters were adversely associated specifically with activated, intermediate monocytes. These data extend our previous findings by demonstrating that HIV-related inflammation may impair vascular regenerative potential and thus may be a novel mechanism by which HIV, even when treated with modern ART, is associated with a higher risk of cardiovascular disease.
TUPEBogo
Clinical characteristics and mortality outcomes of people living with HIV (PLHIV) with Atrial Fibrillation in British Columbia, Canada

P. Vizcaíno1, K. Salters2, O. Eyawo3, M. Ver, M. Lu, M. Bennett4, J.S. González Montañer2, R.S. Hogg2,3, S. Guillemi2

Background: Previous research from our group demonstrated that PLHIV were diagnosed with Atrial Fibrillation (AF) a median of 10 years earlier than HIV-negative individuals (HIVneg). This current analysis compares comorbidities, treatment-uptake and outcomes of PLHIV vs. HIVneg individuals with AF diagnosis.

Methods: We used data from the Comparative Outcomes and Service Utilization Trends (COAST) study, a population-based cohort of PLHIV and a 10% general population sample aged ≥19 years, that utilizes clinical and administrative health data from the BC Centre for Excellence in HIV/AIDS and Population Data BC. International Classification of Diseases 9/10 codes were used to identify AF diagnosis, comorbidities, stroke and mortality outcomes, from 1996 to 2013. Bivariable analyses, comparing comorbidities, treatment-uptake and age-adjusted incidence rate estimates with HIVneg AF diagnosis are presented.

Results: A total of 20,276 individuals diagnosed with AF were identified (PLHIV: 212, HIVneg: 20,064). Age-adjusted incidence rate of AF was 4.8 per 1000 Person-Years (%PY) in PLHIV and 4.0‰PY in HIVneg, rate ratio (RR): 1.2 (95%CI: 0.9-1.4). Compared to HIVneg population, PLHIV had higher prevalence of substance and alcohol use (48% vs. 10%, p<0.001) and chronic kidney disease (25% vs. 18%, p=0.003) while HIVneg had more hypertension (74% vs. 58%, p<0.001) and ischemic heart disease (60% vs. 45%, p<0.001). PLHIV with AF received less oral anticoagulants (45% vs. 56%, p=0.002); warfarin being the main agent (42% vs. 52%, p=0.004) (Table 1).

The age-adjusted rate for stroke was significantly higher in PLHIV (4.85 per 100 Person-Years (%PY); 95%CI: 4.4-5.28) vs. 12.9‰PY (95%CI: 12.5-13.4) in HIVneg. RR: 3.7 (95%CI: 3.4-4).

The age-adjusted rate for all-cause mortality was 9.5‰PY (95%CI: 7.3-11.7) in PLHIV vs. 3.5‰PY (95%CI: 3.3-3.6) in HIVneg (RR: 2.7, 95%CI: 2.1-3.4). The highest RR was observed among men aged 19-49 years (RR 6.9; 95%CI 3.6-12.6). Figure 1 shows survival estimates for both populations.

Conclusions: PLHIV had less traditional underlying conditions for AF and oral anticoagulants utilization compared to HIVneg. Incidence of stroke and mortality rates were higher in PLHIV. The latter was particularly higher among younger men living with HIV. This finding illustrates the need to consider AF diagnosis and treatment at an earlier age in PLHIV.

TUPEBog1
HIV infection, antiretroviral therapy and stroke mortality in South Africa: A population-based cohort study

M. Siedner1, K. Herbst2, J. Manne-Goehler3, A. Abdallah4, A. Vandormael5, D. Pillay6, F. Tanser6, T. Barnighausen7

Abstracts - Late Breaker Abstracts - Publication Only Abstracts - Author Index

Wednesday 25 July

Background: HIV infection, particularly with advanced and untreated disease, is associated with increased risk of stroke in resource-rich settings. However, less is known about the contributions of HIV infection, or its treatment, on stroke in sub-Saharan Africa, where nearly 70% of the world’s population living with HIV reside.

Methods: We conducted a population cohort study in which residents over 15 years of age in the rural uMkhanyakude District of Northern KwaZulu-Natal were observed from 2004-2016. Individuals were offered HIV testing annually and deaths were investigated with verbal autopsy. Our primary outcome of interest was fatal stroke, as determined by the immediate or underlying cause of death at verbal autopsy (GBD code 108 or VA code 04.02). Our primary explanatory variable of interest was a time-varying indicator of HIV-status, defined as HIV-negative, HIV-positive, or HIV-unknown; and, separately, using a fourth category that divided HIV-positive individuals into those prior to and after antiretroviral therapy (ART) initiation, which was determined by clinical records. We divided HIV-positive individuals into those prior to and after antiretroviral therapy (ART) initiation, which was determined by clinical records. We estimated fatal stroke incidence rates and fit Cox proportional hazards models, adjusted for age and sex, with robust standard errors.

Results: A total of 99,101 individuals contributed 549,606 person-years of observation. We documented 1,084 fatal strokes, for an overall crude incidence of 197 strokes per 100,000 person-years (95% CI: 185-209). Whereas younger individuals with HIV not on ART had a significantly higher crude incidence of stroke than uninfected individuals, there was no difference between these groups in those over 60 years, as the rate of stroke in the general population increased (Figure).
TUPEB093
Increased type I IFN response among HIV infected men with cardiovascular disease

P. Vassalini1, L. Celandi1, E.N. Cavallari1, M. Statuz1, G. Corano Scheri1, G. Antonelli1, V. Vulto1, C. Scagnolari1, G. D’Ettorre1

“Sapienza” University of Rome, Public Health and Infectious Diseases, Rome, Italy; “Sapienza” University of Rome, Posture Institute-Cenci Bolognetti Foundation, Department of Molecular Medicine, Laboratory of Virology, Rome, Italy.

Background: Continuous production of type I IFN is a prominent feature of chronic HIV infection and might contribute to immune activation leading to immune dysfunction and premature bone, brain and atherosclerotic vascular disease. In this case control study, we examined the hypothesis that alterations in blood IFN production might contribute to the presence of coronary atherosclerosis in patients with HIV.

Methods: One hundred and six and long term viologically suppressed HIV men with (n= 34) or without (n=72) coronary heart disease (CHD), recruited from the Dpt. of Public Health and Infectious Diseases of the “Sapienza” University of Rome (Italy), were included in this study. A control group of gender and age matched healthy individuals (n= 22) was also examined. IFN-alpha/beta and ISG56 mRNAs levels were evaluated in blood samples using TaqMan assays. Differences between groups were examined using the Mann-Whitney test. Pearson correlation coefficient was used to determine correlations. A p-value less than 0.05 was considered statistically significant. All analyses were performed with SPSS v.17.0 for Windows.

Results: There were no significant differences, between the two groups in age, CD4 T cell count, or antiretroviral therapy duration. Increased amount of IFN-alpha, IFN-beta and ISG56 mRNAs was recorded in HIV men with CHD compared to those without CHD and healthy controls (CHD vs CHD -: p< 0.001; CHD vs Healthy subjects, p< 0.001 for all genes analyzed). In contrast, similar levels of IFN-alpha/beta and ISG56 were recorded between HIV patients without CHD and healthy subjects. High levels of IFN-beta and ISG56 gene expression in HIV infected patients showed significant correlations with the Framingham Risk score (IFN-beta p=0.04 r=0.237; ISG56 p=0.022 r=0.347). No such differences were recorded for IFN alpha levels (p>0.05). In addition, no relationships were recorded between IFN-alpha/beta and ISG56 levels and the presence of significant stenoses (i.e grade II-IV).

Conclusions: We provide evidence that the measurement of type I IFN response might help to identify HIV infected individuals at risk for cardiovascular disease progression.

TUPEB092
Within subject variability of HDL-cholesterol in HIV-infected patients

B. Roca1, A. Mendoza1, L. Castillo1, C. González1, L. Pastor1

Hospital Provincial de Castellón, Castellón de la Plana, Spain

Background: Within-subject variability of cardiovascular risk factors may influence the development of cardiovascular disease. We aimed to improve knowledge on HDL-cholesterol variability and its clinical significance in HIV-infected patients, a population at high risk of cardiovascular disease.

Methods: This was:
1) A cross-sectional study to quantify variability of HDL-cholesterol between two consecutive visits and to determine factors associated with such variability; and
2) A retrospective-prospective cohort study to assess the possible relationship between HDL-cholesterol variability and the occurrence of cardiovascular events. Both studies were carried out in the same group of patients.

Results: A total of 307 patients were included. Mean ± standard deviation of their age was 45.1 ± 8.5 years, and 225 of them (73.3 %) were male. The absolute difference (after squaring and root squaring) of serum HDL-cholesterol level between the first and the second visit was 12.1 ± 9.2 mg/dL. In 65 patients (21.2 %) the absolute value of the difference between both serum HDL-cholesterol level results was 20 mg/dL or higher. In a multivariable analysis, the number of cigarettes smoked per day showed a significant, negative correlation with the absolute difference in serum HDL-cholesterol level between the two visits. Overall, during the retrospective and the prospective cohort parts of the study, a total of 26 patients (8.5 %) suffered a cardiovascular event; variability of HDL-cholesterol was similar in those patients than in those who did not suffer a cardiovascular event (P = 0.71).

Conclusions: Within-subject variability of HDL-cholesterol was substantial among our HIV-infected patients. Smoking was inversely correlated with such variability.

TUPEB094
Early detection of cardiac dysfunction in asymptomatic adult HIV-infected patients

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Background: HIV infection is associated with cardiac dysfunction due to multifactorial causes. However, early cardiac dysfunction is usually asymptomatic and cardiovascular disease (CVD) is always detected late. 2D speckle-tracking echocardiography (2DSTE) has been used to detect early cardiac deformation in various CVD. This study aims to explore the early cardiac deformation and dysfunction by 2DSTE in asymptomatic HIV-infected patients in Taiwan.

Methods: HIV-infected patients were recruited prospectively from a medical center in southern Taiwan from 1 June 2017 to 31 October 2017. Medical records, history of HIV infection, risk factors for CVD were reviewed. Patients with symptoms or history of heart failure were excluded. 2DSTE was performed to calculate left ventricular (LV) and right ventricular (RV) global longitudinal strain (GLS). A cut-off value of < -16% and < -18% was used to define impaired LV and RV GLS respectively.

Results: A total of 100 patients were recruited during the period. Their mean age was 37.4 years and 94 of them are male. 44% had history of AIDS and 8 of them have a CD4 count < 200 cells/mm3 at the time of
enrolment. The mean CD4 count was 556.6 cells/mm³ and 87% of them had a viral load < 200 copies/mm³. The median duration of HIV diagnosed and antiretroviral treatment is 3 years (IQR 2-5.5) and 36 months (IQR 14-37) respectively. In echocardiography, only one patient has impaired LV ejection fraction (< 50%) and 8 patients have impaired RV systolic function (TAPSE < 16mm). However, 9 patients have pulmonary hypertension. The mean LV GLS was -18.6 ± 2.6% and RV GLS was -20.0 ± 6.7%. 91% and 68% of the patients have abnormal LV GLS and RV GLS, respectively.

**Conclusions:** This is the first study applying 2DSTE in Asian HIV-infected population. We found that impaired cardiac deformation is highly prevalent, despite a preserved LV and RV systolic function derived by the traditional echocardiography. Besides, a relatively high proportion of pulmonary hypertension is also noted. Further study is needed to investigate the clinical impact of these early changes and the effect of antiretroviral therapy.

### Echocardiographic data

<table>
<thead>
<tr>
<th>Echocardiographic data</th>
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<tbody>
<tr>
<td>LV ejection fraction (LVEF %), mean ± SD</td>
<td>66.0 ± 5.3</td>
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<tr>
<td>LV systolic dysfunction (LVEF &lt; 50%), n(%)</td>
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</tr>
<tr>
<td>LV diastolic dysfunction (E/A &lt; 0.8), n (%)</td>
<td>7 (7)</td>
</tr>
<tr>
<td>LV GLS (%), mean ± SD</td>
<td>-18.9 ± 2.6</td>
</tr>
<tr>
<td>Impaired LV GLS (LVGLS &lt; -15%), n (%)</td>
<td>91 (91)</td>
</tr>
<tr>
<td>RV systolic dysfunction (TAPSE &lt; 16), n (%)</td>
<td>8 (8)</td>
</tr>
<tr>
<td>RV GLS (%), mean ± SD</td>
<td>-20.0 ± 6.7</td>
</tr>
<tr>
<td>Impaired RV GLS (RVGLS &lt; -18%), n (%)</td>
<td>68 (68)</td>
</tr>
<tr>
<td>Pulmonary hypertension (RVSP &gt; 25mmHg), n (%)</td>
<td>9 (9)</td>
</tr>
</tbody>
</table>

(Echocardiographic data of the study population)

### TUPEBo95

**Effect of statin on coronary calcium distribution, mass and volume scores and associations with immune activation among HIV+ persons on antiretroviral therapy**

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**Background:** Although inflammation has been associated with whole heart coronary artery calcium (CAC) among HIV+ persons on antiretroviral therapy (ART), prior studies have not evaluated the distribution of calcium or separated mass vs. volume components of the calcium score which have been differentially associated with clinical events in the general population. Statins may also have a greater effect on mass compared to volume of calcified coronary plaque.

**Methods:** The SATURN-HIV trial randomized 147 HIV+ subjects on ART to rosuvastatin 10mg daily vs. placebo. We re-analyzed coronary calcium scans from 0, 48, and 96 weeks to determine mass and volume scores in addition to per vessel and whole heart Agatston score. We also calculated number of vessels with any CAC and the diffusivity index [1–CAC] to rosuvastatin 10mg daily vs. placebo. Randomization to statin was measured by ultrasonography.

**Results:** Median age at study entry was 46 years; 78% were male and 68% African American. Median CD4+ was 613 and half were on protease inhibitors. Fifty-four subjects had CAC >0 at baseline, of whom 24 (16% of subjects overall) had >1 vessel affected with a mean (SD) diffusivity index of 0.24 (0.17) in statin vs. 0.18 (0.15) in placebo. Randomization to statin was not associated with change in mass score (p=0.65, Figure), volume score (p=0.76, Figure), number of involved vessels (p=0.51), or diffusivity index (p=0.13).

**Conclusions:** There were no consistent longitudinal associations of inflammation markers with diffusivity index or mass/volume score.

**TUPEBo96**

**Age moderates the association between HIV infection and carotid intima media thickness: Evidence for elevated risk in younger HIV-infected individuals**

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2The Key Laboratory of Public Health Safety of Ministry of Education, Fudan University, Shanghai, China
3Taihu City Center for Disease Control and Prevention, Taizhou, China

**Background:** Individuals with human immunodeficiency virus (HIV) infection are at increased risk of cardiovascular disease (CVD) in spite of combination antiretroviral therapy (cART). Atherosclerosis is a well-known predictor of CVD in the general population. HIV infection has been associated with subclinical atherosclerosis but data are not consistent and limited by relatively small sample. We evaluated possible effect modification (interaction) of age on the association of HIV infection and carotid atherosclerosis.

**Methods:** This study was conducted in 2017 in Taizhou prefecture, Zhejiang province in Southeastern China. 1391 HIV-infected adults and 2782 age-, and gender- frequency-matched HIV-uninfected individuals were recruited and administered with a face-to-face questionnaire interview and physical examinations. Carotid intima-media thickness (cIMT) was measured by ultrasonography.

**Results:** 1311 (94.2%) of 1391 HIV-infected patients were on cART with median duration of 2.3 years (interquartile range 0.6-4.1). HIV-infected individuals had significantly higher values of cIMT than HIV-uninfected individuals (0.740±0.38 vs. 0.691±0.39, P<0.001). This association remains sig-
TUPEB087
Prevalence of early cardiac dysfunction and covariates in children living with HIV in Western Kenya

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Background: HIV-associated cardiac dysfunction has severe consequences, and traditional measures of echocardiography underestimate disease. Novel echocardiographic measures may detect early disease in time for possible intervention. The aims of this study are to define the prevalence of early cardiac dysfunction in children living with HIV and the relationships between cardiac function and same-day HIV viral load levels.

Methods: Using a cross-sectional study design, we performed echo-cardiograms and obtained plasma HIV RNA levels on children who were perinatally infected with HIV engaged in care at Moi Teaching and Referral Hospital in Eldoret, Kenya. Early cardiac dysfunction was defined as left ventricular global longitudinal strain (LVGLS) z-score ≤ -2 or myocardial performance index (MPI) ≥ 0.5. The relationship between measures of cardiac function and HIV RNA levels and the assessment of other clinical covariates (age, sex, duration prior to and on antiretrovirals, and AZT exposure) were measured using linear regression.

Results: 303 children (mean age 9.8±3.2 years, range 1-16 years) with perinatally acquired HIV were enrolled. The mean BMI-for-age z-score was -1.0±1.1. The median duration on antiretrovirals was 5.4 years (IQR 0.0, 5.4). 101 of 298 (33.9%) had HIV RNA levels ≥ 40 copies/ml or any clinical variables in the model [0.11 (95%CI -0.28, 0.5) and 0.09 (95%CI -0.02, 0.02), respectively].

Conclusions: Nearly one quarter of these HIV-infected children demonstrated echocardiographic evidence of cardiac dysfunction, based primarily on abnormal MPI measurements. This finding was not correlated with same-day HIV RNA levels or other clinically relevant variables. Further investigation into the clinical significance of this finding is urgently needed as abnormal MPI measurements have been shown to be predictive of heart failure in at risk populations.
TUPEB101

Prevalence and risk factors associated with carotid plaque and intima-medial thickness in virologically suppressed HIV-infected Asians

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Background: The magnitude and risk factors of subclinical atherosclerosis in an Asian HIV-infected population is limited. Carotid intima-media thickness (cIMT) test has been one of the predictors for the risk of cardiovascular disease (CVDs) and mortality. We evaluated the prevalence and risk factors related to carotid atherosclerosis among well suppressed HIV-infected adults receiving long-term ART from Thailand.

Methods: A cross-sectional study of HIV-infected adults aged ≥50 years and free from CVDs was conducted in Thailand. Ultrasoundography of the common carotid was performed and read by cIMT experienced neurologists who were blinded from the patient care. Subclinical atherosclerosis was defined by carotid plaque or cIMT of the common carotid artery >0.9 mm. Multiple logistic regression analysis was used to predict the prevalence of subclinical atherosclerosis and the relationship between other covariates.

Results: Totally 316 HIV-infected adults (median age 54.4 years, 61.5% men, 15.8% diabetes, 40.2% hypertension) were included. The mean overall cIMT of the common carotid arteries were 0.63 (IQR 0.51-0.70) mm. Men had higher cIMT (0.64 IQR 0.56-0.70) vs 0.61 IQR 0.53-0.70, p=0.03. Overall, 3.8% had cIMT >0.9 mm and 27.6% had carotid plaque. From the multivariate logistic regression analysis, age (odds ratio (OR) 1.06; 95% CI 1.02-1.10), hypertension (OR 2.07; 95% CI 1.07-4.07) and smoking (OR 2.19; 95% CI 1.00-4.80) were associated with carotid intima-media thickness, although this was not statistically significant (p=0.37). In age and race-adjusted linear regression models, per 1 perimenopause (-0.71, p=0.013), hepatitis C (-0.44, p=0.044), history of CV disease (-0.95, p=0.031), current smoking (-0.29, p=0.11), and higher CD4 cell count per doubling, p=0.072 were associated with lower carotid intima-media thickness, although the latter two did not reach statistical significance.

Conclusions: We did not find a statistically significant association between HIV and cerebrovascular function in this small cohort of virally suppressed WLWH. These data provide preliminary evidence that menopause, in addition to several modifiable vascular risk factors, may significantly impact cerebrovascular risk in women with well-controlled HIV.
TUPEB102
Predictor of cardiovascular events and mortality in a Spanish cohort of HIV-infected patients

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Background: HIV infection is characterized by a state of profound and continuous immune-activation. It is likely that the variables associated with the infection are predictors of cardiovascular events. The objective of our study was to evaluate the predictors of major adverse cardiac events (MACE).

Methods: Retrospective analysis of 671 medical records of HIV-infected patients who were attended in the Internal Medicine consultation of the Virgen de la Arrixaca Hospital (Murcia) for the period January 2000 to December 2013. Events MACE that occurred until September 2017 were collected. The median follow-up was 16.7 years. A univariate and multivariate Cox analysis was performed to evaluate the factors associated with MACE.

Results: Fifty-five MACE occurred during the follow-up period. The MACE predictors were age (per year, Hazard ratio (HR) = 1.07, 95% Confidence interval (CI): 1.04-1.10, p < 0.001), male sex (HR = 2.26, 95% CI: 1.26-4.04, p = 0.006), arterial hypertension (HR = 1.41, 95% CI: 1.06-1.85, p = 0.019), diabetes mellitus (HR = 1.49, 95% CI: 1.05-1.98, p = 0.026), chronic kidney disease (HR = 2.39, 95% CI: 1.01-5.62, p = 0.047), AIDS (HR = 1.99, 95% CI: 1.21-2.21, p = 0.000) and the CDA/C DB ratio less than 0.4 (HR = 2.49, 95% CI: 1.43-4.32, p = 0.001). HIV viral load higher than 200 copies/ml (HR = 4.46, 95% CI: 2.47-8.01, p < 0.001). In the multivariable Cox regression analysis, the independent predictors of MACE were age (per year, HR = 1.07, 95% CI: 1.04-1.10, p < 0.001), male sex (HR = 2.16, 95% CI: 1.06-4.41, p = 0.034), smoking (HR = 1.42, 95% CI: 1.01-2.00, p = 0.047) and the HIV viral load higher than 200 copies/ml (HR = 5.94, 95% CI: 3.13-11.26, p < 0.001). The C statistic model was 0.78 (95% CI: 0.71-0.84, p < 0.001).

Conclusions: Traditional risk factors (smoking habits, sex and male age) were associated with MACE events as general population. On the other hand, HIV viral load > 200 copies was a powerful predictor of MACE event in HIV infected patients. So it highlights the importance of antiretroviral treatment and virological control to prevent cardiovascular events.

TUPEB104
Cardiovascular disease risk assessments and fasting lipid changes in virologically suppressed patients randomized to switch to tenofovir alafenamide versus continuing abacavir

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Background: Both tenofovir alafenamide (TAF) and abacavir (ABC) are considered lipid-neutral antiretroviral drugs, however comparisons between these agents have not thus far been described. We examined the effect of switching from ABC-containing to TAF-containing regimens on fasting lipids and cardiovascular (CV) risk.

Methods: We analyzed 1119 virologically suppressed participants in two randomized controlled trials of switching from ABC to TAF. Study 1712 assessed switching from ABC/ lamivudine (3TC) + 3rd agent to emtricitabine (FTC)/TAF + remaining on the same 3rd agent (n=566), and Study 1844 from ABC/dolutegravir/3TC to bictegravir/FTC/TAF (n=553). We assessed fasting lipids, 10-year CV risk using the AHA/ACC Pooled Cohort Equations and 5-year CV risk using the D:A:D algorithm (full model). Individuals were classified using clinical cutoffs for risk scores: <7.5%, 7.5% to <10%, ≥ 10%. We assessed the change in risk categories from baseline using rank analysis of covariance, and compared median changes from baseline with Wilcoxon rank sum test.

Results: 562 adults switched to TAF and 557 continued ABC. Baseline characteristics were balanced: median age 49 years (range 20 to 79), 85% men, 22% black, median CD4 count 683 cells/µL (interquartile range 530, 983), 33% hypertension and 10% diabetes. At Week 48, no differences were seen in TC, LDL, non-HDL, triglycerides or TC/HDL ratio. Participants who switched to TAF had a small decline in HDL compared to ABC. There were no differences in 10-year CV risk categories or median risk change at Week 48 by AHA/ACC equations (p=0.80 and p=0.16). Using the D:A:D algorithm, TAF was associated with a small decline in CV risk compared to ABC at Week 48 (p=0.001 attributable to the removal of the coefficient for current ABC use). Virolologic suppression and safety were similar between groups.

Conclusions: Switching from ABC to TAF did not result in clinically significant changes in lipids or in the calculated AHA/ACC ASCVD or D:A:D CV risk scores. These findings suggest that TAF and ABC have similar effects on lipids and CV risk calculations that do not include ABC as a CV risk factor.
Methods: We pooled data from 2567 virologically suppressed participants on 3 randomized, active controlled trials that assessed switching to TAF versus continuing TDF. We measured fasting lipids and calculated 10-year ASCVD risk using the AHA/ACC Pooled Cohort Equations. We classified individuals by clinical risk categories: < 7.5%, 7.5% to < 10%, and ≥ 10% using the rank analysis of covariance method to compare the change from baseline in risk categories and Wilcoxon rank sum test to compare median values at Week 48.

Results: 1537 adults switched to TAF and 1050 continued TDF. Baseline characteristics included: 87% men, 21% Black, median CD count 647 cells/mL (IQR 390, 830). 25% hypertension and 5% diabetes, were balanced between groups. Median age was 44 years (IQR 36, 51) versus 45 years (IQR 36, 51) for TAF versus TDF respectively (p=0.021). At Week 48, there was a small difference in median change from baseline ASCVD scores, no difference in median risk score between TAF and TDF groups (see table) and no change from baseline in categorical ASCVD risk score classifications (p=0.06). After switching to TAF, modest increases were observed in all fasting lipids and a small difference in TC:HDL ratio between groups.

Conclusions: Switching from TDF to TAF did not result in any significant change in ASCVD risk scores at Week 48 compared to continuing TDF and did not alter clinical classifications of ASCVD risk despite modest increases in both protective (HDL) and harmful (LDL) cholesterol. We used the AHA/ACC equation to compare calculated risk scores in TDF versus TAF, taking into the relative young, healthy, and mostly male cohort with low baseline cardiovascular risk. Long term cohort data is needed to characterize clinical cardiovascular event rates.

TUPEB105
The potential impact of integrating services for the secondary prevention of cardiovascular outcomes into HIV care in Kenya: A mathematical modelling study
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Background: Cardiovascular disease (CVD) is estimated to contribute more than 13% of deaths in Kenya. National guidelines now recommend integration of secondary preventative services for CVD risk factors into care for people living with HIV (PLHIV). However, coverage remains very low. Our aim is to quantify the impact of comprehensive provision of antihypertensive and lipid lowering medication as per national guidelines on CVD incidence amongst PLHIV in care.

Methods: We developed an individual-based multi-disease model for Kenya, simulating HIV infection, progression and treatment, and incidence of major non-communicable diseases (NCDs). The model was parameterized using national and regional surveillance and epidemiological data and accounts for the impact of pre-existing NCDs (diabetes, hypertension and dyslipidaemia) on risk of CVD outcome (myocardial infarction (MI) and stroke) (Figure 1A). We evaluated the impact of integrating a screen-and-treat intervention for hypertension and dyslipidaemia into HIV care on CVD outcomes, using recommended screening intervals (every three years) and treatment guidelines, from 2018 to 2035. Therapeutic Success (TS) was assumed to range from 5-40% and to decrease CVD risk to that of age-matched controls without hypertension or dyslipidaemia.

Results: Our model predicts a baseline of 33,700 (32,819-34,678) cases of CVD outcomes between 2018 and 2035 amongst PLHIV in care. MI incidence of 102.7 (98.8-106.6) and stroke incidence of 104.7 (100.4-108.9) per 100,000 person-years. Prevalence of related NCDs is predicted to increase over the same period: hypertension: 40.2% to 54.5%, dyslipidaemia: 26.4% to 39.3%, and diabetes: 18.1% to 40.1%. A screen-and-treat intervention could avert 12%-34% of MI cases and 11%-33% of stroke cases among PLHIV between 2018 and 2035 (Figure 1B), depending on assumed probability of TS. This equates to 1 case averted for every 87-261 screening tests administered, depending on TS assumed. MI incidence could decrease to between 94.0 (89.5-98.6) and 68.5 (64.5-72.9) and stroke incidence to between 93.1 (89.5-98.6) and 68.8 (64.5-73.5) per 100,000 person-years.

Conclusions: Screening and treatment of high blood pressure and cholesterol in PLHIV in care could avert a large burden of CVD outcomes in this population, with the impact strongly modulated by the probability of achieving treatment success.
Methods: Retrospective analysis of 671 medical records of HIV-infected patients who were attended in the Internal Medicine consultation of the Virgen de la Arrixaca Hospital (Murcia) for the period January 2000 to December 2013. Major adverse cardiac events (MACE) that occurred until September 2017 were collected. The median follow-up was 16.7 years. The COMVIH-COR score was calculated at the event or at the end of the follow-up. The improvement in the reclassification of the COMVIH-COR scale after the addition of the viral load variable greater than 200 copies/ml was performed.

Results: The COMVIH-COR risk scale was calculated in 507 patients. The area under the curve COMVIH-COR risk scale model was 0.72 (95% confidence interval (CI), 0.68-0.76) compared to 0.76 (95% CI, 0.72-0.79) of the model in which CV greater than 200 copies/ml was added to the COMVIH-COR score (p = 0.02). The Integrated Discrimination Improvement (IDI) showed that the viral load improved the classification of the risk level showed higher rates in those patients with HIV viral load higher than 200 copies/ml in all levels: low (2.8 versus 1.0), moderate (11.1 versus 9.1), and high risk or very high (13.2 versus 7.4).

Conclusions: The COMVIH-COR risk scale developed for HIV-infected patients had a modest predictive capacity for major adverse cardiac events. The addition of a virological marker (HIV viral load > 200 copies/ml) to the COMVIH-COR scale significantly improved its predictive capacity with increased risk in patients with HIV viral load higher than 200 copies/ml in all levels: low (2.8 versus 1.0), moderate (11.1 versus 9.1), and high risk or very high (13.2 versus 7.4).

Bone disease
TUPEB108
Prevalence and predictors of bone mineral density among perinatally HIV-infected adolescents on antiretroviral therapy (ART) in the Cape Town Antiretroviral Cohort (CTAAC)

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Background: Access to ART has reduced morbidity and mortality in perinatally HIV-infected adolescents (PHIVA), but long-term complications including low bone mineral density (BMD) remains a concern. In high income countries, low BMD has been reported in 10-54% of HIV-infected adolescents. We studied the prevalence and predictors of low BMD among South African PHIVA on ART.

Methods: We evaluated the calcaneus stiffness index (SI) in a cross-sectional analysis using Quantitative Ultrasoundography (QUS), a reliable and non-invasive method to screen BMD. Adolescents 11-17 years old were included. SI was considered low if z-score < -2 SD using age and sex matched HIV-uninfected controls (HIV-) as a reference. Multiple logistic regression was used to examine the adjusted association between low SI and both HIV-related and traditional risk factors in PHIVA.

Results: Overall, 407 PHIVA (median age: 14 years; 50% female; median age at ART initiation: 4.2 years) and 92 HIV- (median age: 14 years; 54% female) were included. Median duration on ART was 9.8 years (IQR 6.8-11.5) with 38% having ART at 12 years of age. PHIVA had low mean SI and BMI z-score compared to HIV- (p<0.001). Multiple logistic regression was used to examine the adjusted association between low SI and both HIV-related and traditional risk factors in PHIVA.

Conclusions: This study quantified the significant level of co-morbidities in Australians living with HIV and identified specific areas for improvement in the management of cardiovascular and renal risk factors. The study was used as the basis of a reflective quality improvement activity delivered to 16 general practices, with the aim of improving the quality of clinical care in Australians living with HIV.

TUPEB107
Chronic disease prevalence and management in Australian adults with HIV. Use of a national longitudinal general practice dataset to identify and address gaps in patient care

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Background: The evolution of HIV into a chronic disease presents new challenges for the management of a range of HIV-associated non-AIDS comorbidities. Cardiovascular (CV) disease and its prevention are important considerations in the management of people living with HIV (PLWHIV). Limited literature exists on how CV and renal diseases are managed in PLWHIV in Australia. We aimed to characterise PLWHIV being cared for their general practitioners, and investigate how well their CV and renal risk factors were being managed in line with current guidelines.

Methods: An Australian primary care dataset was used to characterise the prevalence of selected co-morbidities in PLWHIV. A cardiovascular and renal focus were selected after interviews with HIV specialists and general practitioners. The ethics approved real-world dataset used contains longitudinal, de-identified, whole-of-practice data from general practices and holds individual patient data for more than 3.5 million Australians. The management of risk factors for cardiovascular and renal disease was then compared to best practice guidelines.

Results: In September 2017, 4,492 patients 18 years or older were identified in the dataset as PLWHIV, representing 17.7% of the estimated 25,313 PLWHIV in Australia. Males accounted for 95.3% of the cohort and 66.5% were 45-74 years old. Depression, anxiety, cardiovascular disease and cancer were the commonest co-morbidities recorded and were all more common than in the non-HIV population (Chart 1). Local guidelines recommend annual monitoring of cardiovascular and renal risk factors. Sixty-three percent of PLWHIV had a blood pressure recorded in the dataset in the last year, 60% an eGFR, and 25% an LDL-cholesterol.

Of those with measurements available, 74% had a systolic blood pressure below 140mm Hg. 17% had a LDL cholesterol below 2 mmol/L (target management goals) and 30% had an eGFR in the normal range (>90mL/min/1.73m²).

Conclusions: This study quantified the significant level of co-morbidities in Australians living with HIV and identified specific areas for improvement in the management of cardiovascular and renal risk factors. The study was used as the basis of a reflective quality improvement activity delivered to 16 general practices, with the aim of improving the quality of clinical care in Australians living with HIV.
Conclusions: In South African PHIVA, SI appears significantly different from HIV- controls especially in late puberty. LPV/r exposure and high viral load are risk factors for low SI and exposure to EFV seems to be associated with better SI. Longitudinal study of BMD is needed to evaluate long term effects.

**TUPEB110**

Vitamin D does not modulate Immune-mediated bone loss during ART initiation

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Background: Bone loss with ART initiation may be related to changes in immune function, including expression of receptor activator of nuclear factor kappa-B ligand (RANKL) which leads to osteoclast activation. Vitamin D (VitD) and calcium(Ca) supplementation (vitamin D3 4000 IU calcium carbonate 1000 mg daily) attenuates ART-associated bone loss, but it is unclear whether this effect is mediated through immunomodulation.

Methods: In this secondary analysis of A5280, a 48-week, randomized, double-blind, placebo-controlled study of VitD/Ca supplementation in HIV+ persons initiating efavirenz/emtricitabine/tenofovir, we measured lymphocyte phenotypes and RANKL expression by median fluorescence intensity (MFI) on cells at baseline and 48 weeks. Changes were evaluated within and between treatment groups by Wilcoxon signed rank and Wilcoxon rank sum tests, respectively. Spearman correlations were estimated to evaluate the relationship between cellular phenotypes and bone mineral density (BMD).

Results: Of 165 eligible participants enrolled, 138 had samples for cellular phenotypes at baseline and week 48 (69 were in the VitD/Ca and 74 in placebo). Markers of CD4, CD8, and B cell activation (CD38+HLA-DR+) declined from baseline to week 48 (all p < 0.001, table), but did not differ between arms. There was no decline in either T cell cells (CD4 and CD8 expressing RANKL, or expression of RANKL, by MFI). CD8 expression of RANKL by MFI declined in both arms with a greater decline in the placebo arm. CD4 and CD8 activation markers were not correlated with BMD at baseline (r = 0.15 and p=0.09 for all), but greater declines in CD4 activation correlated with greater declines in hip and spine BMD in both arms (r=0.25 and p=0.07, all p < 0.05). A greater decline in CD8 activation was correlated with greater declines in both hip and spine BMD in the placebo arm only (r=0.31, p=0.009; spine r=0.25, p=0.035). Other correlations between changes in markers and BMD were modest and not apparent on scat-terplots.

**TUPEB109**

Increased beta-2 microglobulinuria predicts low BMD in young HIV+ patients on TDF

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Background: HIV+ patients treated with Tenofovir Disoproxil Fumarate (TDF) are known to have risk for developing low bone mineral density (BMD) and hence are in high risk for fracture. However, current recommendation is to screen bone density with dual-energy x-ray absorptiometry (DXA) in men aged ≥50 and postmenopausal women. We evaluated the prevalence and risks for low BMD in our HIV+ patients, and then sub-analyzed patients aged < 50 and on TDF.

Methods: A single-centered cross-sectional study was performed among HIV+ patients, analyzing BMD by DXA. We assessed factors associated with low BMD (osteopenia or osteoporosis, defined by T-scores ≤2.5 SD) in young HIV+ patients treated with TDF (n=127) had low BMD in either lumbar spine or hip. When adjusted by age, sex, CD4 count and smoking habit, patients on TDF (adjusted odds ratio (aOR): 2.19, 95% CI: 1.07-4.47) increased beta-2 microglobulinuria (3-20 mcg/L) (aOR: 2.51, 1.2-5.3) and Body Mass Index (BMI) < 25 (aOR: 2.49, 1.2-5.0) were risk factors for low BMD.

Patients aged < 50 and on TDF (n=109) had high rate of low BMD (64%, n=70), and after adjustment with age, sex, smoking habit, BMI and CD4 count, significant risk factor for low BMD in this population was increased beta-2 microglobulinuria (aOR: 3.56, 1.1-11.1).

Conclusions: Low BMD is common in young HIV+ patients on TDF. High risk patients warrants screening for low BMD with DXA. Young HIV+ patients on TDF with increased beta-2 microglobulinuria have 3.5-fold higher risk for developing low BMD. To determine high risk patients for low BMD, a spot urine beta-2 microglobulin test may be helpful.
TUPEB111
Bone mineral density and prevalence of osteoporosis in HIV-infected patients in comparison with a reference Spanish population: The importance of local normative ranges

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Background: HIV-infected patients have less bone mineral density (BMD) than non-HIV population. According to current guidelines, the normal BMD reference range is that derived from the US NHANES III (BMD) than non-HIV population. However, local variations in BMD could change the interpretation of bone loss and the prevalence of osteoporosis (OP) in this population.

Methods: This was a cross-sectional study in a homogeneous cohort of HIV-infected patients (RyC cohort. EC 009/17). Data of femoral neck and spine BMD were obtained by DXA (Dual-Energy X-ray Absorptiometry) from 694 patients (241 women, 25%) and compared with the results of a nationally representative Spanish cohort (14 centers) including 2442 subjects (1305 women, 53%) aged 20-80 years.

Results: Overall, mean age was 45.4 yrs (women, 46.5 yrs). The Spanish reference cohort showed a reduced BMD (-7% vs -12%) in comparison with NHANES, especially in middle aged women. HIV-infected patients had a lower BMD than Spanish cohort in both spine and femoral neck localizations for the different age strata (p<0.01). Statistically significant differences in femoral neck for males older than 40 yrs (from 13.5 to 21% in 60-69; p<0.01) were observed. Using NHANES data, the prevalence of OP was 26% in women in the Spanish cohort and 41% in our HIV population. By contrast, if the Spanish data are used as normative range, the prevalence of OP decreased in HIV females, significant between 40-60 years (from 26.5 to 23%) in spine, p<0.01.

Conclusions: Our data demonstrate that HIV-infected patients had a significantly reduced BMD in comparison with both US and Spanish reference data for all the age strata. However, the prevalence of osteoporosis could change if local representative cohorts are used as normative data, with almost 30% of patients being reclassified.

TUPEB112
Abnormal bone histomorphometry in men with HIV infection before and after ART initiation

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Background: Reduction in bone mineral density (BMD) is a known metabolic complication of HIV infection and antiretroviral therapy (ART). We aimed to investigate changes in bone-related proteins and bone histomorphometry in ART-naïve HIV men initiating treatment with tenofovir disoproxil fumarate (TDF).

Methods: In 36 ART-naïve men with HIV infection, we evaluated bone structure, turnover and mineralization by iliac crest bone biopsy with histomorphometry before and 12 months after ART initiation. Receptor activator of nuclear factor kappa-ligand (RANKL) and fibroblast growth factor (FGF-23) levels in serum and bone were determined using MILLIPLEX® multiplex assays. Main exclusion criteria were eGFR < 60ml/min/1.73m², metabolic bone disease, cirrhosis, diabetes, and medications affecting bone metabolism. BMD was assessed by DXA.

Results: Mean age was 29.8 years, mean BMI was 24.4±2.4, median viral load of 28,685 (5,628-68,540) copies/mL and mean CD4 of 478189 cells. At baseline, three patients had Z score < -2 at any site. Before treatment, 25% had low bone trabecular volume and 15% had decreased cortical thickness. Cortical porosity was normal in all of them. Decreased bone formation rate was seen in 88% and abnormal mineralization lag time in 63%. Increased osteoclastic and eroded surface were seen in 44 and 31%, respectively. We observed reduction in BMD at L1-L4 (-1.2%, p = 0.048), FN (-2.8%, p = 0.001) and TH (-3%, p = 0.04) after 12 months. Histomorphometric study revealed reduction in osteoblastic surface (1.3 [0.6 - 2.3] vs 3.5 [1.8 - 6.4%], p = 0.03) and increase in osteoclastic surface (3.1 [1.7 - 6.3 %], p = 0.04) and thickness (683.5 ± 163.1 vs 886.9 ± 349.4 mm, p = 0.04). Reduction in serum RANKL (15.2 [10.0 - 21.9] vs 10.9 [7.5 - 16.8] pg/ml, p = 0.049) and FGF-23 (18.1 [13.4 - 25.4] vs 14.1 [8.9 - 21.7], p = 0.04) levels were also detected.

Conclusions: Abnormalities in bone volume, turnover and mineralization are common among HIV-infected persons even before ART exposure. Bone loss with TDF, 3TC and EFV was accompanied by mineralization changes in cortical parameters and in osteoblastic surface, along with reduction in serum RANKL and FGF-23.

Renal disease

TUPEB113
Renal safety of TAF vs. TDF or ABC in a pooled analysis of 27 Phase 2/3 clinical trials

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Background: Compared to tenofovir disoproxil fumarate (TDF), tenofovir alafenamide (TAF) has improved renal safety in individual randomized trials. We present pooled analyses of renal safety of TAF vs. TDF or TAF vs. abacavir (ABC) in treatment-naïve and switch studies including over 7500 children and adults.

Methods: We pooled data from 27 studies (7 in treatment-naïve participants, 19 in virologically suppressed, 1 in both treatment-naïve and virologically suppressed adults). Most studies were randomized and double-blind; pediatric studies were single-arm, open-label. All participants who initiated or switched to TAF-based regimens (tenofovir alafenamide [TAF]/FTC/TAF, rilpivirine/[FTC]/TAF, FTC/ TAF, bictegravir/FTC/TAF) were compared with those who initiated or continued regimens containing either TDF or ABC. Rates of participants discontinuing drug due to renal adverse events (AEs) or proximal renal tubulopathy (PRT, determined using common MedDRA terms) from each group were analyzed. We compared urine albumin/creatinine (UCR) and tubulopathy (PRT, determined using common MedDRA terms) from each group were analyzed. We compared urine albumin/creatinine (UCR) and retinol binding protein (RBP:Cr) from 11 randomized studies.

Results: 7662 participants were enrolled across studies (n=7595 TAF, n=2668 TDF, n=916 ABC). Baseline median age was 42 years, 19% women, 27% Black. Pooled data included exposure of 12.575 person-years (py) to TAF, 5947 to TDF, and 1029 to ABC. Three vs. 16 (p<0.001) participants discontinued TAF- vs. TDF-based regimens due to a renal AE. None vs. 10 cases of PRT occurred with TAF vs. TDF (p<0.001). Participants initiating TAF- vs. TDF- or ABC-based regimens had greater decreases or smaller increases at Week 48 in renal biomarkers (p<0.05). Table: Participants...
Participants with at least two creatinine-based estimates of GFR - 60 were considered to have CKD. Agreement was assessed by the Bland-Altman method.

Results: Among 306 HIV-infected participants, the median age was 49 (range: 21-83), 246 (74%) were male, and 180 (60%) African-American. The baseline median CD4+ was 640 (IQR 454-808), 94% had an HIV RNA < 200 c/mL, and only 72% were not on ARVs. 44% had HIV/HCV co-infection, and 20% had HIV/HBV co-infection. CysC measurements were performed on 301 (85%), and 361 (11%) had CKD. Plots of differences between eGFR by creatinine only versus cysC-containing formulae (cysC only and cysC with creatinine) demonstrated varying limits of agreement. The 95% limits of agreement were -68.5 and 53.9 mL/min/1.73m² (CKD-EPIc and CKD-EPIc-cysC). Percent agreement between estimates was 85.4% (CKD-EPIc and CKD-EPIc-cysC) vs 73% (CKD-EPIc and CKD-EPI-cysC). There were differences in classification across stage I and II categories of kidney function, with use of cysC leading to more participants classified in stage I (CKD-EPIcysC 76% and CKD-EPI-cysC 73%) compared to 54% in stage I using the CKD-EPIc estimate (Table I).

Conclusions: Both CKD-EPIc-cysC and CKD-EPIcysC GFR estimates demonstrated varying agreement with CKD-EPIc in this predominantly African-American cohort, with 20-23% of individuals with stage I disease by cysC differentially categorized as stage II using creatinine-only based estimates. Further studies are needed that provide a longitudinal assessment of factors, including race, that mediate differences between cysC-based versus creatinine-based estimates of GFR in HIV-positive individuals.

Table 1: Classification of participants by eGFR

<table>
<thead>
<tr>
<th>STAGE</th>
<th>CKD-EPI Creatinine No. (%)</th>
<th>CKD-EPI Cystatin C No. (%)</th>
<th>CKD-EPI Creatinine-Cystatin C No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>163 (54%)</td>
<td>229 (76%)</td>
<td>219 (73%)</td>
</tr>
<tr>
<td>II</td>
<td>102 (34%)</td>
<td>47 (16%)</td>
<td>56 (19%)</td>
</tr>
<tr>
<td>IIIa</td>
<td>19 (6%)</td>
<td>9 (3%)</td>
<td>12 (4%)</td>
</tr>
<tr>
<td>IIIb</td>
<td>9 (3%)</td>
<td>8 (3%)</td>
<td>6 (2%)</td>
</tr>
<tr>
<td>IV</td>
<td>0 (0%)</td>
<td>1 (0%)</td>
<td>1 (0%)</td>
</tr>
<tr>
<td>V</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Stage I: GFR >90 mL/min per 1.73m²; Stage II - GFR 60 to 89 mL/min per 1.73m²; Stage IIIa - GFR 45 to 59 mL/min per 1.73m²; Stage IIIb - GFR 30 to 44 mL/min per 1.73m²; Stage IV - GFR 15 to 29 mL/min per 1.73m²; Stage V - GFR <15 mL/min per 1.73m² or treatment by dialysis.

TUPEB114
Estimates of glomerular filtration rate in HIV infected individuals using creatinine and cystatin c based measurements

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Background: Development of chronic kidney disease (CKD) in individuals with HIV is multifactorial, affected by virus, viral co-infection, and/or antiretroviral (ARV) use. Assessing kidney dysfunction by accurate estimations of glomerular filtration rate (GFR) is important for HIV therapeutic decisions. We compared GFR estimates (eGFR) using creatinine and cystatin c (cysC)-based equations.

Methods: Participants were enrolled in a cross-sectional study. Demographics and creatinine (IDMS-creatinine standardized) were abstracted from the medical record. CysC was measured in a certified laboratory using an immunoassay standardized to the ERM®-DA471/IFCC reference. GFRs were calculated using Chronic Kidney Disease Epidemiology Collaboration creatinine (CKD-EPIc), CKD-EPIc-cysC (creatinine + cysC), and CKD-EPIcysC (cysC only) equations.

Results: Among 306 HIV-infected participants, the median age was 49 (range: 21-83), 246 (74%) were male, and 180 (60%) African-American. The baseline median CD4+ was 640 (IQR 454-808), 94% had an HIV RNA < 200 c/mL, and only 72% were not on ARVs. 44% had HIV/HCV co-infection, and 20% had HIV/HBV co-infection. CysC measurements were performed on 301 (85%), and 361 (11%) had CKD. Plots of differences between eGFR by creatinine only versus cysC-containing formulae (cysC only and cysC with creatinine) demonstrated varying limits of agreement. The 95% limits of agreement were -68.5 and 53.9 mL/min/1.73m² (CKD-EPIc and CKD-EPIc-cysC). Percent agreement between estimates was 85.4% (CKD-EPIc and CKD-EPIc-cysC) vs 73% (CKD-EPIc and CKD-EPI-cysC). There were differences in classification across stage I and II categories of kidney function, with use of cysC leading to more participants classified in stage I (CKD-EPIcysC 76% and CKD-EPI-cysC 73%) compared to 54% in stage I using the CKD-EPIc estimate (Table I).

Conclusions: Both CKD-EPIc-cysC and CKD-EPIcysC GFR estimates demonstrated varying agreement with CKD-EPIc in this predominantly African-American cohort, with 20-23% of individuals with stage I disease by cysC differentially categorized as stage II using creatinine-only based estimates. Further studies are needed that provide a longitudinal assessment of factors, including race, that mediate differences between cysC-based versus creatinine-based estimates of GFR in HIV-positive individuals.
TUPEB115
The prevalence of impaired renal function in well-treated people living with HIV is low but remains higher than in uninfected controls.

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Background: The prevalence of renal diseases appears to be higher among people living with HIV (PLWH) compared to HIV-negative individuals, although previous studies focused in populations at increased risk of renal disease, such as those with uncontrolled HIV infection, of African descent or with hepatitis C (HCV) coinfection. We therefore aimed to determine if HIV is an independent predictor of impaired renal function in HIV-populations without these risks compared to that in matched uninfected controls.

Methods: Caucasian PLWH, virologically suppressed on combination antiretroviral treatment, without IDU, or HCV co-infection were recruited from the Copenhagen comorbidity in HIV infection (COCOMO) study. Sex and age matched uninfected controls were recruited from the Copenhagen General Population Study. We defined impaired renal function as estimated glomerular filtration rate (eGFR) ≤60 mL/min/1.73 m² in a single measurement and assessed associated factors using logistic regression adjusting for age, sex, BMI, cumulative smoking, diabetes, hypertension, and educational level.

Results: Among 569 PLWH and 2,659 controls, the prevalence of impaired renal function was 4% (95% CI: 2%-6%) and 2% (95% CI: 1%-3%), respectively. After adjustment, HIV status was independently associated with impaired renal function, odds ratio (OR): 3.4 (95% CI: 1.8-6.3). Aside from HIV, older age (OR per decade older: 5.3 (95% CI: 3.9-7.2)), male sex (OR: 4.3 (95% CI: 2.2-8.3)), and diabetes (OR: 2.9 (95% CI: 1.2-6.7)) were independently associated with impaired renal function. Among PLWH, mode of transmission, current CD4 T cell count, CD4 T cell nadir, time with HIV and previous AIDS-defining diagnosis were not associated with impaired renal function. The association between HIV and impaired renal function increased as persons aged (>0.002, test for interaction).

Conclusions: PLWH (N=598) Uninfected controls (N=2,659) PLWH with impaired renal function (N=21)

<table>
<thead>
<tr>
<th>Age, median (IQR)</th>
<th>51 (44-60)</th>
<th>51 (44-60)</th>
<th>72 (67-75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (male), n (%)</td>
<td>530 (89)</td>
<td>2313 (89)</td>
<td>15 (72)</td>
</tr>
<tr>
<td>Diabetes, n (%)</td>
<td>27 (5)</td>
<td>10 (4)</td>
<td>4 (19)</td>
</tr>
<tr>
<td>Hypertension, n (%)</td>
<td>266 (46)</td>
<td>148 (50)</td>
<td>18 (86)</td>
</tr>
<tr>
<td>BMI (kg/m²), median (IQR)</td>
<td>24 (22-27)</td>
<td>24 (24-29)</td>
<td>23 (20-27)</td>
</tr>
<tr>
<td>Pack-years, median (IQR)</td>
<td>19 (8-33)</td>
<td>15 (6-26)</td>
<td>19 (15-40)</td>
</tr>
<tr>
<td>Serum creatinine, mg/dL, median (IQR)</td>
<td>83 (76-92)</td>
<td>82 (75-89)</td>
<td>111 (94-129)</td>
</tr>
<tr>
<td>eGFR, mL/min/1.73 m² (CKD-EPI), median (IQR)</td>
<td>89 (78-100)</td>
<td>91 (82-100)</td>
<td>56 (48-58)</td>
</tr>
</tbody>
</table>

| eGFR ≤60 mL/min/1.73 m², n (%) | 21 (4) | 43 (2) | 21 (100) |

Characteristics:

The prevalence of impaired renal function was low among well-treated PLWH with fewer other risk factors for impaired renal function. However, the prevalence of impaired renal function, even in this low-risk group, remained higher than in uninfected controls. HIV was an independent risk factor and the impact of HIV seemed to be accentuated among older individuals. Impaired renal function, albeit relatively rare in well-treated PLWH, therefore still remains a concern requiring ongoing attention and monitoring.

TUPEB116
Triglycerides/glucose index is a simple and clinically useful surrogate for insulin resistance among non-diabetic HIV-infected Aging in Asia

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Background: Insulin resistance (IR) is associated with a cluster of abnormalities that increase cardiovascular diseases (ICDVs). Direct measurement of insulin resistance are clinically impractical. Several indices including 1) metabolic syndrome (Mets), 2) plasma triglyceride/high-density lipoprotein cholesterol ratio (TG/HDL-C index) and 3) Plasma triglyceride × glucose (TyG) index have been proposed to identify individuals who are insulin resistant. We aimed to evaluate the abilities of TyG index and TG/HDL-C to predict IR among Asian HIV-infected aging (≥50 years old) patients without diabetes, who received ART for a median of 16 years.

Methods: We enrolled 285 virologically suppressed HIV-infected Thai without overt diabetes mellitus/CVD to this analysis. Homeostatic model assessment (HOMA-IR) was used to establish insulin resistance using a cut off of >2. The TyG index was calculated as ln[TG (mg/dL) × fasting glucose (mg/dL)]/2. Pearson’s correlation coefficients were used to assess the linear relationship between TyG index, HOMA-IR and ASCVD, and ROC analysis was used to assess threshold cutoffs.

Results: 58.25% were males with median age 54 yrs. BMI of 23 kg/m². In the IR group, hypertension, body mass index (BMI), waist hip ratio, body fat, visceral fat rating, fasting insulin, fasting plasma glucose, triglyceride levels, TG/HDL-C index, TyG index and Mets were significantly higher than in the non-IR group. The median TyG index was significantly different between the IR group (N=84) and non-IR group (N=201), at 9.1 (IQR 7.9-9.4) and 8.7 (IQR 8.3-9.3), respectively (P<0.001).

The median TG/HDL-C index was significantly higher among the IR group than non-IR group like 1.43 (IQR 2.8-6.3) vs 2.8 (IQR 1.8-4.5), P<0.01. The TyG index and TG/HDL-C were well correlated with HOMA-IR (r=0.39; P<0.001 and r=0.31; P<0.001, respectively).

The TyG index showed a strong positive association with ASCVD (r=0.35; P<0.01). The cut-off of the TyG index for diagnosis of insulin resistance was 9.0 with sensitivity 0.61 and specificity 0.72. HOMA-IR score increased by 57% for every 1 unit increase in TyG.

Conclusions: Compared with HOMA-IR, the TyG index is a simple, and clinically useful surrogate marker of insulin resistance among Aging HIV-infected patients.

TUPEB117
Obesity and inflammation in HIV+ mono-infected individuals on antiretroviral therapy (ART) in the Miami Adult Studies in HIV (MASH) cohort

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Florida International University, Miami, United States

Background: Obesity is becoming increasingly prevalent in People Living with HIV (PLWH). In the U.S., 22% and 18% of PLWH are overweight and obese. These prevalence rates are comparable to the national average, and are higher among minorities. Obesity is independently associated with systemic inflammation in PLWH. In HIV-infected individuals on ART, levels of inflammation tend to decrease.
However, HIV infection is associated with chronic low-level inflammation even after years of ART use. The purpose of this study is to determine the association between obesity and inflammation in HIV+ mono-infected and HIV/HBV/HCV un-infected individuals.

**Methods:** Participants were selected from the ongoing Miami AIDS Studies in HIV (MASH) cohort. The HIV mono-infected participants were on stable ART. Obesity (BMI >30kg/m²) was obtained from the anthropometric assessment. Blood samples were collected to assess inflammation and lipid panel. Inflammation was assessed with high sensitivity C-reactive protein (hsCRP) levels > 3 mg/L, a commercial laboratory determined the lipid panel. Descriptive statistics, Wilcoxon test, and regression analyses were used to analyze the data.

**Results:** There were 384 participants: mean age was 53.6±8.3 SD years, 56% were male and 63% Black. non-Hispanics. 85% (n=295) were HIV mono-infected and the rest were not infected. Obesity was significantly associated with higher hsCRP levels among HIV mono-infected compared to un-infected individuals (P < 0.001). Multiple regression showed that in the HIV mono-infected group, obesity was also strongly related to hypertriglyceridemia (P < 0.001), lower HDL cholesterol levels (P < 0.002), and hyperglycemia (P < 0.001). Compared to uninfected, the HIV mono-infected group had higher triglycerides levels (median 211.5 (IQR 181-270) vs. 170 (IQR 131-207), P < 0.001). Obese HIV mono-infected individuals were 2.64 times more likely to have high levels of inflammation (OR=2.64, 95CI 1.15-6.29, P < 0.002) than those of normal weight (BMI ≤25kg/m²) after controlling for age, gender and smoking status.

**Conclusions:** Obese HIV mono-infected participants on stable ART had high levels of inflammation, dyslipidemia and hyperglycemia. These risk factors contribute to chronic low-grade inflammation, creating an inflammatory environment that promotes disease progression and increase in non-AIDS co-morbidities including metabolic syndrome, cardiovascular diseases, and diabetes.

**TUPEB18**

No evidence of increased risk of thyroid dysfunction in well-treated people living with HIV


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*Hvidovre Hospital, University of Copenhagen, Department of Infectious Diseases, Copenhagen, Denmark

*Herlev Hospital, University of Copenhagen, The Copenhagen General Population Study, Department of Clinical Biochemistry, Herlev and Gentofte Hospital, Herlev, Denmark

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*Rigshospitalet, University of Copenhagen, Department of Medical Endocrinology, Copenhagen, Denmark

**Background:** Autoimmune thyroid diseases have been reported following immune reconstitution and older observational studies without uninfected controls have suggested an increased prevalence of thyroid dysfunction in people living with HIV (PLWH).

Our primary aims were to investigate the prevalence and associated risk factors of thyroid dysfunction in well treated PLWH and matched uninfected controls and to examine whether HIV is independently associated with thyroid dysfunction in the modern combination antiretroviral therapy (cART) era.

Method:** B26 PLWH from the Copenhagen co-morbidity in HIV infection (COCOMO) Study were frequency matched on age and sex with 2,503 uninfected controls recruited from the Copenhagen General Population Study. Thyroid stimulating hormone (TSH), free thyroxine, total thyroxine and total triiodothyronine were measured, and medical treatment for hypothyroidism, subclinical hyperthyroidism, and euthyroid was determined the lipid panel. Descriptive statistics, Wilcoxon test, and regression analyses were used to analyze the data.

**Results:** The PLWH were generally well-treated with 95% having undetectable viral replication. Among PLWH and controls 31 (3.8%) and 114 (4.6%) had hypothyroidism, and 7 (0.8%) and 21 (0.8%) had hyperthyroidism, respectively. In adjusted analyses, we found no significant association between HIV and hypothyroidism OR 0.8 (0.6-1.3) p = 0.40 or between HIV and hypothyroidism OR 0.1 (0.5, 2.5) p = 0.91. Serum TSH concentration was comparable for HIV infected and uninfected individuals (p=0.6). HIV-related risk factors were not associated with hypothyroidism or hyperthyroidism.

**Conclusions:** The prevalence of hyperthyroidism and hypothyroidism was similar in well treated PLWH and uninfected controls. HIV status was not associated with thyroid dysfunction or with serum TSH concentration.

**TUPEB19**

Higher prevalence of insulin resistance among non-diabetes HIV-infected ageing Asian received long term ART compared to HIV uninfected control

T. Apornpong, N. Sookkasame, S. Sakultra, A. Hirunthukul, W.M. Han, S. Gatechompol, L. Wattanachanya, J. Jamthong, S.J. Kerr, A. Sangaranrangkam, K. Ruxunthangam, A. Avihingsanon, HIV-NAT 207 Study Team

**Background:** Insulin resistance (IR), a risk factor for type 2 diabetes mellitus (T2DM) and cardiovascular disease, is increasingly seen in HIV-infected patients. Asians typically have higher visceral fat compared to non-Asians at the same body mass index (BMI). We determined the prevalence and predictors of IR, in an ageing population of HIV positive who received long term ART and age/sex matched HIV-negative controls.

**Methods:** A cross sectional study was conducted in Bangkok among 2097 HIV infected and 86 HIV negative controls aged ≥50 years without overt T2DM. Homeostatic model assessment (HOMA-IR) was used to establish IR, using a cut off of ≥2. Visceral fat rating was measured using body impedance assessment, and liver fibrosis was performed by Fibroscan. Multiple logistic regression was performed to find associations between IR and potential risk factors.

**Results:** Participants were male (60%) with median (IQR) age 54.4 (51.9-58.3) years. Most were non-smokers and reported no alcohol consumption. HIV positive had been taking ART for a median of 16.1 (11.9-19.1) years and 97% had HIV RNA <50 c/ml. Baseline characteristics amongst study groups were similar, but compared to HIV-negative participants, HIV-positive participants had lower BMI (median 22.8 5 vs 24.9kg/m²), percent body fat (23.3 vs 25.4%), and visceral fat rating in the high range (42.0% vs 46.0%) but higher prevalence of hypertension (HTN) (17% vs 20%) and Hepatitis C (10% vs 2%). IR was prevalent in 29% of HIV-positive compared to 16% in HIV-negative participants. In an adjusted model (Table 1), IR was associated with HIV status (adjusted odds ratio [OR] 5.22

**TUPEB19**

Higher prevalence of insulin resistance among non-diabetes HIV-infected ageing Asian received long term ART compared to HIV uninfected control

<table>
<thead>
<tr>
<th>Thyroid function</th>
<th>PLWH</th>
<th>Uninfected controls</th>
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<tr>
<td>Medical treatment for hypothyroidism, n (%)</td>
<td>5 (6.0)</td>
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<td>0.07</td>
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<tr>
<td>Medical treatment for hyperthyroidism, n (%)</td>
<td>3 (0.4)</td>
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<td>Subclinical thyroid dysfunction, n (%)</td>
<td>1 (0.1)</td>
<td>3 (0.1)</td>
<td>0.86</td>
</tr>
</tbody>
</table>

(Table 1: Medical treatment for thyroid dysfunction and results from thyroid function assays in noninfected PLWH and uninfected controls)
Background: Reduced HIV mortality in the post-ART era and increased survival of PLWH is associated with an increased risk of metabolic comorbidities. Similarly, at risk alcohol consumption is associated with increased risk for comorbidities, and its prevalence is higher in PLWH. Our preclinical studies show that chronic binge alcohol administered simian immunodeficiency virus (SIV)-infected ART male rhesus macaques developed metabolic dyshomeostasis despite the absence of fasting dysglycemia. We hypothesized that at risk alcohol use increases the prevalence of metabolic dyshomeostasis in PLWH.

Methods: PLWH (N=365; 69% male; 84% African American; mean age 48.2 ±10 yrs), in care were enrolled in our ongoing longitudinal translational study. Measures of insulin resistance (IR; by homeostasis model assessment (HOMA), lipid profile, Bennet index, and insulin sensitivity index (M0Auley index) corrected for fat free mass (Mffm), alcohol use (self-report and phosphatidylethanolamine (Peth)), and body composition were obtained. Multivariable linear and logistic regression analyses were performed to assess associations between metabolic parameters and alcohol consumption.

Results: Alcohol consumption (AUDIT ≥8) and binge drinking criteria (AUDIT ≥15) were observed in 40.3% and 22.1% of subjects, respectively. Among those with self-reported alcohol consumption, 46.1% reported binge drinking. Higher levels of alcohol use (AUDIT ≥15) were associated with immune dysregulation and inflammation.

Conclusions: The prevalence of binge alcohol consumption in PLWH is high, and has been associated with increased risk for inflammatory biomarkers and protease inhibitor usage.
TUPEB122
Obesity, overweight and NCDs in HIV+ patients in urban DREAM centres in Mozambique: A review of urban routine clinical data

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Background: Economic growth in African countries is driving to new health challenges for health systems. Despite nutritional interventions to reduce impact of wasting, especially in HIV programs, few epidemiological data about overweight, obesity and NCDs are available.

Mozambique is one of the most HIV affected countries in the world (83,000 new HIV infections in 2015), and is now experiencing the rise of new health challenges linked to increased life expectancy of general population and infections in the communities (URT, 2016), and is now experiencing the rise of new health challenges linked to increased life expectancy of general population and infections in the communities (URT, 2016), and is now experiencing the rise of new health challenges linked to increased life expectancy of general population and infections in the communities (URT, 2016).

Methods: A retrospective analysis of routine clinical and laboratory data from HIV+ patients collected in 3 urban health centers (Maputo, Machava and Beira) run by DREAM program in Mozambique was carried out. All HIV+ patients aged>18 years, attending the centers in the period 1-Jan-2017 to 23-Jan-2018 were considered. Nutritional status was evaluated through BMI (<18.5 wasting, 18.5-24.9 normal weight, 25-29.9 overweight, >30 obesity).

Results: Files from 12,946 patients (69.4% women) in ART were analyzed. Median age, BMI, HB and CD4 were respectively: 40 years (34-48 - n.12,946), 23.5 kg/m2 (20.6-37.4 - n.12,946), 12 mmol/dL (11.1-19.3 - n.12,439), 497 cells/mm3 (34-665 - n.13,389). 82% of patients (5,717/9,965) were females. 7.7% were malnourished, 23.5% were overweight and 12.2% obese. In a logistic regression model, obese and overweight patients were more likely women (OR=2.2 CI:2.05-2.49), had CD4 count>200 cell/mm3 (OR=1.9 CI:1.61-2.24), had better housing conditions (OR=1.6 CI:1.30-2.16) and Beira) run by DREAM program in Mozambique was carried out. All HIV+ patients aged>18 years, attending the centers in the period 1-Jan-2017 to 23-Jan-2018 were considered. Nutritional status was evaluated through BMI (<18.5 wasting, 18.5-24.9 normal weight, 25-29.9 overweight, >30 obesity).

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Conclusions: Obesity and overweight are common among PLWH on treatment in Mozambique, and requires special interventions. New epidemiology challenges are arising with the improvements of socio-economic conditions of African patients and health programs should pay special attention to overweight, obesity and related NCDs.

TUPEB123
Incidence and risk factors for type 2 diabetes mellitus in HIV-positive adults in TAHOD

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Background: Comorbidities including diabetes mellitus (DM) among HIV-infected adults are of increasing clinical concern in the combination antiretroviral therapy era (cART). Studies have shown that hepatitis C (HCV) co-infection is linked to the development of type 2 DM in HIV-infected adults. We aimed to determine incidence and risk factors associated with DM in HIV-positive adults in Asian settings.

Methods: HIV-positive patients from the TREAT Asia HIV Observational Database (TAHOD) without DM prior to ART initiation were included in the analysis. DM was defined as having a fasting blood glucose ≥126 mg/dL, HbA1C ≥6%, a 2-hour plasma glucose ≥200 mg/dL, or a random plasma glucose ≥120 mg/dL. HCV co-infection was defined by a positive anti-HCV antibody test. Cox regression models, stratified by site, were used to identify risk factors associated with DM.

Results: Of 1597 patients included, 127 patients were diagnosed with DM after ART initiation. Median follow-up time from ART initiation was 5.9 years (IQR 2.8-9.0 years). The crude incidence rate of DM was 1.08 per 100 person-years (100PYS). 95% confidence interval (CI) (0.9-1.3). The incidence of DM was 1.18 per 100PYS among patients with positive anti-HCV, and 1.05 per 100PYS in HIV negative patients. Positive anti-HCV was not associated with DM in the univariate analysis (p=0.22). In multivariate analysis, age 41-50 years (HR: 2.90, 95% CI: 1.46-5.76, p=0.002) and age >50 years (HR: 5.0, 95% CI: 2.34-10.75, p=0.002) compared to age <30 years, body mass index (BMI) >30 kg/m2 (HR: 3.98 95% CI: 1.37-11.58, p=0.031) and high blood pressure (HR:1.83 95% CI: 1.00-3.36, p=0.050) were significantly associated with the development of DM. The hazard was reduced for female sex (HR: 0.51, 95% CI: 0.29-0.9, p=0.021).

Conclusions: Type 2 DM in this Asian cohort of HIV-infected adults is common and associated with hypertension, BMI and age but not HCV co-infection; early detection and proper management of DM is essential.
TUPEB124

Immune activation and insulin resistance: Evaluating the association between microbial translocation and insulin resistance in HIV-infected adults in Uganda: a cross-sectional analysis

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Background: Microbial translocation and resulting immune activation are hypothesized to contribute to insulin resistance (IR) among people with HIV. Yet, whether microbial translocation and/or monocyte activation are drivers of IR in HIV-infected adults in East Africa, where genetics, environmental exposures, and HIV disease treatment differ substantially from Northern American and European countries, is unknown.

Methods: Using multivariable regression analysis, we evaluated associations of HIV infection and homeostasis model assessment of insulin resistance (HOMA-IR) in 297 adults (70 HIV- women, 79 HIV+ men, 73 HIV- women, 75 HIV- men) from the UGANDAC cohort. We aimed to determine whether intestinal fatty acid binding protein (I-FABP), monocyte activation markers soluble (s)CD14 and sCD163, and the pro-inflammatory cytokine interleukin 6 (IL-6) mediated this association. We excluded BMI was not altered by either immune marker, suggesting the possibility of distinct immune pathways to IR in Uganda. Further study is needed to understand the relationship of HIV, obesity, and sex hormones on IR in this setting.

Results: HIV- and HIV+ participants were of similar mean age (51 years) and body mass index (BMI) (23kg/m²). Mean (standard deviation [SD]) HOMA-IR was significantly greater in HIV+ participants (1.9 [SD=3.8]) vs. 1.8 [SD=2.4] (p=0.043). Markers of immune activation and I-FABP were generally higher among HIV+ compared to HIV- participants. In multivariable regression analyses, HIV infection was associated with 37% greater HOMA-IR than those without HIV infection (Table). Greater BMI and female sex were also associated with greater HOMA-IR in adjusted models. Addition of sCD14 to models strengthened the association of HIV-serostatus and female sex with HOMA-IR. Neither addition of sCD163 nor I-FABP affected these associations. In models restricted to older people with HIV


TUPEB125

Immunosuppression and HIV viremia associated with increased atherogenic cholesterol concentrations in older people with HIV

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Background: Immunosuppression and HIV viremia have been associated with unfavorable lipid profiles. Prior research has also shown that older HIV-infected persons may have a greater prevalence of metabolic and cardiovascular disease than is expected due to the independent effects of HIV and age alone. To explore reasons for this disproportionate burden, we investigated whether associations of CD4 count and HIV viral load (VL) with non-high-density lipoprotein cholesterol (non-HDL-C) and HDL-C differed by age.

Methods: Longitudinal clinical and laboratory data were collected between 2011-2016 for HIV-infected outpatients enrolled in the DC Cohort study, a multicenter prospective observational study in Washington, DC. Using data for 3,912 patients aged ≥21 years with ≥1 cholesterol result and contemporaneous CD4/VL results, we conducted multivariable linear regression with generalized estimating equations to model non-HDL-C and HDL-C concentrations. Pairwise interaction terms among CD4 count, HIV VL, and age were included and followed by stratified analyses.

Results: Among 3,912 patients (median age 50; 78% male; 76% Black), 8% had CD4 count ≥500 cells/µL and 18% had HIV VL ≥200 copies/mL. Associations between CD4 count/VL and non-HDL-C concentrations differed by age. Higher CD4 count was associated with lower non-HDL-C among patients aged ≥49 (β=-0.47 mg/dL per 50-cells/µL-increase in CD4 count [95% CI: 0.29, 0.65]), but was associated with lower non-HDL-C among patients aged 60-69 (β=-0.69 mg/dL [95% CI: -1.04, -0.34] CD4-age interaction, p<0.001). Higher log10 VL was associated with lower non-HDL-C among patients aged ≤49 (β=-1.26 mg/dL per log10-increase in VL [95% CI: -2.44, -0.09]) but was associated with higher non-HDL-C among patients aged ≥70 (β=1.14 mg/dL [95% CI: 0.54, 2.50] VL-age interaction, p<0.001). Although no age differences were detected for HDL-C, higher log10 VL was more strongly associated with lower HDL-C concentration when CD4 count was ≥500 cells/µL (β=-2.66 mg/dL per log10-increase in VL [95% CI: -3.52, -1.80] versus 200-500 (β=-1.21 [95% CI: -2.79, -1.53] or <200 cells/µL (β=-1.51 [95% CI: -2.87, -0.86]) CD4-VL interaction, p<0.001).

Conclusions: We detected an age-modified relationship between immunosuppression and viremia and atherogenic cholesterol patterns. These findings may contribute to our understanding of the high risk of dyslipidemia observed among persons aging with HIV.
TUPEB126
F/TAF, E/C/F/TAF and R/F/TAF do NOT contribute to insulin resistance: The TAF-IR study
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1University Hospital Klinikum rechts der Isar, Department of Medicine II, Munich, Germany, 2University Hospital Klinikum rechts der Isar, Department of Dermatology and Allergology, Munich, Germany, 3Muc Research, Munich, Germany, 4University Hospital Klinikum rechts der Isar, Münchner Studienzentrum, Munich, Germany

Background: The change in insulin-sensitivity (IS) and evolution of diabetes-mellitus in HIV-patients, both contributing to cardiovascular morbidity and mortality, has been associated with specific antiretroviral drugs or classes. Only limited data exists on metabolic effects of regimens including newer drugs such as fixed dose combinations (FDC) based on tenofovir alafenamide (TAF), particularly concerning IS.

Methods: In this prospective, open-label, randomized study we investigated the effects on IS of tenofovir alafenamide/entecavir (TAF/TAF) alone and in FDC with elvitegravir/cobicistat (E/C/F/TAF) or raltegravir (R/F/TAF). Healthy, male volunteers were randomly assigned to one of the three study arms (10 per study arm). IS was measured using golden standard method of hyperinsulinaemic euglycemic clamp (HEGC) technique before and 14 days after initiation of study medication. Before both measurements, a constant insulin infusion (2 mIU/(kg*min)) was infused over 2 hours. Glucose infusion was adjusted as necessary to achieve stable glucose levels (target 90±5 mg/dl). Adherence to study medication was verified by pill counting and plasma TAF level measurements. IS was evaluated using the mean glucose disposal rate normalized to body weight (Mglucose/min/kg). As calculated during clamp measurement. Sample size was calculated to detect a relevant decrease of ≥3. To test for statistical significance of global differences in baseline characteristics between groups and pairwise differences in IS (baseline versus day 14), the Kruskal-Wallis test and the paired Student’s t-test were used, respectively.

Results: N=30 subjects underwent randomization; 1 subject in the F/TAF arm withdrew consent and 1 in the R/F/TAF arm had to be excluded due to technical error during HEGC, resulting in 28 subjects in the per-protocol population. No significant differences were detected concerning baseline characteristics.

<table>
<thead>
<tr>
<th>Parameter (Mean±SD)</th>
<th>F/TAF</th>
<th>E/C/F/TAF</th>
<th>R/F/TAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Subjects</td>
<td>9</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Age (years)</td>
<td>26.3±6.3</td>
<td>27.0±6.2</td>
<td>24.8±3.5</td>
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<tr>
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<td>81.4±8.0</td>
</tr>
<tr>
<td>Body height (cm)</td>
<td>181.1±12.0</td>
<td>180.6±3.4</td>
<td>184.8±6.9</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
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<td>22.5±1.8</td>
<td>23.8±1.1</td>
</tr>
<tr>
<td>Fasting blood glucose (mg/dl)</td>
<td>85.1±6.4</td>
<td>84.3±5.7</td>
<td>79.4±8.7</td>
</tr>
</tbody>
</table>

(Table 1: Baseline characteristics of the per-protocol study population)

IS did not differ between groups before treatment. None of the studied antiretroviral combinations resulted in a significant change of IS after 14 days compared to baseline, as measured by Mglucose (F/TAF: 11.42±3.04 (SD, standard deviation) vs. 11.43±3.23, p=0.49, E/C/F/TAF: 10.04±2.49 vs. 10.55±2.26, p=0.30; R/F/TAF: 11.03±1.96 vs. 13.01±1.11, p=0.13).

Conclusions: Our study shows for the first time that neither treatment with FDC of F/TAF, nor E/C/F/TAF, nor R/F/TAF affects IS, as measured by HEGC.

Hepatic complications (e.g. NASH)
TUPEB127
A comprehensive assessment of hepatobiliary disorders in HIV-infected patients treated with dolutegravir, elvitegravir, raltegravir or darunavir in the OPERA Database
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Background: We aimed to conduct a comprehensive assessment of hepatobiliary disorders occurring before and after prescription of regimens based on recommended core agents - dolutegravir (DTG), elvitegravir (EVG), raltegravir (RAL), or darunavir (DRV).

Methods: HIV-positive patients in the OPERA® Observational Database initiating a common core agent between 08/01/2013 and 10/31/2016 were included, with follow-up extending to 10/31/2017. Hepatobiliary disorders consisted of drug-induced liver injury (DILI), moderate liver chemistry elevations (LCE), or severe LCE (See Figure 1 for definitions). The proportion of patients with hepatobiliary disorders was calculated by core agent. History was defined as disorders occurring within 12 months of initiation. Prevalent disorders were those occurring during follow-up. Incident disorders excluded patients with any history of hepatobiliary disorders or advanced liver fibrosis (Fib-4>3.29). To account for multiple comparisons, the Sidak Correction was applied (adjusted alpha level: 0.017).

Results: Out of 21046 patients, 34% initiated DTG, 42% EVG, 16% RAL and 16% DRV. Compared to DTG users, EVG users were younger and were less likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history of prevalent or moderate LCE, or prevalent severe LCE (Figure 1). RAL users were older than DTG users and more likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history of moderate and/or severe LCE, but more likely to have prevalent or incident moderate LCE during follow-up (Figure 1). DRV users were older than DTG users, less likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history of moderate and/or severe LCE, but more likely to have prevalent or incident moderate LCE during follow-up (Figure 1). DRV users had a significantly higher overall LCE incidence than DTG users - more likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history of moderate and/or severe LCE, but more likely to have prevalent or incident moderate LCE during follow-up (Figure 1). DRV users were older than DTG users, less likely to have comorbidities or use lipid lowering agents (Table 1). They were significantly less likely to have a history of moderate and/or severe LCE, but more likely to have prevalent or incident moderate LCE during follow-up (Figure 1).

Conclusions: Despite a lower proportion of patients with a history of LCE, RAL users had a significantly higher overall LCE incidence than DTG users. DRV and EVG users similarly had lower proportions of patients with a history of LCE than DTG, but no difference in incidence of moderate or severe LCE. Channeling of comorbid patients away from DRV and to-
TUPEB128
Prevalence and risk factors for significant liver fibrosis evaluated by non-invasive markers in HIV-infected Thais

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Background: Accumulating studies indicate an increase of liver-related diseases in HIV-infected patients. Our previous study has demonstrated a high prevalence of HBV and/or HCV coinfection in HIV-infected Thais mostly receiving relatively long-term suppressive anti-retroviral therapy (ART). This study aimed to examine prevalence and risks for liver fibrosis, a common pathological feature of chronic liver diseases, in the HIV-infected group.

Methods: A single-center cross-sectional study was conducted from October 2011 to June 2013 in 352 HIV-infected patients. Our previous study has demonstrated. Prevalence of hepatitis B (HBV), hepatitis C (HCV) virus coinfection and triple infection were 8.2%, 7.2% and 0.3% respectively. The patients were examined for significant liver fibrosis, defined as aspartate aminotransferase to platelet ratio index (APRI) > 0.5 and fibrosis-4 (FIB-4) score > 1.45. Logistic regression analysis was performed to determine risks for significant fibrosis in this studied group.

Results: A total of 352 (49% male, 51% female) patients were recruited. Median age was 39 (IQR: 33-47) years and median CD4 + cell count was 190.5 cells/mm³ (IQR 86-299). Prevalence of hepatitis B (HBV), hepatitis C (HCV) virus coinfection and triple infection were 8.2%, 7.2% and 0.3% respectively. The patients were examined for significant liver fibrosis, defined as aspartate aminotransferase to platelet ratio index (APRI) > 0.5 and fibrosis-4 (FIB-4) score > 1.45. Logistic regression analysis was performed to determine risks for significant fibrosis in this studied group.

Conclusions: The prevalence of liver fibrosis in this studied group is high. HCV coinfection is a major risk and a current standard ART may be protective for development of liver fibrosis in HIV-infected Thais.

TUPEB129
Microbiota and gut-liver axis in HIV mono-infection: A pilot study of the impact of the gut microbiome on liver disease

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Background: Emerging evidence suggests the gut microbiome plays a role in the pathogenesis of liver steatosis and fibrosis in HIV uninfected persons. Limited data exist on the relationship between liver disease and the gut microbiome in HIV infection. We aimed to characterize the gut microbiome and assess the gut-liver axis relationship in HIV-infected patients.

Methods: Rectal swabs from PROSPEC-HIV-study (NCT02542020) participants in Rio de Janeiro, Brazil were subjected to 16s RNA gene sequencing. Sequencing data from 82 HIV mono-infected participants were stratified by liver health status: normal (n=30), steatosis (n=30), or fibrosis (n=22). Liver fibrosis and steatosis were defined by liver stiffness measurements (ISLM ≥ 8 KPa) and Controlled Attenuation Parameter (CAP ≥ 28 dB/m) using Fibroscan™. Participants with recent antibiotic use were excluded. Statistical analyses performed using ZINB and RF methods.

Results: Of the 82 participants, 66% were female and had median: age of 46.4 years; duration of antiretroviral therapy of 8.3 years; and BMI 27.9 Kg/m²; 16% with Type 2 diabetes were included. Taxonomic compositions across the normal, steatosis and fibrosis groups were similar, although a significant effect was observed (p<0.04, p<0.003). No differences were observed in bacterial diversity, but differences in key species seen for the fibrosis and steatosis groups versus those with normal liver assessments. After adjusting for age, gender and BMI, participants with fibrosis showed a decreased abundance of Bacteroides stercoris, unclassified Faecalibacterium, and Porabacteroides distasonis as well as increased Sneathia sanguinegens. Those with steatosis had decreased Bacteroides dorei and unclassified Bifidobacterium as well as increased Prevotella copri. Finegoldia magna, and Ruminococcus bromii. At the genus level, decreases in Porabacteroides and Bacteroides were observed in the fibrosis group and decreased Atthervansd and increased Finegoldia were observed in the steatosis group. Additional analyses of the differences in the predicted functional composition of bacterial communities is planned.

Conclusions: HIV mono-infected persons with liver disease possess distinct microbial profiles. Some of the discriminatory bacteria observed in this cohort are similar to those associated with NASH/NAFLD in HIV-negative populations suggesting common mechanisms. Further studies are needed to define the role of the gut microbiota in the pathogenesis of liver disease in HIV-infected persons.
P. de Leuw1, K. Wiedmann1, N. Filmann2, I. Krznaric3, P. Ingiliz3, A. Haberl1, P. Greer1, M.K. Baum1, K. Sherman2, J. Chen3, A. Campa1, S. Martinez1, P. Greer1
1Florida International University, Miami, United States, 2University of Erlangen-Nurnberg, Erlangen, Germany, 3INSERM, Bordeaux, France, 4University Hospital Essen, Essen, Germany, 5Centro Hospitalar do Porto, Hospital Joaquim Urbano Unit, Porto, Portugal, 6CHU de Bordeaux, Bordeaux, France, 7CHU de Nantes, Nantes, France

Background: Magnetic Resonance elastography (MRE) is a non-invasive, highly accurate method to assess both hepatic fibrosis and liver fat content (steatosis). Studies to date have reported contradictory results regarding the frequency of hepatic steatosis and its association with liver fibrosis in those with HIV. The objective of this study was to examine the relationship between the predictors of liver fat and association with liver fibrosis in HIV infected and un-infected adults in the MASH cohort.

Methods: Cross-sectional analyses from an observational longitudinal MASH cohort in Miami were conducted. BMI was obtained by anthropometric measurements. HIV viral load was obtained from the participants’ medical chart. Hepatitis B and C were excluded. MRE was conducted on a 3 T Siemens MAGNETOM Prisma MRI and liver fat was calculated from the proton density fat fraction (PDFF) of the liver MRE scans: significant steatosis was defined as fat fraction >5%. Wilcoxon Two-Sample test and regression models were used for analyses.

Results: There were 251 HIV infected (mean age 53.2 years; 77.6% Black), and 133 HIV/HBV/HCV un-infected study participants (mean age 54.0 years; 88.9% Black). BMI was significantly higher in the un-infected controls (mean 30.9±6.9 SD) compared with HIV infected group (mean 27.7±5.5 SD). However, liver fat was significantly associated with elevated liver stiffness only in the HIV mono-infected group (>0.068, SE=0.02, P<0.001). BMI was significantly associated with elevated liver fat in both the HIV mono-infected (OR=1.152 [95%CI:1.046-1.269, P<0.002]) and the un-infected groups (OR=1.187 [95% CI: 1.073-1.314, P<0.001]).

Conclusions: MRE-based assessment of liver fat fraction utilizing PDFF determination in a cohort of HIV infected and HIV/HBV/HCV un-infected adults shows that increased liver fat content (steatosis) in both groups was associated with higher levels of BMI as might be expected. However, elevated liver fat was associated with increased liver stiffness in only the HIV infected adults. This suggests that HIV infection and obesity might synergistically contribute to development of hepatic fibrosis.

TUPEB132
Determinants of telomere length in antiretroviral treatment naïve HIV-positive participants enrolled in NEAT 001/ANRS 143

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1Institute of Health Carlos III, Centro Nacional de Epidemiologia, Madrid, Spain, 2Hospital La Paz Institute for Health Research, Madrid, Spain, 3INSERM, Bordeaux, France, 4University Hospital Essen, Essen, Germany, 5Bichétre Hospital, Internal Medicine Unit, Le Kremlin-Bicêtre, France, 6Centro Hospitalar do Porto, Hospital Joaquim Urbano Unit, Porto, Portugal, 7CHU de Bordeaux, Bordeaux, France, 8CHU de Nantes, Nantes, France

Background: There are limited data about determinants of blood telomere length (TL) in antiretroviral treatment (ART) naïve HIV-Positive patients. Our aim is to investigate factors associated with baseline TL in participants enrolled in NEAT001/ANRS143, a randomized, open-label trial comparing rilpivirin boosted darunavir (DRV/r) + raltegravir (RAL) or tenofovir disoproxil fumarate /emtricitabine (TDF/FTC) in 805 ART-naive HIV-positive individuals. We measured TL at baseline and month 4. There was a highly significant increase in ALT-levels in the DTG-group in patients aged >/=60 years (Median change 10.5 IU/ml[95%-228],[p<0.001] between baseline and week 4. ALT-levels then declined significantly [p<0.001] consecutively and there was no difference between baseline levels and week 52(Median 31.5(8-120),p>0.1). The elevation was not associated with any liver associated comorbidity or intake of concomitant medication(p>0.1). No significant change in ALT values was observed of patients aged >/=60 in the RAL- or EVG-group(p>0.1). Therefore, there was no significant difference in liver enzymes in HIV/HCV-coinfected compared to HIV-monoinfected patients (p>0.1) in any of the three treatment groups during 52 weeks of the study.

Conclusions: In our analysis integrase inhibitors did not cause clinically significant elevation of liver enzymes. However in elderly patients aged >/=60 years dolutegravir caused significantly more ALT-elevations at week 4 compared to elvitegravir or raltegravir. ALT normalized up to week 52 and none of the patients had to stop treatment due to liver toxicity. Clinicians should be aware of this when they start dolutegravir in elderly patients.

Ageing with HIV (including polypharmacy and frailty)

TUPEB131
Elderly patients on antiretroviral therapy with dolutegravir are at increased risk for ALT elevation

M.K. Baum1, K. Sherman2, J. Chen3, A. Campa1, S. Martinez1, P. Greer1, M.K. Baum1, K. Sherman2, J. Chen3, A. Campa1, S. Martinez1, P. Greer1
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Background: Liver toxicity is an important adverse event in patients on ART. Even though newer antiretroviral drugs like integrase inhibitors are generally well tolerated, ageing patients might be at higher risk for elevation of liver enzymes possibly due to comorbidity and/or co-medication.

Methods: Pooled data from the HIV clinical cohorts at Goethe University Frankfurt and the Center for Infectious Diseases Berlin were analyzed retrospectively for liver enzyme elevations in patients, who initiated dolutegravir(DTG), elvitegravir(EVG), or raltegravir(RAL)-containing ART prior to February, 1(Table 1). Study visits were at baseline, week 4, 12, 36 and 52. Statistics were done with non-parametrical tests (Wilcoxon matched-pairs-test, Mann-Whitney-test,Friedman-test,Van Elteren-test). P-values < 0.05 were considered as significant.

Results: We included 486 patients (male 408, female 78) in our analysis; 333 on DTG, 48 on EVG and 105 on RAL. Median baseline ALT levels were 28 IU/ml(range 8-677) in the DTG group, 26 IU/ml(12-134) in the EVG group, and 28 IU/ml(8-210) in the RAL group(p>0.1). We observed a highly significant increase in ALT-levels in the DTG-group in patients aged >/= 60 years (Median change 10.5 IU/ml[95%-228],[p<0.001] between baseline and week 4. ALT-levels then declined significantly [p<0.001] consecutively and there was no difference between baseline levels and week 52(Median 31.5(8-120),p>0.1). The elevation was not associated with any liver associated comorbidity or intake of concomitant medication(p>0.1). No significant change in ALT values was observed of patients aged >/=60 in the RAL- or EVG-group(p>0.1). Therefore, there was no significant difference in liver enzymes in HIV/HCV-coinfected compared to HIV-monoinfected patients (p>0.1) in any of the three treatment groups during 52 weeks of the study.

Conclusions: In our analysis integrase inhibitors did not cause clinically significant elevation of liver enzymes. However in elderly patients aged >/=60 years dolutegravir caused significantly more ALT-elevations at week 4 compared to elvitegravir or raltegravir. ALT normalized up to week 52 and none of the patients had to stop treatment due to liver toxicity. Clinicians should be aware of this when they start dolutegravir in elderly patients.
Results: Baseline characteristics of the 201 participants did not differ from parent trial population: male 89%, mean age 38.7±10.6 years. Caucasian 83.6%, sexual transmission 93.6%, mean estimated time since HIV diagnosis 21.3±3 years. HIV-1 RNA load 4.7±0.6 log10 copies/mL, CD4 nadir/baseline 301±127/324±128 cells/µL and CD4/CD8 ratio 0.4±0.6. Mean blood TL at baseline was 0.07±0.025. In the multivariable analysis, shorter TL was associated with older age (per 10 years) (P<0.001), HIV-1 RNA >100,000 copies/mL (P=0.001), CD4 <200 cells/µL (P=0.037), statins treatment (P=0.004), and current alcohol consumption (P=0.03). There were no significant associations between TL and gender, ethnicity, HIV transmission mechanism, time since HIV diagnosis, CD4/CD8 ratio, HIV coinfection, and tobacco. In the multivariable analysis, older age (P<0.001) and HIV-1 RNA >100,000 copies/mL (P=0.043) were independently associated with shorter TL (Figure).

Conclusions: This is the first randomized controlled trial evaluating baseline blood TL in ART-naïve patients. As expected, older age was associated with shorter blood TL. The only HIV related factor independently associated with shorter blood TL was high HIV RNA level. Despite its reported association with other parameters of immunosenescence, a low CD4/CD8 ratio was not independently associated with shorter blood TL.

TUPEB133
NCDs burden and risk factors in a cohort of HIV+ patients >40 years old in Malawi

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Background: HIV-infected patients have increased risk of NCDs. HIV+ patients in Africa are experiencing growing comorbidities due to increase in life expectancy and long-time ART. HIV prevalence in Malawi is one of highest in the world (10.8% in women and 6.4% in men), few data are available about NCDs epidemiology in HIV+ adult and elderly patients in Malawi.

Methods: A retrospective analysis of routine clinical and laboratory data from all HIV+ patients aged>40 years in care collected in 14 health centers run by DREAM program in Malawi was performed. Medical and laboratory data were performed in the period Jan 2017 - Jan 2018.

Results: Files from 7071 patients (62.1% women) in ART were analyzed. Mean medical time of ART was 98.9±118.0 months; mean BMI, HB and laboratory data were performed in the period Jan 2017 - Jan 2018. A total of 324 HIV-positive participants, mean (SD) age 56.0 (6.5) years, of whom 370 percent women, and 131 HIV-negative controls, mean (SD) age 58.3 (5.8) years, of whom 32.6 percent women, were enrolled, all >50 years. HIV-positive subjects were on cART for a mean (SD) duration of 15.2 (4.5) years. Comorbidity prevalence in the HIV-positive group was: hypertension 36.7%, hyperlipidemia 34.0%, diabetes 15.1%, renal dysfunction 7.1%, cardiovascular disease 2.2%. Pre-frailty (62.0% vs. 46.2%) and frailty (6.5% vs. 1.5%) were more prevalent in the HIV-positive group as was the case for each of the five domains (Figure). In multivariable analysis, factors independently associated with pre-frailty and frailty were HIV status (OR 2.04, 95%CI 1.24-3.35, P=0.005) and female gender (OR 3.97, 95% CI 2.36-6.47, P<0.001) (Table). In the analysis of HIV-positive subjects only, of the sociodemographic, HIV-related, and comorbidity-related covariates, only hypertension (OR 2.40, 95% CI 1.32-4.35, P=0.004) was significantly associated with frailty.

Conclusions: In these middle-aged Asians HIV-positive status and female gender were associated with frailty. The association with hypertension in those with HIV needs further investigation. Frailty assessment and potential interventions are warranted in view of its association with poor health outcomes including hospitalization, falls and mortality.
TUPEB135
Comparison of physical health conditions among older adults living with HIV and age-gender matched non-HIV older adults: Chiang Mai, Northern Thailand

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Background: The number of older adults living with HIV (OALHIV) defined as HIV-infected person who are 60 years old or older, has increasing rapidly worldwide due to successfullness of antiretroviral therapy programs. There has been evidence that HIV infection may possibly result in early manifestations of clinical syndromes generally associated with advanced age. The aim of this study is to compare the socio-demographic characteristics and physical health statuses of the OALHIVs with age and gender matched non HIV-infected persons.

Methods: The study was conducted in 2016 at 12 government community hospitals located in Chiang Mai province, Northern Thailand. For each hospital, 30 OALHIVs and 30 non-HIV patients aged and gender matched with OALHIVs who came to general outpatient departments on the days of survey were recruited. After enrolment, participants underwent a face to face interview: medical record review: measurement for blood pressure and height and weight measurement to calculate body mass index (BMI). Results: Of 728 participants (354 OALHIVs and 364 non-HIV older adults), the OALHIVs were more likely to be single/widowed/divorced (AOR: 4.51, 95% CI: 3.10-6.55), have a household income less than 5,000 baht (143 USD) per month (AOR: 1.55, 95% CI: 1.07-2.24) have a BMI less than 18.5 kg/m2 (AOR: 3.07, 95% CI: 1.79-5.27) and have BMI 18.5-23.9 kg/m2 (AOR: 2.54, 95% CI: 2.00-3.39) rather than equal or higher than 23.0 kg/m2, have chronic kidney disease (CKD) (AOR: 3.91, 95% CI: 1.73-8.98); and have dyslipidemia (AOR: 4.37, 95% CI: 2.84-6.73) than the HIV-negative group. In contrast, OALHIVs were less likely to have cardiovascular disease (AOR: 0.31, 95% CI: 0.14-0.70).

Conclusions: The OALHIVs participants had a higher chance of living alone, having lower income, having lower BMI, and suffering from chronic health conditions including CKD and dyslipidemia than their age and gender matched non-HIV counterparts. Routine screening of major NCDs and provision of integrated NCD/HIV medical care are needed for OALHIVs.

TUPEB136
Beyond the 60s: Changing co-morbidities in people living with HIV aged over 60 attending clinic in 2010 and 2017

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1 Guy’s and St Thomas Hospital NHS Foundation Trust, Harrison Wing, Department of HIV, London, United Kingdom; 2 St George’s University London, London, United Kingdom; 4 University College London, Institute of Epidemiology and Health Care, London, United Kingdom; 5 Salisbury NHS Foundation Trust, Salisbury, United Kingdom

Background: People living with HIV (PLHIV) are increasingly living longer due to effective antiretroviral (ARV) therapy. We characterised and compared within clinic cohorts across two time points, the prevalence of co-morbidities in PLHIV aged over 60s (PLHIV60s) attending a London HIV clinic.

Methods: The cohorts included all PLHIV60s under regular follow-up in December 2010 and September 2017. Demographics, ARV history, co-morbidities, and investigation results were included.

Results: A greater proportion of the clinic population were aged over 60 in 2017 (90/309, 29.1%) than in 2010 (128/270, 47.7%). 85 (27.5%) patients under follow-up in 2010 remained so in 2017, 7 were lost to follow up (6.5%), 13 transferred care (10.3%), and 21 died (16.7%). Causes of death include malignancy (8/14), HIV-related complications (3/14), sepsis (2/14), and motor neurone disease (1/14). Median age, gender, ethnicity, and sexual orientation was similar in both cohorts. Age range was 60-83 in 2010 and 60-90 in 2017. 299/300 (99.7%) were on ARVs in 2017, and 119/126 (94%) in 2010. Currently, 286/299 (95.3%) remain virally suppressed (< 200 copies/ml).

Prevalence of co-morbidities are summarised in Table 1.

<table>
<thead>
<tr>
<th>Co-morbidities</th>
<th>2010 (n=299)</th>
<th>2017 (n=300)</th>
<th>p-value</th>
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<td>Ischaemic heart disease</td>
<td>22</td>
<td>17.5%</td>
<td>28</td>
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<td>Chronic kidney disease stage 3 or worse (GFR&lt;60)</td>
<td>20</td>
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<tr>
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<td>-</td>
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In 2017, mean duration of TDF exposure in patients with or without CKD3+ was 65 vs 80 months (p=0.035). TDF exposure was associated with CKD3+ (OR=1.0046 per month longer, 95% CI 1.0003 - 1.0090, p=0.034), and a trend remained after adjusting for age, ethnicity, diabetes and hypertension (p=0.089).

169/300 (55.9%) had a body mass index ≥25. Of those with liver transient elastography results, 20/49 (40.8%) had evidence of fatty liver (CAP>280). 169/300 (58.9%) had a body mass index ≥25. Of those with liver transient elastography results, 20/49 (40.8%) had evidence of fatty liver (CAP>280). 22 17.5% 28 9.3% 0.0211
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TUPEB137
Hospitalization outcomes of HIV-infected patients in a Southeastern US Clinical Cohort, 1996-2016

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Background: Hospitalization outcomes among HIV-infected patients are not well known. This study examined length-of-stay, mortality, and readmission among hospitalized patients in care and factors associated with worse hospitalization outcomes.

Methods: We included hospitalizations at University of North Carolina (UNC) 1996-2016 among patients enrolled in the UNC Center for AIDS Research HIV Clinical Cohort. We excluded hospitalizations taking place after loss-to-follow-up (18 months without clinical visit), but patients reentering care contributed additional hospitalizations. We examined time from admission to discharge, accounting for the competing risk of inpatient death, and estimated sub-distribution hazard ratios (SHR) comparing patient characteristics, adjusting for calendar time. For index hospitalizations (without a hospital discharge in the prior 30 days), we used log-binomial models to estimate risk ratios (RR) of a composite outcome of death or readmission within 30 days, adjusting for calendar period. Sandwich estimators and GEE, respectively, were used to account for repeat hospitalizations per patient.

Results: We included 7,302 hospitalizations among 1,953 patients, who were 31% female, 35% MSM, 63% African-American, and contributed a median of 2 (IQR 1, 4) hospitalizations and 8 years (IQR 4, 13) of follow-up.

Conclusion: Median time to discharge was 5 days (IQR 3, 8) with 1.8% inpatient mortality. Readmission risk was higher for patients with worse hospitalization outcomes. Median time to discharge was 5 days (IQR 3, 8), with 1.8% inpatient mortality (Figure). Median (IQR) length of stay was 5 days (3, 8). Median time to discharge was shorter for patients of African-American race (RR 1.18; 95% CI 1.01, 1.38) with CD4< 200 (1.49; 1.30, 1.71) and HIV RNA>400 (1.19; 1.04, 1.35). There were no statistically significant changes in readmission risk over the study period.
Immune reconstitution disorders / immune reconstitution inflammatory syndrome (IRIS)

TUPEB139

Treatment of immune reconstitution inflammatory syndrome with TNF-alpha inhibitors in HIV-infected patients

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¹Assistance Publique des Hôpitaux de Paris, 94, Clamart, France, 2CHU Kremlin-Bicêtre, Kremlin-Bicêtre, France, 3Hôpital Jean Verdier, Bondy, France, 4CHU Saint Louis, Paris, France, 5CHU Henri-Mondor, Créteil, France, 6CHU Pitié Salpêtrière, Paris, France, 7CHU Necker, Paris, France

Background: Immune reconstitution inflammatory syndrome (IRIS) is an exaggerated immune response against various pathogens, highly prevalent in HIV-infected patients after initiation of antiretroviral therapy. IRIS treatment relies mostly on steroids with unclear benefit in most severe cases, for which TNF-alpha inhibitors could be an alternative in steroid-resistant cases.

Methods: We retrospectively collected data from six HIV-infected patients treated with TNF-alpha inhibitors for steroid-resistant IRIS in French university hospitals between March 2013 and August 2017. Medical charts were reviewed to evaluate efficacy and safety of TNF-alpha inhibitors (TNF-I) in this setting.

Results: Median age was 38 years [36.3-44.5], 50% were women. One patient had cryptococcal meningitis and had microbiologically proven tuberculosis (TB) or cryptococcosis with two cases of TB meningitis. Median CD4 count at TB or cryptococcosis diagnosis was 76 cells/mm³ [143-120] and median plasma HIV RNA was 5.82 log [5.05 - 6.00]. At IRIS onset, median CD4 count increase was 100 cells/mm³ [53 - 411] and HIV RNA was 2.65 log [2.1-3.16]. Corticosteroids initial dose was 1 mg/kg/day, except for one TB patient who received high-dose methylprednisolone. TNF-alpha inhibitors were started after a median of 3.0 months [0.75-12] after IRIS diagnosis, after a median of 3 months [1.6-6.1] of corticosteroids, with a median duration of 4.5 months [2.0-11.2]. Three cases were treated with infliximab, three with adalimumab. Five patients experienced a clinical and radiological improvement within 2 months [1.4-6] after initiation of TNF-I. Normalization of CRP levels occurred within a delay of 5.5 months [4.0-7.0]. All patients interrupted corticosteroids after a median of 3 months [0-7.7]. All neurological IRIS cases needed CSF drainage and suffered from residual neurological damages. One failure occurred after two infusions of infliximab with lymph node enlargement. No serious side effects were noticed under TNF-I during a follow-up period of 12 months [8-16]. No IRIS recurrence was seen after TNF-I cessation.

Conclusions: TNF-alpha inhibitors therapy resulted in significant improvement in severe steroid-resistant IRIS in HIV-infected patients, especially in those experiencing neurological IRIS. Although difficult to implement, further studies are needed to evaluate the potential benefits and risks of this therapy in HIV-infected patients.

Other non-communicable diseases

TUPEB140

Sleep and Circadian disruption interact with HIV, contributing to inflammation and immune activation

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¹CORE Center, Chicago WIHS, Chicago, United States, ²Rush University, Behavioral Science and Internal Medicine, Chicago, United States, ³Hepatitis Institute of Medicine, Chicago, United States, ⁴Hepatitis Institute of Medicine, Chicago, United States, ⁵Rush University, Medicine, Chicago, United States, ⁶CORE Center/ Stroger Hospital of Cook County, Division of Infectious Diseases, Chicago, United States

Background: Sleep disturbance is highly prevalent in HIV+ individuals, depressed women, and aging populations. Poor sleep is associated with systemic inflammation and greater risk for cardiometabolic and cognitive disorders. HIV also degrades tryptophan, a precursor of melatonin that regulates the sleep/wake cycle. We sought to quantify sleep and circadian disruption and their association with markers of inflammation/immune activation in midlife HIV+ and HIV-women.

Methods: We assessed sleep subjectively with the Pittsburgh Sleep Quality Index (PSQI). objectively using 7 days of wrist actigraphy, and collected first morning urine to assess overnight secretion of melatonin metabolite and creatinine in 488 HIV-293 HIV+ women. We measured urinary melatonin (CAUM), and inflammatory/activation markers.

Results: Key characteristics, including mean PSQI score, did not differ significantly [p>.05] by HIV status [Table 1]. 92% of HIV+ women were on HAART. 84% were aviremic; mean (sd) CD4 count =741 (369). Sleep duration <6 hours was observed in 32% of women. PSQI score positively correlated with WASO and sleep fragmentation [r=.31, p=.004; r=.32, p=.008 respectively] and negatively with sleep efficiency [r=.35, p=.001]. Poor sleep quality was significantly correlated with lower urinary melatonin metabolite regardless of HIV status [partial r=.22, p=.039]. In HIV+ women, PSQI total score, PSQIβ correlated with higher sCD163 [r=.30, p=.020; r=.37, p=.003; respectively] but not in HIV- women [r=.14, p=.681; r=.09, p=.648 respectively]. In HIV+ women, PSQI score correlated with higher sCD163 even after adjusting for viral load and CAUM (partial r=.32, p=.013).

Conclusions: Sleep and circadian disruption are highly prevalent in midlife HIV+ and HIV- women and, in HIV, are associated with higher levels of IL-6 and sCD163. Further study is warranted to determine the how sleep and circadian disruption contribute to persistent inflammation/immune activation and associated morbidity in the context of HIV.
TUEB141
Prevalence of and factors associated with anemia among HIV-infected adults in a multi-site African cohort
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Background: Anemia is a known predictor of morbidity and mortality in HIV-infected adults, but remains poorly characterized across different countries in sub-Saharan Africa. We describe the prevalence of and factors associated with anemia among HIV-infected adults in Uganda, Kenya, Tanzania, and Nigeria.

Methods: AFRICOS is a prospective observational cohort study enrolling participants in five PEPFAR-supported HIV care programs. Sociobehavioral questionnaires and clinical assessments, including hemoglobin (Hb) measurements, were collected at enrollment. Mild anemia was defined as Hb 11-12 g/dL for men and 11-11.9 g/dL for women; moderate: Hb 8-10.9 g/dL; and severe as Hb < 8 g/dL. We used logistic regression to estimate adjusted odds ratios (AORs) and the age-and sex-standardized incidence ratio (SIR) was calculated to estimate the relative risk of OSA. Cox proportional hazards models were applied to evaluate the risk factors of OSA, and further to access the independence of OSA among HIV-infected persons.

Results: As of September 2017, 2678 HIV-infected participants were enrolled, of whom 2645 had Hb measurements and met our inclusion criteria. The prevalence of any, mild, moderate, and severe anemia varied by program, and was greatest in Nigeria (Figure 1). Moderate-to-severe anemia was observed in 439 participants, including 348 (79.3%) women. Regression analysis revealed that compared to Uganda that moderate-to-severe anemia was more common in Kisumu (AOR: 2.11, 95% CI 1.44-3.09) and Nigeria (AOR 1.99, 95% CI 1.16-3.41), while women had greater odds of moderate-to-severe anemia than men (4.50, 4.34-6.06). HIV-related factors, including HIV viremia >50 copies/mL compared to < 50 copies/mL (1.59, 1.17-2.18), WHO stage IV compared to stage I (2.11, 1.20-3.69), and enrollment CD4 < 200 cells/mm3 (4.63, 3.28-6.52) compared to enrollment CD4 500+ cells/mm3, were all significantly associated with higher odds of moderate-to-severe anemia. Conversely, being on ART (0.58, 0.42-0.81) or Cotrimoxazole (0.64, 0.43-0.95) was associated with decreased odds.

Conclusions: Anemia in this cohort of HIV-infected African adults is common, underscoring the need for HIV care models to address early screening and management of anemia. Factors associated with moderate-to-severe anemia are consistent with prior studies conducted in adult HIV-infected populations. Longitudinal research is necessary to explore the etiologies of HIV-associated anemia in an African context.

TUEB142
Obstructive sleep apnea among HIV-infected persons in the highly active antiretroviral therapy era: A nation-wide longitudinal cohort study in Taiwan, 2000 - 2010
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Background: Obstructive sleep apnea (OSA) is a common disease in HIV patients and as an independent risk factor for all-cause mortality. Some gaps in knowledge on the effects of early detection and continuing highly active antiretroviral therapy (HAART) that are not mentioned. This study compared the incidences of OSA between HIV-infected patients and those without, as well as aimed to evaluate the risk factors of OSA and to determine the effect of HAART on the incidences of OSA among HIV-infected persons.

Methods: A population-based cohort design was conducted using the National Health Insurance Research Database (NHIRD) contained 13,962 HIV-positive and 738,482 HIV-negative individuals from the general populations. Incidences of OSA were defined as the new diagnosis appearing after HIV diagnosis (ICD-9: 780.51, 780.53, 780.57 or 327.23). Age- and sex-standardized incidence ratio (ISIR) was calculated to estimate the relative risk of OSA. Cox proportional hazards models were applied to evaluate the risk factors of OSA, and further to access the independence of OSA among HIV-infected persons.

Results: Over 11 years of follow-up, the HIV-infected persons had a 1.4-fold OSA risk compared to that of the general population (SIR: 1.4, 95% CI, 1.15-1.68). The risk factors for OSA in HIV-infected persons were higher monthly salary (adjusted hazard ratio [aHR], 2.23, 95% CI, 1.29-3.85 for $ 42,000 NTD per month), obesity (aHR, 2.12, 95% CI, 1.13-1.09), fatigue (aHR, 2.17, 95% CI, 1.98-2.37), hyperlipidemia (aHR, 2.25, 95% CI, 1.96-2.55), and chronic obstructive pulmonary disease (aHR, 2.52, 95% CI, 1.47-4.37). HAART is a protection factor for OSA (aHR, 0.12, 95% CI, 0.07-0.19) in HIV-infected persons, particularly in those with greater than or equal to six months of HAART.

Conclusions: HIV-infected persons have an elevated risk for OSA compared to the general population. Early detection and continuing HAART over a six-month period may reduce the risk of OSA.
TUPEB143
Computed tomography quantification of emphysema in people living with HIV and uninfected controls
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Background: People living with HIV (PLWH) may be susceptible to the development of emphysema. We assessed emphysema by computed tomography (CT) using quantitative and visual approaches in PLWH and uninfected controls.

Methods: Spirometry and chest CTs were obtained in PLWH from the Copenhagen comorbidity in HIV infection (COCOMO) Study and in uninfected controls from the Copenhagen General Population Study (CGPS) who were aged above 40 years. Emphysema was primarily quantified using low attenuation area below -950 Hounsfield units (%LAA-950) and secondarily by the 15th percentile density index (PD15) and by semi-quantitative visual scales. Breathlessness was defined by the modified medical research council scale with ≥2 signifying more breathlessness. Sputum was defined by duration of 3 months per year. Multivariable logistic regression analyses adjusted for age, sex, ethnicity and cumulative smoking were computed to determine adjusted odds ratio (aOR) for emphysema.

Results: Of 742 PLWH, 21.2% and 4.7% had emphysema according to the %LAA-950 threshold with cut-offs at 5% and 10%, respectively. Of 470 uninfected controls, these numbers were 24.3% (p=0.023) and 4.0% (p=0.068). HIV was not independently associated with emphysema defined by either of the two %LAA-950 thresholds (aOR 0.96 [95%CI: 0.71-1.29]; aOR 1.25 [0.68-2.36]), by visually assessed emphysema (aOR 1.53 [95%CI: 0.85-2.83]) or by lung density determined by PD15. We found no interaction between HIV and age or HIV and cumulative smoking for the two %LAA-950 thresholds (all p-interactions>0.1). Emphysema (%LAA-950 thresholds >5%) seemed to be more prevalent in PLWH with airflow limitation (17/77 vs 4/49, p=0.07). Breathlessness (8/35 vs 0/19, p<0.0001) and sputum production (12/35 vs 0/19, p<0.0001) were more common in PLWH than in uninfected controls with emphysema.

Conclusions: HIV was not independently associated with emphysema and HIV did not augment the effect of age or cigarette smoking. However, the clinical impact of emphysema was greater in PLWH, and emphysema seemed to be more prevalent in PLWH with airflow limitation than uninfected controls with airflow limitation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95%CI) for LAA950</th>
<th>P-value</th>
<th>OR (95%CI) for LAA950</th>
<th>P-value</th>
<th>OR (95%CI) for LAA950</th>
<th>P-value</th>
<th>OR (95%CI) for LAA950</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV yes vs. no</td>
<td>0.83 (0.64-1.11)</td>
<td>0.31</td>
<td>0.96 (0.71-1.29)</td>
<td>0.77</td>
<td>1.18 (0.67-2.12)</td>
<td>0.58</td>
<td>1.25 (0.68-2.36)</td>
<td>0.48</td>
</tr>
<tr>
<td>Age, per decade</td>
<td>1.69 (1.46-1.97)</td>
<td>&lt;0.0001</td>
<td>1.69 (1.44-1.99)</td>
<td>&lt;0.0001</td>
<td>1.50 (1.42-2.59)</td>
<td>&lt;0.0001</td>
<td>1.80 (1.35-2.43)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Pack-years of smoking, per 10-pack years</td>
<td>1.06 (0.99-1.14)</td>
<td>0.09</td>
<td>1.00 (0.92-1.09)</td>
<td>0.9</td>
<td>1.23 (1.09-1.39)</td>
<td>&lt;0.001</td>
<td>1.15 (1.01-1.31)</td>
<td>0.03</td>
</tr>
</tbody>
</table>

(1Table 1 Logistic regression analyses to determine whether HIV is associated with emphysema according to a 5% and 10% thresholds for LAA950.)

TUPEB144
Severe periodontitis is more common in HIV-infected patients
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Background: Periodontitis and HIV both are associated with age related diseases because of their chronic inflammation and immune activation. Due to variation of research methodology, i.e. diverse definitions of periodontitis, differences in social and economic status and oral care awareness of included patients, the prevalence of periodontitis in HIV-infected patients is unclear. The aim of this study was to assess the prevalence of severe periodontitis in a representative population of HIV-infected patients and compare it with prevalence in controls. Additionally, presence of age-related diseases, HIV infection characteristics, oral health care characteristics and smoking status were explored as risk factors of severe periodontitis in HIV-infected patients.

Methods: In this cross-sectional controlled study, 258 outpatients with HIV infection were recruited. Periodontal status was assessed by applying the Dutch Periodontal Screening Index (DPSI). DPSI score 4, corresponding with periodontal pocket depth ≥6mm, indicates severe periodontitis. In addition, patients filled in a health and oral care assessment questionnaire. HIV characteristics (viral load, CD4+ T-cell count, CD4+/CD8+ type of cART, and CD4+ nadir) were collected from the medical charts. For comparing the periodontal status of HIV-infected patients with unaffected subjects, 539 controls were included from the same geographic area.

Results: Severe periodontitis was more prevalent in HIV-infected patients than in controls (65.5% versus 35.8%, p<0.002). HIV infection, age and gender were significant risk factors for severe periodontitis. In particular, older male HIV-infected patients ran a higher risk of having severe periodontitis (figure). Strikingly, 44.3% of HIV-infected patients did not disclose the HIV infection to their dentists as well as that independently of their DPSI score, all patients rated the importance of their dental health as very high. Clinical, HIV infection characteristics and type of cART did not predict severe periodontitis.

Conclusions: Prevalence of severe periodontitis is almost twice as high in patients with HIV infection compared to controls. Moreover, age and gender were risk factors for severe periodontitis in HIV-infected patients, while HIV characteristics were not predictors for severity of periodontitis.
TUPEB145

Prevalence of diarrhea in HIV clinical trials in the recent post-combined antiretroviral therapy (cART) era: Analysis of data from 39 clinical trials from 2008-2017 in over 20,000 patients

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Background: Despite the perception that gastrointestinal manifestations of HIV infection have declined over time, patients often complain of multiple loose stools per day with significant urgency, bloating, and unwanted disruptions in their quality of life when directly queried. In order to examine whether the rate of HIV-associated diarrhea has changed over time, we interrogated the publicly available NIH database of clinicaltrials.gov that reported the adverse event frequency of diarrhea from 2008-2016.

Methods: Pivotal efficacy intervention trials conducted in the US including multinational trials) with greater than 100 participants were selected for analysis. Both comparative and switch studies that reported diarrhea as an adverse event were included.

Results: 39 trials met the inclusion criteria with 20,354 trial subjects receiving cART. 12,004 subjects received experimental therapy and 8,350 received the comparator regimen. The weighted average of the prevalence of diarrhea was 17.58% and 18.62% for those receiving experimental versus comparator regimens, respectively. The median prevalence of reported diarrhea was similar at 17.54% and 18.04%, respectively. The linear regression of diarrhea rates by date of completion of the study reveals beta coefficients of -0.0028 and -0.0032 for the experimental drugs versus the comparator regimens, respectively (see graph). These small beta coefficient values, which represent the slope of the line of rates of diarrhea over time, supports the hypothesis that the prevalence of diarrhea in pivotal clinical trials has remained nearly constant over time. The slope of the line does not change if trials with the protease inhibitors are best known for increasing GI symptoms are excluded.

Conclusions: The prevalence of diarrhea in ART clinical trials has not declined significantly in the last 10 years. Diarrhea remains a significant comorbidity in HIV-positive patients, even those virally suppressed in clinical trials, with a prevalence of diarrhea of around 18%. These findings emphasize the need for more targeted epidemiologic and interventional studies to characterize the residual morbidity of gastrointestinal disease in people living with HIV as we seek to improve their quality of life and reduce this disruption in their activities of daily living.

(Diarrhea Rates by Date Study Completed)

TUPEB146

The relationship between co-morbidities, physical activity and exercise level in persons living with HIV

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Background: Persons living with HIV (PLHIV) develop chronic diseases, such as cardiovascular disease and cancer, earlier and more often than individuals without HIV. Physical activity can mitigate symptoms commonly experienced by PLHIV living with chronic co-morbidities, but little is known about the relationship between physical and mental co-morbidities and physical activity. We conducted a multi-site observational study to examine the relationships between physical activity, exercise level and co-morbidities.

Methods: Seven-hundred and two PLHIV completed validated, cross-sectional measures of self-reported exercise (7-day physical activity recall and Godin Leisure Time Activity Questionnaire). Co-morbid conditions were abstracted from participant’s medical charts using a standardized form. One fourth of the subjects were recruited during each season of the year from seven geographically diverse sites in the United States and Thailand. Descriptive statistics and Spearman’s Rho correlation analyses examined the relationships between co-morbidities and physical activity.

Results: Participants’ mean age was 50.5±11.1 years; with 61% male, majority of whom were on ART (92%) with undetectable viral load (79.6%). Seventy-one percent (n=496) were currently diagnosed with at least one of 49 co-morbids conditions. Co-morbidities were categorized as: mental health (n=166, 23.65%); cardiovascular disease (CVD) (n=231, 32.86%); pulmonary disease (n=65, 9.26%); type II diabetes (n=53, 7.55%); end stage renal disease (n=6, 0.8%); hepatic disease (n=62, 8.83%); cancer (n=31, 4.47%); and autoimmune disease (n=15, 2.28%). Total time spent on physical activity and intensity (light, moderate, or vigorous) were reported for the previous week. Mental health (r= -0.07), CVD (r= -0.17), pulmonary (r= -0.13), type II diabetes (r= -0.15), and cancer (r= -0.18) co-morbidities were associated (p< 0.05) with lower reported physical activity and exercise levels. Linear regression analysis (controlling for age, gender, body mass index) showed that co-morbidity category remained a significant predictor of exercise in at least one exercise category.

Conclusions: PLHIV with mental health, pulmonary, type II diabetes, and cancer co-morbidities reported less frequent and lower intensity exercise levels. Co-morbidities can have a negative effect on the ability of PLHIV to engage in activities of daily living, particularly physical exercise. Further research needs to investigate approaches to improve the physical activity and exercise level in PLHIV with co-morbidities.
TUPEB147
Heterogeneity in pulmonary function indices by HIV status and cumulative smoking intensity among well-controlled HIV-infected persons compared to HIV-uninfected participants in the AGeHIV cohort

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Background: Pulmonary function impairments are more common among people living with HIV (PLWHIV), as are the risk behaviors causing them. To understand the effects of HIV infection independent of risk behavior, pulmonary function was evaluated in the AGeHIV cohort study, including lifestyle-comparable HIV-infected and HIV-uninfected participants aged ≥45 years in Amsterdam. We investigated the prevalence and determinants of obstructive lung disease (OLD) and to evaluate its determinants.

Methods: The prevalence of OLD Forced Expiratory Volume in 1-second to Forced Vital Capacity ratio or FEV1/FVC < 70% in 544 HIV-infected and 529 HIV-uninfected participants was determined using spirometry. Logistic regression was used to adjust for confounding variables including biometrics, demographics and risk behaviors. Additional explanatory models were constructed including HIV-related parameters and markers for chronic inflammation. Finally, determinants of z-scores of the individual spirometry indices were evaluated using linear regression.

Results: The prevalence of OLD was similar between HIV-infected and HIV-uninfected participants (23.0% and 23.4%, respectively; p=0.9). The prevalence of OLD among PLWHIV compared to HIV-uninfected persons may represent prior pulmonary tissue damage with resulting lower FVC. This effect appears to be obviated with greater smoking exposure. Future studies should explore the role of chronic inflammation, prior pulmonary infections and other potential HIV-associated pathogenic mechanisms which may drive a restrictive processes in the lungs of PLWHIV.

Other ART complications and adverse reactions

TUPEB148
Patient-reported outcomes among HIV-1-infected adults randomized to B/F/TAF versus DTG/ABC/3TC in two Phase 3 controlled clinical trials over 48 weeks

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Background: As efficacy of triple-drug antiretroviral therapy remains high, patient wellbeing (e.g., patient-reported outcomes) has become an important differentiator among regimens. Bictegravir, a novel, unboosted integrase strand transfer inhibitor, concomitantly with emtricitabine and tenofovir alafenamide (B/F/TAF), demonstrated high efficacy and was well tolerated through week (W) 48, with no resistance in two phase 3 studies of treatment-naïve adults. We aimed to characterize change in symptoms of adult patients with HIV-1-infection after initiating or switching to B/F/TAF versus ABC/DTG/3TC.

Methods: Treatment-naïve adults were randomized (1:1) to switch to B/F/TAF versus ABC/DTG/3TC. Virologically suppressed adults were randomized (1:1) to switch to B/F/TAF or continue ABC/DTG/3TC in blinded fashion (study 1844). Across studies, HIV Symptoms Distress Module (HIV-SDM) was administered at baseline (BL), W4, W12, and W48. Responses were dichotomized as bothersome/not. Treatment differences were assessed using logistic regression models adjusted for BL HIV-SI count, age, sex, BL Veterans Aging Cohort Study Index, medical history of serious mental illness, BL Short Form [SF]-36

The prevalence of OLD was similar between HIV-infected and HIV-uninfected participants (23.0% and 23.4%, respectively; p=0.9). Multivariable logistic regression analysis showed a statistically significant interaction between HIV-infection and the number of pack-years (p=0.006): never-smoking HIV-infected participants were less likely to have OLD compared to never-smoking HIV-uninfected participants (6% vs. 21%, OR 0.35).

Within the latter subgroup, a history of Pneumocystis jirovecii pneumonia and/or AIDS, and higher plasma levels of IL-6 were independently associated with a lower FVC in the HIV-infected group.

Conclusions: Both HIV-infected and HIV-uninfected participants had a notably high prevalence of OLD. Our results suggest that among persons with limited lifetime smoking exposure, the higher FEV1/FVC ratio observed among PLWHIV compared to HIV-uninfected persons may represent prior pulmonary tissue damage with resulting lower FVC. This effect appears to be obviated with greater smoking exposure. Future studies should explore the role of chronic inflammation, prior pulmonary infections and other potential HIV-associated pathogenic mechanisms which may drive a restrictive processes in the lungs of PLWHIV.

However, the effect of pack-years on odds of OLD was stronger in the HIV-infected, so that from ≥25 pack-years the odds for the HIV-infected were (non-significantly) higher. HIV-infection was associated with a lower FVC, but not a lower FEV1 among participants with less than 25 pack-years.

<table>
<thead>
<tr>
<th>Model 1 (a)</th>
<th>Model 2 (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV infection</td>
<td>OR 0.88 95% CI 0.65-1.17 p-value 0.4 0.35 0.21-0.58 &lt;0.001</td>
</tr>
<tr>
<td>Pack-years per √(pack-years) increase (b)</td>
<td>x x x 1.13 1.04-1.23 0.006</td>
</tr>
<tr>
<td>Interaction: HIV infection x √(pack-years) (b)</td>
<td>x x x 1.23 1.09-1.38 0.006</td>
</tr>
<tr>
<td>Years since smoking cessation, per 10 years</td>
<td>x x x 1.00 0.89-1.13 0.37 0.4</td>
</tr>
<tr>
<td>Interaction: years since smoking cessation x √(pack-years) (b)</td>
<td>x x x 0.91 0.85-0.98 0.009</td>
</tr>
<tr>
<td>Daily marijuana use</td>
<td>x x x 2.06 0.92-4.64 0.08</td>
</tr>
<tr>
<td>Former injection drug use</td>
<td>x x x 1.87 0.84-4.19 0.13</td>
</tr>
</tbody>
</table>

(a) Both models are adjusted for age, height and BMI. (b) Variables were transformed to normality linearly assuming the logistic regression model. Abbreviations/definitions: OR=Odds Ratio, CI=Confidence interval, pack-years=the equivalent of having smoked 1 pack of cigarettes daily during 1 year. The following variables were excluded as they were non-significant or did not influence the effect of HIV on the outcome: ethnicity, sexual orientation, employment status, current smoking status, current alcohol use.

Multivariable logistic regression models evaluating factors associated with the probability of OLD.

[Mean adjusted Z-scores with 95% confidence intervals of spirometry indices, by smoking history and HIV-status]
Results: Bothersome symptoms were reported by fewer participants on B/F/TAF than ABC/DTG/3TC in both studies (figure). For treatment-naive adults, fatigue/loss of energy, nausea/vomiting, dizzy/light-headedness, and difficulty sleeping significantly favored B/F/TAF at ≥2 timepoints (table). Fatigue and nausea were significantly less common for B/F/TAF in longitudinal models. For virologically suppressed participants, nausea/vomiting, sad/down/depressed, nervous/anxious, and poor sleep quality (from the PSQI) significantly favored B/F/TAF at ≥2 timepoints and in longitudinal models. No symptom favored ABC/ DTG/3TC at ≥2 timepoints in either study.

Conclusions: Results suggest that patient-reported wellbeing may be better with B/F/TAF compared to ABC/DTG/3TC. B/F/TAF was associated with significantly lower prevalence of multiple bothersome symptoms across gastrointestinal disorders, neuropsychiatric events, and sleep. No symptoms favored ABC/DTG/3TC.

TUPEB149
Failure of antiretroviral therapy (ART) in adults in Australia is mainly due to ART toxicity

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2University of New South Wales, Centre for Social Research in Health, Sydney, Australia
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4National Association of People with HIV Australia, Sydney, Australia
5Utrecht University, Utrecht, Netherlands

Background: Lifelong antiretroviral therapy (ART) is recommended for all patients. Reasons for ART failure in virologically-suppressed patients are poorly understood.

Methods: We recruited 522 adults living with HIV on stable ART for 13 months with undetectable viral load into a nationwide cohort between September 2014 and November 2015. ART failure was defined by ART switch for toxicity or interactions, virological failure, progression to AIDS, death, or loss to follow-up. Factors associated with ART failure through Month 12 were determined using Cox proportional hazards regression.

Results: 115 episodes of ART failure occurred in 102 participants (19.5%), primarily for toxicity requiring an ART switch (n=54, 12.3%); mostly nephrototoxicity (n=21, 4.0%); central nervous system symptoms (n=14, 2.5%); side effects (e.g. nausea/vomiting) (n=15, 3.1%); hepatotoxicity (n=8, 1.5%); and metabolic toxicity (n=5, 1.1%). Other reasons for ART failure were: virological failure (n=26, 5.0%); drug interactions (n=13, 2.5%); death (n=10, 2.0%); AIDS (n=3, 0.6%); loss to follow-up (n=2, 0.4%); and difficulty taking ART (n=1, 0.2%). The median time to the first failure event was 187 days (IQR 105-282).

Conclusions: Despite near universal ART availability and government-subsidised healthcare, nearly 20% of our sample experienced ART failure over 12 months, primarily for toxicity. Virological failure was less common.

TUPEB150
Hospitalisations over a year follow-up in a cohort of adults living with HIV with sustained viral suppression in Australia

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4National Association of People with HIV Australia, Sydney, Australia
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Background: Patients successfully treated with antiretroviral therapy (ART) for HIV develop few AIDS-defining events, are successfully aging and living longer. It has been proposed a “fourth 90” be added to the HIV treatment cascade, comprising quality of life outcomes. The aim of this longitudinal analysis is to understand the reasons and risks for hospi-
Natural history, morbidity patterns and survival

TUPE152
Risk factors associated with AIDS-related mortality among people living with HIV. A national observational cohort study between 2005-2017 in Papua New Guinea

S. Miyano1, P. Boas2, N. Dala1, G. Anup3
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Background: Papua New Guinea (PNG) shows the highest HIV prevalence among the 22 Pacific Island countries (0.89%), and over 95% of HIV cases in the Pacific are reported from PNG. However, there has been no assessment on mortality among people living with HIV (PLHIV) by using the national database. This study aimed to estimate mortality among PLHIV, and explore risk factors associated with AIDS-related mortality in PNG.

Methods: The National HIV Patient Cohort Database (HPDB) was used to analyse the data of PLHIV from 2005 to 2017 coming to clinics focusing on socio-demographics, registration year, WHO clinical stage, CD4 cell count, TB status, hepatitis B virus (HBV) infection, sexual risk behaviours, and treatment outcomes. Nelson-Aalen Cumulative Hazard Estimates were used to overall estimated probability of death, and risk factors associated with mortality were explored by Cox’s proportional hazard model.

Results: Over twelve years, 31,997 PLHIV were followed up for 64,526 patient-years (male 40.2%, female 59.7%, transgender 0.1%). At the first visit, the mean age was 35.5 years, the mean CD4 cell count was 236.2 cells/mm3, and TB and HBV co-infection was respectively found in 11.6% and 12.9% among those screened. Overall mortality was 4.84 per 100 person-years while it has been drastically decreasing from 160 in 2005 to 0.54 in 2017. PLHIV, who were in lower CD4 cell count (adjusted HR; 1.15, 95% CI 1.12-1.18, p<0.001), showed significantly higher mortality while gender, sexual orientation and χ90, showed no significance.

TUPEB151
Elevations of serum creatine kinase among HIV-positive individuals receiving dolutegravir-based therapy versus non-integrase inhibitor-based therapy

G.-J. Chen, H.-Y. Sun1, A. Cheng1, K.-Y. Lin2, S.-P. Yang3, W.-C. Liu1
1National Taiwan University Hospital, Center of Infection Control, Taipei, Taiwan; 2National Taiwan University Hospital and National Taiwan University College of Medicine, Department of Internal Medicine, Taipei, Taiwan, Province of China; 3National Taiwan University Hospital, Jin-Shan Branch, Department of Medicine, New Taipei City, Taiwan, Province of China

Background: Integrase strand transfer inhibitor (InSTI) is an increasingly used antiretroviral agent in both initial and salvage therapy across different local and international guidelines. Reports from randomized clinical trials and real-life cohort study have suggested that the first-generation InSTI, raltegravir, might be associated with an increased risk of creatine kinase (CK) elevation and skeletal muscle toxicity. However, real-life data systematically evaluating the risk of CK elevation among HIV-positive patients receiving dolutegravir (DTG)-containing antiretroviral therapy are scarce.

Methods: HIV-positive patients who sought medical attention at the National Taiwan University Hospital between January 2017 and January 2018 were included in this study. Patients were prospectively interviewed to inquire into their practices of weight training and alcohol consumption. Laboratory tests including liver function, renal function, creatine kinase, plasma HIV RNA load and CD4 cell counts were tested every 3-6 months in accordance with the national HIV treatment guidelines. The incidence of elevation of serum CK and rhabdomyolysis (defined as >10-fold of the upper limit of normal) was estimated among patients who received DTG-containing antiretroviral therapy versus patients who received non-InSTI based therapy.

Results: 1335 HIV-positive patients with a median age of 37.9 years and 96.6% being male were included in this study. 339 patients who received DTG-containing antiretroviral therapy provided 651 laboratory results of CK measurements while 996 who received non-InSTI-based antiretroviral therapy contributed 1544 laboratory results of CK measurements. Among patients receiving DTG-containing therapy, the rate of CK elevation was 15.8% (103/651), which was similar to the 13.7% (211/1544) among those receiving non-InSTI based therapy (difference; 2.1%, 95% CI -1.1 -5.6%). The rate of rhabdomyolysis was also similar between both groups (1.1% versus 0.7%; difference; 0.4% 95% CI -0.5-1.6%). The risk of CK elevation increased with patient’s self-reported intensity of weight training (≤0.5 versus >0.5 hours/day), but was not associated with the use of DTG-containing antiretroviral therapy. All episodes of elevated CK or rhabdomyolysis in either group of patients were self-limited during the study period and no treatment was required.

Conclusions: In this single-center prospective cohort study, DTG-containing antiretroviral therapy was not associated with an increased risk of asymptomatic CK elevation or rhabdomyolysis.

TUPE151
Elevations of serum creatine kinase among HIV-positive individuals receiving dolutegravir-based therapy versus non-integrase inhibitor-based therapy

G.-J. Chen1, H.-Y. Sun1, A. Cheng1, K.-Y. Lin2, S.-P. Yang3, W.-C. Liu1
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Background: Systematically evaluating the risk of CK elevation among people living with HIV: a national observational cohort study between 2005-2017 in Papua New Guinea

S. Miyano1, P. Boas2, N. Dala1, G. Anup3
1World Health Organization, HIV/STI/Hepatitis Programme, Port Moresby, Papua New Guinea; 2National Center for Global Health and Medicine, Tokyo, Japan; 3National Department of Health, HIV/STI Programme, Port Moresby, Papua New Guinea

Methods: The National HIV Patient Cohort Database (HPDB) was used to analyse the data of PLHIV from 2005 to 2017 coming to clinics focusing on socio-demographics, registration year, WHO clinical stage, CD4 cell count, TB status, hepatitis B virus (HBV) infection, sexual risk behaviours, and treatment outcomes. Nelson-Aalen Cumulative Hazard Estimates were used to overall estimated probability of death, and risk factors associated with mortality were explored by Cox’s proportional hazard model.

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TUPE152
Risk factors associated with AIDS-related mortality among people living with HIV. A national observational cohort study between 2005-2017 in Papua New Guinea

S. Miyano1, P. Boas2, N. Dala1, G. Anup3
1World Health Organization, HIV/STI/Hepatitis Programme, Port Moresby, Papua New Guinea; 2National Center for Global Health and Medicine, Tokyo, Japan; 3National Department of Health, HIV/STI Programme, Port Moresby, Papua New Guinea

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Conclusions: This is the first longitudinal cohort analysis reviewing AIDS-related death and its risk factors in PNG. The mortality has been successfully decreased year by year since 2005. However, traditional types of factors associated with AIDS-related mortality are still remaining. From a programmatic point of view, it is crucial to re-emphasize the importance of doing the “basics” such as earlier diagnosis and treatment of HIV infection, and proper management of HIV-associated TB.

TUPEC153

E. Slagmanker1, K. Risher1, G. Reniers1, D. Obor3, M. Urassa4, A.J. Herbst5, V. Hosegood6, R. Newton7,8, T. Lutalo9, A. Crampin10,11, S. Gregson12,13,

Between 2005 and 2014, the mortality among people who had initiated ART fell (Table 1). This decline were seen at all times following ART initiation, in all studies and at all ages.

In three studies, we could adjust for CD4 at initiation and (time- and age- varying) timeliness of clinic attendance and clinical stage. For men, the effect of calendar year was stronger after adjustment HR 0.82 (p=0.002) versus 0.88 (p=0.002).

Conclusions: Mortality among adults post-ART initiation declined substantially between 2005 and 2014. These declines are not immediately explained by more timely presentation or better attendance for treatment. There was rapid expansion and decentralisation of services in these resource-poor rural settings in this period. Treatment may have improved and contributed to improved survival.

<table>
<thead>
<tr>
<th>Time since initiation</th>
<th>Adjusted HR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 months</td>
<td>3.80</td>
<td>2.70 - 5.34</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>6-11 months</td>
<td>1.25</td>
<td>0.83 - 1.89</td>
<td>0.2810</td>
</tr>
<tr>
<td>12-23 months</td>
<td>1.37</td>
<td>0.95 - 1.98</td>
<td>0.0950</td>
</tr>
<tr>
<td>24-35 months</td>
<td>1.24</td>
<td>0.87 - 1.77</td>
<td>0.0102</td>
</tr>
<tr>
<td>&gt;36 months</td>
<td>1.00</td>
<td>1.00 - 1.00</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

TUPEC154
Time-dependent effect of HCV coinfection in overall and cause-specific mortality in HIV-positive individuals

E. Alonso1, J. del Amo1, J. Berenguer1, M. Riera1, M. Garcia1, V. Asens1, O. Bilbao2, R. Mug1, J. Gonzalez2, J. Jarrin3. CoRIS cohort Study Group 1Instituto de Salud Carlos III. Centro Nacional de Epidemiología, Madrid, Spain; 2Hospital Gregorio Marañón, Madrid, Spain; 3Hospital San Espeade, Palma de Mallorca, Spain; 4Hospital de Navarra, Pamplona, Spain; 5Hospital Central de Asturias, Oviedo, Spain; 6Hospital Doce de Octubre, Madrid, Spain; 7Hospital Germans Trias y Pujol, Badalona, Spain; 8Hospital La Paz, Madrid, Spain

Background: Coinfection by hepatitis C virus (HCV) is one of the most common comorbidities in HIV-positive individuals. We aimed to study time-dependent effects for HCV coinfection in overall and cause-specific mortality in HIV-positive individuals in the cohort of the Spanish Network of HIV Research CoRIS.

Methods: We fitted extended Flexible Parametrical Models (FPM) to estimate time-dependent (sub) hazard Ratios (SHR) for HCV coinfection in overall and cause-specific mortality. Cox regression including interaction with follow-up time interval was also performed. FPM were similarly applied to estimate time-varying excess mortality compared to Spanish general population. Cause-specific groups were created based on a predefined algorithm adapted from the CoDe coding system: HIV/AIDS, liver-related, Non-AIDS-malignancies and Non-AIDS-infections.

Results: In 10,406 patients there were 357 deaths; 37% were HIV/AIDS, 15% Non-AIDS malignancies, 12% liver-related and 8% Non-AIDS-infections related. Figure A shows overall mortality rates (IMR) and hazard ratio (HR) for HCV coinfection using FPM (red line) and categorizing patients by duration of infection, measures of morbidity and clinic attendance.

<table>
<thead>
<tr>
<th>Site</th>
<th>Mortality hazard ratios from piecewise exponential survival models.</th>
<th>15-49 year olds 2005-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karonga</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Kisesa</td>
<td>1.51</td>
<td>0.55 - 4.17</td>
</tr>
<tr>
<td>Kisesa</td>
<td>1.02</td>
<td>0.69 - 1.50</td>
</tr>
<tr>
<td>Municaland</td>
<td>0.59</td>
<td>0.23 - 1.47</td>
</tr>
<tr>
<td>Masaka</td>
<td>0.45</td>
<td>0.23 - 0.89</td>
</tr>
<tr>
<td>Masaka</td>
<td>0.70</td>
<td>0.46 - 1.08</td>
</tr>
<tr>
<td><em>Kakanyaka</em></td>
<td>1.31</td>
<td>0.98 - 1.76</td>
</tr>
</tbody>
</table>

![Nelson-Aalen cumulative hazard estimates](image)
follow-up time (black line). Overall mortality rates among both mono and coinfected subjects decrease over time only up to 2.5 years after enrolment. The significant effect of HCV coinfection on overall mortality increases up to the second year after enrolment and remains stable during the rest of the follow-up. Further, the analysis using FPM better describes the time-dependent effect of HCV coinfection. For cause-specific mortality time-dependent effects of HCV coinfection were just observed for HIV/AIDS and Non-AIDS-infections (Figure B). Liver mortality was constantly higher during all the follow-up among HCV coinfected subjects and no differences were detected for Non-AIDS-malignancies. Similar patterns were observed when modelling excess mortality (data not shown).

Conclusions: HCV-coinfection is associated with increased all-cause, HIV/AIDS, liver and Non-AIDS infections related mortality among HIV-positive patients. Differential effect of HCV coinfection over time was found for overall, HIV/AIDS and Non-AIDS-infections mortality. FPM offers a clinically interpretable and easy to implement alternative to better describe the time-dependent effect of HCV coinfection.

TUPEC155
Antiretroviral treatment scheme complexity predicts AIDS mortality in in Mexico: A longitudinal study from 2012 to 2016

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1National Institute of Public Health in Mexico, Cuernavaca, Bolivia, 2National Institute of Public Health, Cuernavaca, Mexico, 3National Institute for the Prevention and Control of HIV and AIDS (ICENSIDA), Mexico City, Mexico, 4National Institute of Public Health, Cuernavaca, Mexico, 5School of Public Health, UC Berkeley, Berkeley, United States

Background: Worldwide, only 43% of people under antiretroviral treatment (ART) are virally suppressed. Despite multiple efforts to design and evaluate behavioral and technological interventions to increase adherence, results are disappointing: most interventions have relatively small and short effects. Simple and effective alternatives to improve adherence among HIV/AIDS patients are still needed. In this study, we analyze the impact of two dimensions of treatment scheme complexity - dosage and number of pills - on the survival rates of Mexican patients.

Methods: A survival analysis was conducted with data from the Antiretroviral Administration, Logistics and Surveillance System on 40,377 adult patients under treatment from 2012-2016. We examined time-to-failure (death) including time-varying treatment variables, such as CD4 counts and age. Using two Multivariate Cox proportional hazard models, we explored the effect of ART scheme complexity and other clinical and socio-demographic characteristics on mortality. We applied Kaplan-Meier techniques for descriptive analysis and log-rank test to compare survival curves.

Results: Mean age of entry was 34 years old, with 81% male. The average follow-up time was 26 months, with 9.6% death cases. The mean failure-time was 2.9 months. Patients under two-pills regimens were 40% more likely to die than those under one pill schemes (HR=1.4); similarly, patients with three or more pills regimens were 30% more likely to die, with a HR of 1.3. The number of prescriptions per day increased mortality risk by 30% (HR=1.3) per additional dosage per day. Both Multivariate Cox analyses showed that males were at higher risk of death (HR=1.3) compared with females, and older patients (50-59 years, HR=1.3; >60, HR=1.8) compared to younger patients (<30). Primary level clinics showed higher mortality than secondary hospitals (HR=1.4).

Conclusions: Simpler treatment regimens with fewer number of pills and one prescription per day contribute to the survival of the patients. Our study contributes to literature on interventions to increase adherence and survival of HIV/AIDS patients. In addition to other factors that contribute to loss-to-follow-up, simplification of treatment seems to be a clear, simple alternative to improve their chances to benefit from ART.

TUPEC156
CD4/CD8 ratio normalization and its determinants in long-term virologically suppressed HIV-infected Thai

W.M. Han1, T. Apornpong1, S.J. Kerri1, S. Gachompol1, A. Hiransuthikul1, T. Do1, S. Ubolyam1, A. Aivingsanos1, K. Ruxrungtham1, on behalf of HIV-NAT 006 team
1HIV-NAT, The Thai Red Cross AIDS Research Center, Bangkok, Thailand, 2Kirby Institute, University of New South Wales, Sydney, Australia, 3Chulalongkorn University, Division of Allergy and Immunology, Bangkok, Thailand, 4Chulalongkorn University, Research and Innovation, Bangkok, Thailand

Background: Immune restoration is often incomplete after ART in HIV patients, both quantitatively and qualitatively. We studied the incidence and probability of CD4/CD8 normalization in an adult Thai HIV cohort and explored factors associated with the normalization.

Methods: We analyzed data from HIV-infected Thai adults between 1996 to 2017 in the HIV-NAT 006 prospective long-term cohort in Bangkok, Thailand. Normalization was defined as CD4/CD8 ratio more than or equal to 1 of two consecutive visits, and normalization probability was calculated using the Kaplan-Meier method. Multivariable Cox regression was used to evaluate demographic, disease and treatment characteristics associated with CD4/CD8 ratio normalization.

Results: A total of 1067 ART-naïve patients with baseline CD4/CD8 ratio of <0.8 and started combination ART, and later had sustained viral suppression (HIV RNA viral load below detection limits according to the method used: ≤500 copies/mL from year 1996 to 1999 and ≤50 copies/mL thereafter) were enrolled. The median baseline CD4 count and HIV RNA viral load level were 227 (interquartile range [IQR], 128 - 321) cells/mm³ and 4.8 (IQR, 4.4 - 5.2) log₁₀ copies/mL, respectively. Participants were virologically suppressed for a median of 6.1 IQR [3 - 10.8] years. The incidence rate of normalization was 4.38 (95% confidence interval [CI]: 3.81-5.04) per 100 person-years, with probabilities of CD4/CD8 normalization at 2, 5, and 10 years after viral suppression of 51%, 86%, and 39%, respectively (Figure 1). In multivariable analysis, the factors associated with normalization were female sex (hazard ratio [HR]: 2.13, 95% CI: 1.6 - 2.9; p < 0.001) and baseline CD4 counts >350 cells/mm³ (HR: 3.77, 95% CI: 2.5 - 5.8; p < 0.001). No association of normalization was found with CDC staging, antiretroviral regimen or viral co-infections such as hepatitis B and hepatitis C.

Conclusions: Our findings show that complete immune recovery is uncommon in an Asian setting, with only approximately 20% and 40% of participants achieving CD4/CD8 ratio normalization, after 5 and 10 years of viral suppression, respectively. Earlier ART initiation may have increased the ratio sooner.
Epidemiology of HIV in the general population

TUPEC157

Universal test and treat: Loss to follow-up among patients initiated on antiretroviral therapy in South Africa under evidence-based guidelines


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Background: In an effort to reach national targets, in September 2016 South Africa implemented the World Health Organization’s (WHO) recommendation for Universal Test and Treat (UTT), expanding first-line ART to all HIV positive patients irrespective of traditionally used clinical indicators/thresholds such as WHO staging or CD4 cell counts. To evaluate the impact of this policy change we compare loss to follow-up (LTFU) among HIV positive, ART naïve, patients initiating first-line ART pre- and post-UTT roll-out within a large public-sector HIV clinic cohort in Johannesburg, South Africa.

Methods: We conducted an analysis of HIV positive adult patients who initiated standard first-line triple combination ART within the Right to Care (RTC) Clinical Cohort in South Africa. We compare two non-pregnant, tuberculosis-free groups: 1) those who initiated treatment pre-UTT (01/10/2015-28/02/2016); and 2) those who initiated treatment post-UTT (01/10/2016-28/02/2017). Our outcome was LTFU by 6 months post-ART initiation and LTFU roll-out within a large public-sector HIV clinic cohort in Johannesburg, South Africa.

Results: We included 2662 patients in our analysis (1154 initiated pre-UTT, 1508 post-UTT). Patient characteristics at ART initiation were similar between groups, apart from a higher proportion of post-UTT patients with CD4 cell counts >500 copies/mm³ (23.1 vs. 0.3% pre-UTT). By 6 months post-ART initiation a higher proportion of post-UTT patients were LTFU (11.4 vs. 8.0% pre-UTT). This translated into a 72% increase in LTFU (aHR 1.72; 95%CI: 1.28-2.31) (Table). Additionally, younger patients were 60% more likely to be LTFU (18-29 1.67; 95%CI: 1.17-2.39) (Table). Conclusions: In this study patients starting ART under UTT guidelines were almost twice as likely to be LTFU by 6 months post-initiation compared with initiates under previous guidelines. While expanded guidelines may result in greater numbers of patients on ART, this policy change may also promote intermittent health seeking behaviour, potentially among patients not yet ready for life-long therapy.

TUPEC158

Assessing the clinical significance of persistent low level viremia on subsequent virologic failure

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Background: WHO guidelines identify HIV RNA less than 1000 copies/ml as the goal of antiretroviral therapy (ART). However, the clinical implications of viremia below this threshold are unclear in the African context. Our objective was to assess associations of persistent low level viremia (pLLV) and transient viral blips with risk of subsequent virologic failure.

Methods: The African Cohort Study enrolls HIV-infected participants in Uganda, Kenya, Tanzania, and Nigeria. Clinical assessments are performed every six months. PLLV was defined as HIV RNA < 1000 copies/mL, consecutive assessments with a blip and a viral load < 1000 copies/mL, and a detectable viremia RNA > 1000 copies/mL. The primary outcome measure was virologic failure, defined as any HIV RNA >1000 copies/mL. Kaplan-Meier estimation was used to evaluate time to failure. We used Cox proportional hazards to estimate hazard ratios (HRs) for five levels of HIV RNA: undetectable, blip < 1000 copies/mL, pLLV < 200 copies/mL, pLLV 200-500 copies/mL, and pLLV 501-999 copies/mL. We included participants with undetectable HIV RNA, 567 with blips, 455 with pLLV < 200 copies/mL, 63 with pLLV 200-500 copies/mL, and 69 with pLLV 501-999 copies/mL. If participants fell into multiple pLLV categories they were classified into the greater HIV RNA category. We included 1,687 participants in our analysis with a median follow-up time of 2.02 years (IQR 1.5-2.7 years). There were 533 participants with undetectable HIV RNA, 567 with blips, 455 with pLLV < 200 copies/mL, 63 with pLLV 200-500 copies/mL, and 69 with pLLV 501-999 copies/mL. Results: We included 1,687 participants in our analysis with a median follow-up time of 2.02 years (IQR 1.5-2.7 years). There were 533 participants with undetectable HIV RNA, 567 with blips, 455 with pLLV < 200 copies/mL, 63 with pLLV 200-500 copies/mL, and 69 with pLLV 501-999 copies/mL. If participants fell into multiple pLLV categories they were classified into the greater HIV RNA category. Results: We included 1,687 participants in our analysis with a median follow-up time of 2.02 years (IQR 1.5-2.7 years). There were 533 participants with undetectable HIV RNA, 567 with blips, 455 with pLLV < 200 copies/mL, 63 with pLLV 200-500 copies/mL, and 69 with pLLV 501-999 copies/mL. If participants fell into multiple pLLV categories they were classified into the greater HIV RNA category.
TUPEC159

HIV positivity by age among VMMC clients in 14 countries and comparison to PHIA results

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United States, 1U.S. Department of State, Office of the Global AIDS Coordinator, Washington, United States, 2Centers for Disease Control and Prevention, US DHHS, Division of Global HIV and TB, Atlanta, United States, 3U.S. Agency for International Development, Office of HIV/AIDS, Washington, United States, 4LMU University of Munich, Pettenkofer School of Public Health, Munich, Germany

Background: Voluntary male circumcision (VMMC) is an important HIV prevention modality, conferring a long-term 60% reduction in HIV acquisition risk for men. VMMC programs include HIV education and offer testing. Starting in 2017, PEPFAR incorporated age-disaggregated reporting of HIV testing results in VMMC programs. These results could potentially provide insight on HIV prevalence in the general male population. We evaluated the results by age across countries to assess testing yield and to compare to published data from Population-based HIV Impact Assessments (PHIA) surveys conducted between 2016-2017 where available.

Methods: Data regarding status among those testing at VMMC sites (positive, negative, unknown) and positivity rate by age bands were analyzed globally and within each country. For countries, where age-disaggregated data from the PHIA surveys have been published, prevalences were compared by inspection to evaluate comparability.

Results: HIV status among all clients testing at VMMC sites in 2017 was negative in 3,002,941 (91.5%), positive in 24,101 (0.7%), and unknown in 256,159 (7.8%). Age disaggregated data were available for 68% of VMMC clients tested for HIV. Results by age band are shown in the table. The rate of positivity increases with age. PHIA confidence intervals did not include positivity rates in VMMC settings except in those under age 20 in Tanzania and Uganda and under age 15 in Zambia.

Conclusions: Despite low positivity in those below age 15, testing detects an important population of children living with HIV in some countries; age-disaggregated results allow countries to tailor testing strategies by age. All VMMC programs should have a mechanism to link those testing positive to treatment. HIV seroprevalence is lower among VMMC clients than population-based rates, suggesting potential prior testing or other self-selection factors among those seeking VMMC. These selection biases make VMMC testing not indicative of population rates of HIV.

TUPEC160

Inequality in global HIV, TB, and hepatitis C burden from 1990 to 2016

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Background: The Gini Index (GI) and Theil Index (TI) are metrics commonly used in economics to measure inequality in the distribution of resources such as income or wealth. A GI of 0 represents perfect equality, and 1 - perfect inequality (100% burden in a single country). The TI can be ‘decomposed’ to show the proportion of inequality contributed by between-region versus within-region inequality. We applied these measures to the global burden of HIV, tuberculosis (TB), and hepatitis C (HCV).

Methods: Age-standardised country-level prevalence, incidence, and disability-adjusted life years lost (DALYs) rates were extracted from the Global Burden of Disease study. We calculated population-weighted GI and TI values for 1990 and 2016 in Stata/MP (version 14.0). Theil indices were decomposed at the level of 7 world regions (high-income countries; Latin America and the Caribbean (LAC); North Africa and the Middle East (MENA); sub-Saharan Africa; South Asia; Southeast Asia; East Asia and Oceania; Europe; Eastern Europe, and Central Asia (EECA)).

Results: Results are shown in the Table and Figure. Sensitivity analysis using all-age instead of age-standardized data did not substantially affect the findings.

Table. Changes in Gini index between 1990 and 2016, and changes in proportion of inequality contributed by between-region differences.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Gini value in 2016 (change 1990-2016)</th>
<th>% of inequality contributed by between-region differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>0.78 (+0.09) 0.73 (-0.15) 0.77 (+0.09)</td>
<td>55% 55%</td>
</tr>
<tr>
<td>HCV</td>
<td>0.36 (+0.03) 0.37 (0.00) 0.50 (+0.04)</td>
<td>45% 55%</td>
</tr>
<tr>
<td>TB</td>
<td>0.27 (+0.03) 0.43 (+0.02) 0.59 (+0.04)</td>
<td>66% 58%</td>
</tr>
</tbody>
</table>
Background: HIV prevalence in high burden areas in India - couple-centered intervention strategies may help in consolidation of prevention gains

TUPEC161
High rates of female sterilization could impact HIV prevalence in high burden areas in India - couple-centered intervention strategies may help in consolidation of prevention gains

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Methods: Data from 5 rounds of HSS (2005-15) among ANC attendees in Maharashtra across 67 consistent sites in 35 districts were analysed. We used univariate and multivariate regression and multi-level modelling with regional and district-level characteristics such as demographics, reproductive history and HIV knowledge from National Family Health Survey-3 (NFHS-3) to predict HIV prevalence. Results: Across 5 rounds of HSS (2005-15), being ‘older’ (AOR: 1.07, 95%CI: 1.05-1.09, p< 0.001), ‘illiterate’ (AOR: 1.16, 95%CI:1.12-1.21, p<0.003), ‘spouse in transport-related occupation’ (AOR: 1.59, 95%CI:1.34-1.84, p< 0.001) and ‘urban residence’ (AOR: 1.1, 95%CI: 1.07-1.14, p<0.03) increased the likelihood of HIV positivity. District-level characteristics like ‘sex-ratio at birth’ (< - 0.003, p< 0.001), ‘percent women sterilized’ (>0.032, p< 0.001), ‘percent women accessing ANC-services’ (>0.020, p< 0.001) were significantly associated with HIV. Increase in F/M ratio by 1/1000 (AOR: 0.96, 95%CI: 0.93-0.97, p< 0.001) decreased the odds of being HIV-infected by 0.4%. Increase in ‘female sterilization rate’ (AOR: 1.034, 95%CI: 1.020-1.047, p< 0.001) and ‘percent women accessing ANC-services’ (AOR: 1.013, 95%CI: 1.002-1.024, p< 0.03) increased odds of HIV infection by 3% and 1% respectively.

Conclusions: Global inter-country inequality in the burden of HIV, HCV, and TB, as measured by the Gini index, is of similar magnitude as global inter-country income inequality (reported as 0.63) by Helebrandt et al, SSRN Electron J. 2019. Global inequality was substantially higher for HIV than TB or HCV, but decreased since 1990, while global inequality in- increased for HCV and TB. The decrease in inequality for HIV began after 2003. The decrease in HIV inequality was substantially greater for men than women. In all years, inequality in TB was greater in terms of dis- ability and life years lost than it is in terms of prevalence. For all three diseases in 1990 and 2016, approximately half of relative inequality was contributed by differences in burden within individual world regions, and half by differences between regions (between-region component in- creased for HCV, decreased for TB, and did not change for HIV). Among regions, the highest inequality for HIV was seen between countries in LAC, for TB in MENA, and for HCV in EECA.

TUPEC162
HIV prevalence in Argentina: 5 years of follow-up (2013-2017)

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Background: According to the UNAIDS report of 2016, adult HIV preva- lence in Argentina is 0.4% and remain stable in last decade. This informa- tion comes from the estimation of HIV cases reported to the Ministry of Health in relation to the total country population. Therefore a study of 5 consecutive years on the HIV prevalence in general population was carried out.

Methods: Between January 2, 2013 and December 30, 2017, HIV anti- body determinations through a previously validated rapid test (Alere Determine™ HIV-1/2) were performed in individuals from different prov- inces of Argentina, which together represent more than 80% of the to- tal country population. Testing was carried out in public places, where people voluntarily approached to be tested. Counselling was given to all individuals and for positive cases established the appropriate refer- ral. The information was collected in an Ad Hoc database, and descrip- tive statistics, T-test, Chi2. Fisher exact or Mid P tests were used as ap- propriate.

Results: Determinations were made in 118078 individuals. Age range: 18 months to over 49 years, but 99% were older than 15 years. Gender dis- tribution: women 54.1%, men 45.2%, transgender 0.7%. There were 1035 HIV positive results. Prevalence: 0.88% (95%CI: 0.82-0.93). It was the first HIV test for 58.1%, and prevalence in subjects tested for the first time was higher than in those previously tested (0.93% vs. 0.79%, p< 0.006). Although the prevalence was significantly higher in men than in women (1.19% versus 0.56%, p < 0.001), the highest level was observed in trans- gender (4.86%, p < 0.001). Regarding annual prevalences, they remained stable between 2013 and 2016 (1.00%, 1.08%, 0.99%, and 0.91%, respec- tively), and dropped significantly in 2017 (0.67%, p < 0.05).

Conclusions: This was the largest study on HIV prevalence ever made in our country. Prevalence observed in the general population was twice as high as that reported for the adult population of Argentina by UNAIDS from 2013 to 2016, and remained higher although dropped significantly in 2017. This large-scale study shows that it is necessary to update the estimates of the population living with HIV for Argentina.

TUPEC163
The main ways of HIV transmission in Ukraine

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Background: The study of HIV transmission gives an insight to the im- pact of the disease prevalence on the populace. Until recently Ukraine was considered to be the country with the HIV-transmission caused by the parenteral infusion, in particular by injection drug use. We aimed at investigating the peculiarities of the main ways of HIV transmission among the Ukrainian population over the period of 1997-2017 years.
Methods: We analyzed annual reporting forms N Reporting Form No. 2-HIV/AIDS „Report on Persons with Conditions and Diseases Caused by the Human Immunodeficiency Virus (HIV) Virus in 20… years” (annual), approved by the Order of the Ministry of Health of Ukraine as of March 5, 2013. No. 180, over the period of 20 years (1997 - 2017).

Results: The analysis of annual reports showed that from 1997 to 2008, the main route of HIV transmission among the Ukrainian population was parenteral (mainly with the injection drug use), and since 2008, the prevalence of HIV among injection drug users has been decreasing with the simultaneous growth of HIV-infection transmitted through sexual intercourse. In particular, there was an increased in the HIV infection incidence among men who had sex with men (MSM). This was found to be 50 cases in 2005, and 277 in 2014. As a rule, representatives of this group concealed their sexual orientation, especially in rural areas. A significant role is played by a group of MSM who are bisexual and may be a kind of “bridge” between MSM and heterosexual relationships. Due to decentralization there is a possibility of cooperation with the population of remote places in the region, which will allow to identify groups of potentially possible HIV-infected people.

Conclusions: Among the population of Ukraine, sexual intercourse is fast becoming the major factor causing the prevalence of HIV infection. It is therefore necessary to develop an algorithm for identifying potentially HIV-infected people, in particular among the rural population and MSM.

TUPEC165
A twenty-six trend analysis of HIV/AIDS mortality in Mexico between 1990 and 2015

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Background: Mexico assumed as public policy to guarantee free and universal access to HAART in 2003. However, the next years, the AIDS mortality did not decrease as expected. Actually, the aim of the study was to analyze the magnitude, distribution, and trends of HIV/AIDS mortality in Mexico.

Methods: Official vital statistics on mortality from CONAPO, and population estimates from INEGI, were used to calculate AIDS mortality standardized rates. HIV/AIDS mortality trends were analyzed by JointPoint regression model.

TUPEC164
National and sub-national HIV/AIDS-related mortality in Iran from 1990 to 2015. A modified approach to estimation

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Background: Surveillance of HIV/AIDS mortality is crucial to evaluate a country’s response to the disease and progress towards the goals set forth by the global community such as the sustainable development goals (SDGs) and the United Nations Programme on HIV/AIDS (UNAIDS) 90–90–90. This report from National and Sub-National Burden of Diseases, Injuries, and Risk Factors study 2015 (NASBOD 2015) provides estimates of mortality due to HIV/AIDS in Iran from 1990 to 2015.

Methods: Data from the death registration system of Iranian Ministry of Health and Medical Education, and the records of Tehran and Esfahan cemeteries were used as the main sources of data in NASBOD study. Death registration incompleteness and misclassification were addressed using demographic and statistical methods. Trends of mortality due to HIV/AIDS at national and sub-national levels were estimated applying multiple statistical models.

Results: According to our estimation, a total of 474 men (95% uncertainty interval (UI): 275-1.338) and 256 women (95% UI: 16.187) died due to HIV/AIDS in 2015, which accounted for 0.22% and 0.17% of all deaths in men and women in Iran, respectively. After reaching its peak in 1995, overall deaths due to HIV/AIDS in both sexes have steadily declined. The findings of our study (474) were remarkably lower than UNAIDS (4,000) but higher than GBD (339) estimates in 2015. The increasing number of deaths due to HIV/AIDS among Iranian women is a cause for concern, and highlights the need for urgent gender-oriented interventions to address the issue. In order to reach international goals, evidence-based interventions are needed to prevent infection and promote early diagnosis of HIV/AIDS, provide access to treatment, and ensure treatment adherence especially among the most at-risk populations in Iran.

Results: The evolution of general mortality due to HIV/AIDS shows 5 trends: from 1990 to 1993 it registered its maximum growth with an Annual Percent Change (APC = 23.8); between 1993 and 1996 it continued to grow, although with less intensity (APC = 7.9); between the years 1999 and 2008, the mortality trend remained unchanged, and as of 2008 mortality has registered a significant downward trend until 2015 (APC = -3.0).
From 2010 to 2015, HIV/AIDS mortality in men was almost five times higher than in women (6.6 vs. 1.4 per 100,000, respectively). Because more than 80% of deaths correspond to men, their trends are similar to general mortality. In women they are different: there were two ascending trends (1990-1993, APC -16.21 and 1993-2008, APC -2.88). But between 2008 and 2015 it already has a downward trend (APC - -2.86).

Mortality among people lacking social security was almost double that registered in people with social security (5.0 vs 2.7 per 100,000). In both cases, the last trend is downward in both cases and the rate of reduction is almost the same (APC - 2.5 and 2.4, respectively).

Conclusions: Although the recent trend of HIV/AIDS mortality is downward, it disproportionately affects women, and people who do not have social security. It is necessary to focus actions of prevention and integral attention in both groups. If it is not possible to increase the descending APC among women and people without social security, it will be difficult to continue decreasing the HIV/AIDS mortality in Mexico.

**TUPEC166**
Alcohol consumption and its associations with other substance use and HIV infection in Rakai, Uganda

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Background: Associations between alcohol consumption and HIV risk are well established. Little is known, however, about this relationship in Uganda. Less is known about other substance use and its co-occurrence with alcohol consumption. This study estimated the prevalence of alcohol and other substance use, and associations between alcohol and HIV infection in Rakai, Uganda.

Methods: We analyzed cross-sectional data from men and women (15-49 years) participating in the Rakai Community Cohort Study (2016-2017), an ongoing HIV surveillance cohort. The main dependent variable was past 12 month alcohol use (yes/no). Independent variables were past 12 month use of other drugs, including marijuana, amphetamines, aero fuels, mayirungi, heroin (yes/no) and HIV status (positive/negative).

Logistic regression estimated associations between alcohol use, drug use and HIV infection. Adjusted models controlled for demographics (sex, age, education, occupation, marital status, socioeconomic status), community type (fishing/general community), and past year sexual risk behaviors (number of sex partners, consistent condom use).

Results: Of 18,700 participants, 54% were women, 84% were Christian, 66% had a primary school education or less, 45% consumed alcohol, 3% used other drugs, and 19% were people living with HIV (PLHIV). Alcohol use was less likely in women vs. men (aOR = 0.65, 95% CI: 0.61 - 0.71, p < 0.01). In general population, 7.8% were past month users, and 7.4% were past year users. Non-drug users vs. drug users (aOR = 1.00, 95% CI: 0.30 - 0.48, p < 0.01). Alcohol use was more likely in participants with 2+ sex partners (aOR = 3.44, 95% CI: 3.00 - 3.93, p < 0.01) and PLHIV (aOR = 1.12, 95% CI: 1.03 -1.22, p = 0.00).

Conclusions: Alcohol use is common in Rakai, particularly in men and in fishing villages. Irrespective of sex and community type, the odds of alcohol use were higher among PLHIV and people with multiple sex partners, implying need to integrate alcohol reduction approaches into HIV prevention and treatment programs. Although other drug use is uncommon, it is linked to higher odds of alcohol use. Further research is warranted to better understand the epidemiology of poly-drug use in Rakai and Uganda.

**TUPEC167**
Epidemiology of HIV in MSM

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Background: Mental health has been recognized as a determinant of HIV and STI risks through increased exposure as well as limited uptake of HIV prevention and treatment services. Mental health has been seen as particularly relevant determinant of HIV and STI-risks among MSM, who face high burdens of social stigma, a risk factor for depression. These analyses examine sexual behavior and STI-related correlates of depressive symptoms among MSM in Senegal.

Methods: This study utilized baseline data from the HIV Prevention 2.0HP2 study, which enrolled 724 adult MSM in three cities in Senegal including Dakar, Thies, and Mbour using respondent-driven sampling (RDS) with a structured survey instrument and depressive symptoms assessed by the patient health questionnaire-g (PHQ-g). Severity of depressive symptoms were measured with a PHQ-9 cut off of 10 or greater, used clinically to screen for moderate-to-severe depression. Logistic regression analyses applied RDS weights to account for purposive sampling.

Results: Approximately 58% had PHQ-9 scores of 5 or higher and 25% (6/B/72a) 10 or greater. PHQ-9 of 10 or greater was associated with condom use by partner type. Participants reporting regular partners only in their last 1 - 3 anal sex acts and who used a condom in these encounters had a 5.7 times the odds of endorsing a PHQ-9 of 10 compared to participants reporting casual partners only and inconsistent condom use with these partners (p <0.05). Consent condom use with varied partners carried an OR of 3.9 comparing those reporting casual partners only and inconsistent condom use (p<0.005). Any STI symptoms in the past 12 months was associated with PHQ-9 scores of 10 and higher (OR= 2.25, p<0.05).

Conclusions: Taken together, these results demonstrate that depressive symptoms constitute a serious burden among MSM in Senegal, supporting the need for mental health services. Encouragingly, these data suggest multiple opportunities to address mental health in STI visits or other outreach services. Holistic approaches to health necessitate effective integration of mental health interventions into broader health services and may potentiate the impact of HIV prevention and treatment services if implemented at scale in Senegal.

**TUPEC168**
Association between HPV persistence and HIV in young men who have sex with men: Interim findings from the P18 cohort study

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Background: HPV persistence, or the detection of similar HPV types two or more times over a given time period, is an important risk factor for HPV disease progression. Prior studies suggest that HPV persistence
TUPEC169

HIV transmission clustering among gay men in Nigeria: A genetic distance clustering analysis using a social network model

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Background: HIV transmission among men who have sex with men (MSM) in sub-Saharan Africa continues unabated at alarmingly high rates. To inform prevention efforts, we sought to uncover and characterize HIV transmission events among Nigerian MSM using genetic-clustering methods.

Methods: We analyzed RT-pol sequences from 348 HIV-infected individuals enrolled in the TRUST/RV568 study, a cohort of MSM in Abuja and Lagos, Nigeria. Recruited using respondent-driven sampling between 2013 and 2015. Pairwise genetic distances were determined between sampled individuals and transmission clusters were defined among individuals whose sequences had a genetic distance of >15%.

Results: Among 348 sequenced individuals, a total of 141 (40.2%) individuals were found to be the members of HIV transmission clusters. With 42 identified transmission clusters, 29 (69.0%) of them were paired. The largest transmission cluster consisted of 16 individuals. Compared to individuals with different characteristics, two individuals were more likely to be in the same transmission cluster if they have the same ART status (OR=5.26, 95% CI 4.75 - 5.73), sharing the same sexual identity (OR = 13.3, 95% CI: 13.0 - 13.6), and having greater age differences (OR=1.16, 95% CI 1.01-1.29 per one-year age difference). In an additional analysis, compared to two individuals having different ART status (treated and untreated), untreated and newly diagnosed pairs were more likely to be in the same transmission cluster (OR= 8.99; 95% CI: 5.77-15.02). Individual factors associated with increased clustering included being employed (OR = 1.85, 95% CI: 1.49-2.29 compared to unemployed) and having viral load >1000 copies/mL (OR = 7.10, 95% CI: 1.21-59.99).

Conclusions: There is a high level of genetically-clustered HIV transmission among MSM in Nigeria. Pair distribution is an important factor to include in transmission cluster analysis. Our social network models further underscore the importance of universal ART for MSM as part of prevention strategies to interdict forward HIV transmission.

TUPEC170


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Background: Gay and bisexual Latino men continue to be disproportionately impacted by HIV/AIDS. Identifying factors associated with sexual risk is imperative for developing effective prevention strategies.

Methods: Working with data from the National HIV Behavioral Surveillance, we explored the impact of syndemic factors - heavy drinking, sex work, and homophobic discrimination - on sexual HIV risk behaviors including total male partners and (main and casual) condomless anal intercourse among gay and bisexual Latinos (N=464). Analyses took two forms: a syndemic approach, using the cumulative number of factors as a predictor; and a non-syndemic approach, incorporating factors as unique predictors. Simultaneously, we convened the Mid-Atlantic Latino Center for AIDS Research Consortium to develop recommendations for prevention interventions.

Results: Seventy percent of participants were from Puerto Rico, and a majority self-identified as Black (52%). Eighty-eight percent of participants had at least one high school education. In multivariable syndemic analyses, participants with 2+ factors reported significantly more male partners (b=1.96) and CAI casual partners (b=1.73) than those with none. In non-syndemic models, homophobic discrimination (b=2.45) and sex work (b=3.82) were significantly associated with more male partners. Heavy drinking was associated with casual UAI partners (b=1.71). Group members determined that multifaceted, tailored interventions encompassing individual and cumulative risk are urgently needed to effectively address HIV in this population.

Conclusions: Multiple psychosocial conditions inform sexual risk among gay and bisexual Latinos, and such conditions may sometimes interact to exacerbate risk. HIV prevention programs, building from community-based approaches, should recognize and address multiple syndemic factors concurrently.
TUPEC171

HIV risk behavior outcomes associated with access to resources embedded in MSM and heterosexual social capital networks among MSM in greater Tokyo

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Background: Social capital (SC) is an important determinant of HIV risk in modern society characterized by human connection. Previous studies have suggested that social capital is positively associated with reduced HIV risk. However, few have investigated if associations vary between men-who-have-sex-with-men (MSM) and heterosexual alters (possession of actual resources embedded in social capital networks) and HIV risk outcomes. Using cross-sectional data from an online MSM survey in Greater Tokyo, we investigated whether social capital is associated with reduced HIV risk behaviors, defined as condom use with regular and non-regular male and female partners, self-efficacy, and HIV-testing, independent of socioeconomic status. A total of 1657 subjects participated in the study.

Methods: To measure social capital, we used eighteen questions assessing the respondents’ ability to access both physical and mental-support resources embedded in social networks. Potential confounders included eight demographic and structural antecedent factors. Respondents were grouped into three levels of social capital. High SC respondents were defined as 1.0 standard deviation (SD) above the overall mean, low SC respondents as one SD below the overall mean, and medium SC respondents in-between; thus 20% to 30% of respondents were grouped into the high and low SC categories.

Results: Multivariate models revealed that lifetime HIV testing was significantly associated with high MSM SC (odds ratio (OR), 1.16; 95% CI, 2.09-4.79), university education (OR, 1.44; 95% CI, 1.07-1.92) and age (OR, 1.04; 95% CI, 1.02-1.05). Non-regular male partner condom usage was significantly associated with high heterosexual SC (OR, 2.03; 95% CI, 1.15 - 3.59), and residing outside Tokyo (OR, 1.69; 95% CI, 1.01-2.82). Regular male partner condom usage was significantly associated with university education (OR, 1.49; 95% CI, 1.14-1.95), and significantly negatively associated with high MSM SC (OR, 0.62; 95% CI, 0.42-0.91). Female partner condom usage was significantly associated with heterosexual SC (OR, 1.09; 95% CI, 1.00-1.17).

Conclusions: In order to close the HIV-risk gap for greater Tokyo MSM, policy interventions should focus more specifically on deprived socio-demographic groups, such as those who have less educational attainment and exposure to sex-education and not blindly promote social capital without considering potential negative outcomes.

TUPEC172

Trend in HIV incidence and prevalence in men who have sex with men in Georgia, 2010 to 2015

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Background: To measure the impact of HIV prevention and care programs, it is crucial looking at both HIV incidence and prevalence estimates and trends over time. We estimated the HIV incidence and prevalence and assessed the trend using data from three cross-sectional surveys of men who have sex with men (MSM) in Georgia.

Methods: Using respondent-driven sampling strategy, eligible MSM (a 18 years or older man with oral or anal sex with another man in past 12 months) were recruited in Tbilisi and Batumi in 2010, 2012 and 2015 into a behavioral survey and HIV testing. To estimate the HIV incidence, we divided the number MSM tested positive for HIV to the time at risk. We focused on seroconversion within the first 10 years of migration to NYC. We hypothesized that recent migrants would experience a heightened period of HIV risk and substance and that this increased risk would translate into HIV seroconversion.

Methods: M2M-NYC is a cross-sectional study designed to identify neighborhood-level characteristics within the urban environment that influence sexual risk behaviors, substance use and mental health among MSM living in NYC. Between 2010 and 2012, using modified venue-based time-space mapping, men were recruited through face-to-face outreach and mobile apps. A total of 1,493 men completed the cross-sectional ACASI survey. Logistic regression and a Cox proportional hazards multivariable regression were used for analysis. The hazard ratio takes into account not if an individual is HIV-positive or negative, but how much time passed before seroconversion after migration. We focused on seroconversion within the first 10 years of migration to NYC.

Results: The sample included 738 recent (within the past 10 years) NYC migrants. In multivariable analyses, compared to those who had lived in NYC for 6-10 years, living in NYC for >1 year was not significantly associated with increased risk, being in NYC from 2-5 years was associated with an increase in general unprotected sex (aOR=1.89, CI=1.22,2.88) and accounted for the interval censorship. We assessed the trend in HIV prevalence by Chi2 test for trend. For HIV incidence rate, we used Kaplan Meier method and compared the rates in three survey rounds by log-rank test.

Results: The HIV prevalence significantly increased (p-value for trend < 0.001) from 7.0% in 2010 to 13.0% in 2012 and 20.7% in 2015. Likewise, the HIV incidence rate (Figure 1) significantly increased from 0.45 per 100 person-years in 2010 to 0.98 per 100 person-years in 2012 (p-value for trend < 0.001) and 1.66 per 100 person-years in 2015 (p-value for trend < 0.001). In survey 2015, young MSM (4.84 per 100 person-years, p-value=0.001), single MSM (1.79, p-value=0.003) and less educated MSM (1.90, p-value=0.009) had a higher HIV incidence.

Conclusions: Our findings suggest the continuous transmission of HIV among men who have sex in two major cities in Georgia and the need for scaling up the coverage and accessibility of combination prevention packages including rapid HIV diagnosis and response.
heavy drinking (aOR=1.92, CI=1.06,3.50). Compared to White men, Black men had a cox proportional hazard of 5.17 (p< 0.001) and Latino men had a hazard ratio of 3.03 (9-p=0.02) for post-migration HIV seroconversion.

Conclusions: These findings support research suggesting that migration, space, and place likely play a significant role in exposure to risk and increased risk behaviors. Most striking are our findings that suggest that migration to NYC may pose far greater risk of seroconversion for Black and Latino MSM. This paper raises important questions to consider as we enter the next generation of bio-behavioral HIV prevention.

TUPEC174
A lesser-known epidemic: HIV and STI prevalence among key populations in Angola


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Background: A dearth of research exists on the HIV epidemic among key populations in Angola and no prior studies have measured the prevalence of other sexually transmitted infections (STIs). This study aimed to measure the prevalence of HIV and STIs among key populations in Angola.

Methods: The University of North Carolina at Chapel Hill, under the USAID/PEPFAR-supported and FHI 360-led LINKAGES project, conducted a biobehavioral survey in five provinces of Angola between October 2016 and June 2017. Priorities of Local AIDS Control Efforts (PLACE), a venue-based sampling strategy, was used to recruit participants from social venues for a cross-sectional behavioral survey. Based on the behavioral questionnaire, participants were categorized as female sex workers (FSW), men who have sex with men (MSM), or transgender women (TGW). Biomarkers included rapid HIV; syphilis and hepatitis B testing; and collection of urine and anal and vaginal swabs for gonorrhea, chlamydia, and trichomoniasis lab-based testing. Individuals were assigned weights based on the probability of recruitment at a venue.

Results: In total, 1,876 FSW, 1,016 MSM and 89 TGW were recruited. The prevalence of HIV was 8% among FSW, 2% among MSM, and 9% among TGW. The prevalence of other STIs ranged from 3-15% among FSW, 2-14% among MSM and 0-13% among TGW (Table 1). Among MSM, a urethral STI (9%) prevalence and an anal STI (7%) were similarly common but only 2% of MSM with a urethral STI also had an anal STI and 14% of men with an anal STI also had a urethral STI. Among TGW there were no participants with both a urethral and an anal STI.

Conclusions: High prevalence of HIV and other STIs among FSW, MSM, and TGW in Angola is evidence that integrated diagnosis and treatment services are needed for these populations. The HIV prevalence was higher among TGW than MSM. The lower than anticipated percentage of women with an infectious with an anal and urethral STI indicates that MSM and TGW practice seemingly exclusive or receptive anal sex, which might help orient HIV prevention programs given the higher risk of HIV acquisition through receptive sex.

<table>
<thead>
<tr>
<th>STI</th>
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<th>TGW (n/N)</th>
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<tr>
<td>HIV</td>
<td>(144/1876) 7.8</td>
<td>(50/1867) 2.7</td>
<td>(8/89) 9.0</td>
</tr>
<tr>
<td>Syphilis</td>
<td>(16/1744) 0.9</td>
<td>(8/1009) 1.5</td>
<td>(0/88) 0.0</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>(11/1744) 0.6</td>
<td>(13/1009) 1.5</td>
<td>(0/88) 0.0</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>(11/1744) 0.6</td>
<td>(7/1009) 0.7</td>
<td>(0/88) 0.0</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>(208/1425) 14.6</td>
<td>(4/243) 1.7</td>
<td>(0/88) 0.0</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>(130/1866) 7.0</td>
<td>(136/1009) 13.5</td>
<td>(0/88) 0.0</td>
</tr>
</tbody>
</table>

(TUPEC175) Characterizing resilience and viral load among midlife and older gay, bisexual, and other men who have sex with men


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Background: How psychosocial resilience impacts the health of middle-aged and aging men who have sex with men (MOMSM) living with HIV is undiscovered. The aim of this study was to characterize resilience among MOMSM and investigate its association with detectable viral load.

Methods: 1,143 seropositive and seronegative MOMSM in the Multicenter AIDS Cohort Study (MACS) completed the 14-item global resilience scale (RS-14) in 2016-2017 as part of a 4-year study of resilience and healthy aging. Scores from the RS-14 were calculated and categorized into high (scores 82-9) or moderate/low (scores 14-80) resilience. Multivariable logistic regression was used to estimate the odds of high resilience adjusting for age, race, education, depression symptoms, and HIV status. Among the HIV+ men, a multivariable model estimated the relationship between resilience and detectable viral load.

Results: Characteristics of the sample include: mean age: mean=61.9, SD=8.7; 31.2% racial minority. 20.4% depressed (CESD≥16); 46.6% HIV+ among whom 17% had a detectable viral load (≥20 copies/mL). Overall, 64.1% of participants reported having high, 13.3% moderate, and 22.6% low resilience. Black race (compared to white: aOR=2.34, CI: 1.49, 3.60) and older age (aOR=1.02, CI: 1.00,1.05) were positively associated with high resilience. Having depression symptoms (aOR=0.17, CI: 0.12,0.25) and being a high school graduate (aOR=0.70, CI=0.50, 0.98) compared to postgraduate education were less likely to indicate high resilience. There were no statistically significant differences in resilience level by HIV status. Men with high resilience were less likely to have detectable viral load (aOR<0.7, CI: 0.25-0.9) (see Table). Black men had greater odds of having a detectable viral load compared to white men (aOR=2.88, CI=1.51,5.49).

Conclusions: MOMSM with high resilience had half the odds of having detectable viral load, independent of sociodemographic co-factors and depression symptoms. Given that 1 in 3 men in the sample did not meet the criteria for high resilience, future research will investigate risk and protective factors associated with high resilience, to inform multi-level interventions to strengthen resilience and improve HIV outcomes including viral suppression.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>aOR</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>Black Race (Ref: White)</td>
<td>2.88</td>
<td>1.51,5.49</td>
</tr>
<tr>
<td>Other Race</td>
<td>1.83</td>
<td>0.77,4.39</td>
</tr>
<tr>
<td>High School (Ref: Post Graduate)</td>
<td>2.20</td>
<td>0.93,6.22</td>
</tr>
<tr>
<td>College</td>
<td>1.51</td>
<td>0.74,3.07</td>
</tr>
<tr>
<td>Age</td>
<td>0.99</td>
<td>0.95,1.03</td>
</tr>
<tr>
<td>Depression Symptoms</td>
<td>0.90</td>
<td>0.47,1.76</td>
</tr>
<tr>
<td>High Resilience (Ref: Low)</td>
<td>0.47</td>
<td>0.25,0.90</td>
</tr>
<tr>
<td>Moderate Resilience</td>
<td>0.64</td>
<td>0.26,1.59</td>
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</tbody>
</table>

(Resilience and Detectable Viral Load, MACS Healthy Aging Study)
TUPEC176
High HIV and other STI prevalence among transgender, gay, bisexual and other men who have sex with men (MSM) in Nairobi, Kenya

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Background: Gay, bisexual and other men who have sex with men are a key target population for HIV prevention and control in Kenya. Whilst male sex workers are the focus of ongoing research in Nairobi, HIV/STI prevalence has not been assessed among the broader MSM population since 2010. This study set out to assess prevalence of HIV and other STIs representative of all MSM in Nairobi.

Methods: Respondent-driven sampling (RDS) was employed to recruit 618 MSM. Eligibility criteria were age 18+, male gender (birth or currently), Nairobi residence and reporting of consensual oral or anal intercourse with a male partner in the last year. Consenting participants undertook a computer-assisted survey including current experience of anogenital STI symptoms (urethral or rectal pain, discharge or ulceration). Participants tested for HIV (Determine®, First Response® & Xpert® HIV-Dual, syphilis [RPR/TPHA], hepatitis B and C [HBsAg and HCV ELISA], urine and rectal chlamydia (CT) and gonorrhoea (IGG Xpert® CT/NG)) Associations with prevalent HIV were assessed using multivariate logistic regression. Frequency and association measures were adjusted for RDS sampling using the RDS-II method.

Results: Only three participants declined rectal swabs, one completed HIV testing only, and one declined all investigations. HIV prevalence was 26.4%(22.6-30.6) including 0.5%(0.2-1.4) detected solely by 4th generation testing. Prevailed HIV was independently associated with age, lower education, Kenyan birth, transgender identity and exclusive sex with men in the past 3 months (table). Prevalence of syphilis was 0.8%(0.3-1.8), hepatitis B 4.4%(3.4-6.9), hepatitis C 0.5%(0.2-1.6), 6.4%(5.4-7.9) of participants reported consistent symptoms consistent with urethritis. Prevalence of urethral GC and CT were 4.2%(2.9-6.7) and 7.3%(5.2-10.3) respectively, 8.6%(7.3-10.8) of participants reported symptoms consistent with proctitis. The prevalence of rectal GC and CT were 13.3%(10.4-16.8) and 8.7%(7.6-11.2) respectively. Overall, only 17.7%(9.2-31.2) with urethral CT/NG and 12.8%(10.7-16.9) rectal CT/NG were symptomatic.

Conclusions: HIV prevalence among MSM remains considerably higher than among other men in Nairobi, whilst the prevalence of syphilis and hepatitis C are relatively low. Chlamydia and gonorrhoea infections, particularly rectal, are common and frequently asymptomatic. Increasing the capacity of MSM-friendly and community-based providers to offer CT/NG screening should be prioritised.

TUPEC177
Increasing prevalence rate among MSM in Brazil: Results of a comparison of 2009 and 2016 national survey

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Background: The HIV epidemic among men who have sex with men (MSM) appears to be increasing in many countries. Brazil completed a second national Biological Behavioral Surveillance Survey among MSM in 12 cities in 2016, overlapping with 9 cities from the 2009 survey. The objective of this paper is to cautiously compare the results of HIV prevalence in the cities where the survey was repeated.

Methods: The surveys, using Respondent Driven Sampling (RDS), were conducted in 10 cities in 2009, and 12 cities in 2016, with 9 conducted in the same cities in both surveys. We recruited 3.333 MSM in 2009 and 2.992 in 2016. MSM were considered positive if: 1) they tested positive in the survey; or 2) not testing in the survey, they reported testing positive and were taking ART. RDS-Analyst and Gile’s estimator were used for weighting and calculation of HIV prevalence for both surveys. Using the complex analysis functions in STATA® 14 data were merged by year and each city as a stratum. Poisson regression was used to compare HIV prevalence by year adjusting for age, race, socioeconomic status, and an interaction term between age and year.

Results: HIV prevalence increased from 12.1% (10.0 - 14.5) in 2009, to 18.4% (15.4 - 21.7) in 2016. The prevalence ratio (PR) among MSM 25 yrs. in 2009 (9.8%; 7.5 - 13.2) compared to 2016 (10.0%; 6.0 - 16.0) did not change (PR=1.0; 0.7 - 1.3). The PR among MSM < 25, however, increased 140% (PR=2.4; 1.4 - 4.0) jumping from 4.0% (2.6 - 5.4) to 9.4% (5.8 - 13.1). Only age and the interaction term were significant.

Conclusions: HIV prevalence increased substantially among younger MSM. Although the HIV prevalence among older MSM did not change from 2009 to 2016, it is extremely high compared to the general population. We hypothesize that the use of social networking applications to find partners, the medicalization of AIDS prevention, and a sharp political movement to the right, including ending many programs targeted to
sexual minorities, such as comprehensive sex education, were among the reasons for this increase among youth and maintenance among older MSM.

Table: HIV Prevalence in three variants of MSM in Myanmar

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>&lt;25 yrs.</td>
<td>138/1799 9.4%</td>
<td>194/1683 11.7%</td>
<td>2.4 1.4 - 4.0</td>
</tr>
<tr>
<td>≥25 yrs.</td>
<td>258/1162 19.8%</td>
<td>258/1625 19.9%</td>
<td>1.0 0.7 - 1.3</td>
</tr>
</tbody>
</table>

TUPEC178 Why local terms are important: Different behavior and risk profiles of common local variants of men who have sex with men in Myanmar

S.T. Thein, Y.K. Aung, K. Gustafsson
Population Services International/Myanmar, Yangon, Myanmar

Background: Worldwide, men who have sex with men (MSM) are one of the priority populations for HIV prevention and care interventions. In Myanmar, there are several local terms for variants of MSM. The most well-known version comprises three variants, named “Apwint”, “Apone”, and “Tha-Nge”. This assessment explored the behavior and HIV-risk among these three variants.

Methods: This assessment was conducted among MSM in Myitkyina, a township in Northern Myanmar, in December 2016. Respondent-driven sampling, a coupon-based chain referral method, was used to recruit hard-to-reach MSM for HIV risk behavior and service utilization assessment. A total of 175 MSM were interviewed, including 50 Apwint, 42 Apone, and 83 Tha-Nge. RDS Analyst 0.57 was used for the analysis.

Results: The profiles were distinctly different among the three variants of MSM. Apwint dressed like women (88%), and identified themselves as women (92%), whereas Tha-Nge dressed like men (100%) and identified themselves as men (98%). Apone mostly dressed like men (80%) yet 43% identified themselves as women. Average number of sexual partners within last 12 months varied from 7 (Apwint), 3 (Apone), to 1.5 (Tha-Nge). Usual sexual position was receptive for 98% of Apwint, and 63.9% of Apone, but insertive for 94% of Tha-Nge. Consistent condom use was reported among only 30.2% (Apwint), 38.7% (Apone), and 47.3% (Tha-Nge). Exposure to services was highest among Apwint (93.7%), moderate among Apone (62.4%), and lowest among Tha-Nge (51.1%). Recalls on HIV testing within past 12 months followed same pattern: 91.8% (Apwint), 74.0% (Apone), and 69.7% (Tha-Nge). Reported HIV positive rates were also highest among Apwint (30.3%), followed by Apone (15.6%), and Tha-Nge (10.9%).

Conclusions: This assessment showed distinctly different behavior and risk profiles among the three local variants of MSM in Myanmar. The findings highlighted the importance of local terminology in differentiating the high-risk subgroups among HIV priority populations, and potential need for novel targeting strategies and interventions.

TUPEC179 Innovative strategies through peer segmentation to reach men who have sex with men (MSM) in Ghana

S.E. Okyei
Maritime Life Precious Foundation, Programs, Takoradi, Ghana

Background: Ghana faces challenges in identifying HIV positive persons among Men who have Sex with Men (MSM). There are different segments of MSM who engage in risky sexual behaviors but are often not reached by HIV programs. Reaching different typologies of MSM require using innovative approaches through segmentation to identify high risk and neglected MSM who are HIV positive.

Description: Multiple innovative strategies through MSM segmentation were introduced in 4 districts in May 2017. Peer educators were trained to segment their peers into different networks based on their risk behaviors and link them for targeted testing services. These subgroups include MSM PLHIV and their sexual partners, MSM sex workers, bisexuals, ‘high class’ MSM (e.g. Lawyers, politicians, etc) and MSM drug users. Peer Educators and Nurses used peer-driven, innovative and cross-cutting community initiatives such as sexual network testing (SNT), PLHIV partner testing (PPT) and door to door testing approaches to reach different high-risk MSM positives in different networks.

SNT used the sexual network of high risk MSM to link their sex partners within the last six months for HIV Testing Services (HTS).

PPT targeted MSM PLHIV who had been initiated on ART to introduce their recent MSM partners to a targeted HTS outreach session.

Door-to-Door testing: Nurses visited the rooms or any convenient place of hard-to-reach MSM and provided testing.

Lessons learned: HIV positive yield among MSM increased across the 4 districts after the introduction of innovative strategies through effective segmentation of MSM. Between January and April 2017, 228 MSM were tested; 7 MSM (HIV+ yield of 3.0%) were diagnosed positive across the 4 districts. After the introduction of the interventions of MSM segmentation between May and August 2017, 241 MSM were tested and 38 were diagnosed HIV positive (15.8%) yield across the 4 districts.

Conclusions/Next steps: Innovative and targeted approaches to HTS through effective segmentation of MSM is an effective and efficient way of reaching out to closed MSM and should be extended to other districts in the country.

TUPEC180 HIV treatment and prevention needs assessment: Comparison between younger and older men who have sex with men in Nigeria

H.O. Ramsdahni1, N. Sam-Agudu1,2, U. Ononaku1,2, W. Anom1, C. Gaydos4, N. Ndemb1, B. Barah1, S. Adeba12, T.A. Crowell12, M. Charurat1
1Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, 2University of Maryland School of Medicine, Department of Pediatrics, Baltimore, United States, 3Institute of Human Virology, Abuja, Nigeria, 4Johns Hopkins Medical Institute, Baltimore, United States, 5Johns Hopkins Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, 6Population Council, Abuja, Nigeria, 7U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, 8Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States

Background: Men who have sex with men (MSM) frequently experience depression, behaviorally related stigma and discrimination but are often unable to access supportive services to manage these challenges. These challenges disproportionally impact young MSM and may influence HIV prevention and treatment needs as well as health-seeking behavior. Here we compare health-seeking behavior. HIV prevention practices and HIV care continuum outcomes among younger and older MSM in Nigeria.

Methods: The TRUST/RV/68 cohort employed respondent-driven-sampling (RDS) to recruit MSM into HIV/STI prevention and treatment services in Abuja and Lagos, Nigeria. Participants completed standardized questionnaire that captured information including health-seeking behavior, exposure to HIV prevention education and participation in HIV prevention meetings in the previous 12 months. Participants were tested for HIV and, if positive, offered antiretroviral therapy (ART) with HIV RNA monitoring every 3 (Abuja) or 6 (Lagos) months. Participants were categorized into age groups, (19, 20-24, and ≥25) years. Logistic regression models were used for age comparison and exposure to HIV education, HIV prevention meetings and health seeking behavior and chi-square test for HIV care continuum outcomes.

Results: Between March 2013 and December 2017, total of 2090 MSM were recruited and 1227 (58.7%) were younger than 25 years. Overall, decreased odds of accessing HIV education was associated with younger age, < 19 vs. ≥ 25 years, (Odds ratio, OR =0.5, 95% CI, 0.4 - 0.6) and 20 - 24 vs. ≥ 25 years, (OR =0.7, 95% CI, 0.6 - 0.8). Among the HIV negative, younger MSM < 19 vs. ≥ 25 years, (OR =2.6, 95% CI, 1.5 - 4.2) have higher odds of reporting avoiding seeking health care and decreased odds of participating in HIV prevention meetings (OR =0.6, 95% CI, 0.4 - 1.0).
Furthermore, among participants unaware of HIV status at enrollment, HIV testing and ART initiation was significantly lower for younger MSM compared to older MSM. 

**Conclusions:** Our finding underscores that younger MSM lag behind older MSM in many aspects of HIV treatment and prevention. Interventions to improve HIV prevention and treatment specific to young MSM such as treatment support are essential in order to improve health and prevent new infections.

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**TUPEC181**

**Quality of life and associated factors among men who have sex with men in a metropolis in Brazil**

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**Background:** The HIV epidemic in Brazil has been rising mainly within younger men who have sex with men (MSM). The prevalence of HIV in this population is 19.8%, yet studies regarding this risk group are still lacking. We aimed to assess the quality of life (QoL) and its influencing factors within MSM.

**Methods:** We conducted a baseline evaluation of a cohort of 426 patients from three referral centers in HIV care in Belo Horizonte, Brazil. We obtained sociodemographic, clinical, and behavioral data through face-to-face interviews using the WHOQOL-HIV-bref instrument to assess QoL. Factors associated with overall HRQoL were evaluated using multilevel linear regression.

**Results:** The majority of eligible patients (92.6%) participated in the survey. Respondents were 82.6% male with a mean age of 34.9±10.9 years. The main risk/exposure group for HIV infection was MSM (51.7%), followed by heterosexual women (27.7%). Compared to other risk groups, a higher proportion of MSM was younger (70.1%) aged below 33 y.o., not married (93.4%), belonged to upper/upper middle class (46.7%), were employed (71.1%) and had 13+ years of education (20.8%). Only 26% received sexual health education from reliable sources (educational or healthcare systems). The majority (61%) reported having multiple partners in the past 3 months and 45% reported inconsistent condom-use with casual partners. Condom-use behavior was associated (p < 0.001) with source of sexual health education (adj.OR: 1.67) and level of education (adj.OR: 2.12). Recreational drug use was associated (p < 0.001) with smoking (adj.OR: 4.29), having multiple partners (adj.OR: 4.14), and being a university student (adj.OR: 2.08).

**Conclusions:** This study is the first in Lebanon and MENA region to include a large sample of MSM to assess STI status, substance-use behavior and other risky behaviors. The results reflect an urgent need for: 1) accurate sexual health and harm reduction education, including awareness campaigns, that are accessible to everyone and especially key populations; 2) introducing PrEP to the MSM community in order to contain the HIV epidemic; 3) relevant governmental policies to advocate for acceptance and protection of sexual diversity.

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**TUPEC182**

**Prevalence of HIV and other sexually transmitted infections and their association with sexual behavior and substance use among 1351 MSM in Lebanon**

A. Aal1, S. Abu Zakir, N. Kinger, D. Abou Abbas, J. Naouss, A. Ghannem1, R. Aaraj1, R. Maher2, Z. Bakouny1, G. Azzi2, R. Tomb3

1Faculty of Medicine, University of Saint-Joseph, Beirut, Lebanon, 2Marsa Sexual Health Center, Beirut, Lebanon, 3Mansa International AIDS conference

**Background:** Men who sex with men (MSM) in Lebanon are subject to stigma and criminalization (Jimenez 2013) and do not have access to basic sexual health services including PrEP. Substance-use behaviors among youth in Lebanon are becoming prevalent (Ghandour 2014) and studies in other countries attest to associations between substance-use and sexual risky behaviors among MSM (Zeltner 2019). No data exists in Lebanon and the MENA region that evaluates rates of sexually transmitted infections (STIs) along with sexual practices and substance-use among MSM. The aim was to assess rate of HIV and other STIs and common risky practices, including substance-use behaviors, among MSM in Lebanon.

**Methods:** An anonymous questionnaire was administered by trained sexual health educators to 1351 MSM who presented consecutively to a sexual health clinic in Lebanon between 2015 and 2017. Collected sexual health indicators were: demographics, substance-use, sexual practices and risky exposures. STI status was collected through rapid testing and/or medical consultation. Determinants of condom-use and substance-use behaviors were assessed using regression models.

**Results:** Rates of STIs were: HIV - 5.4%, Syphilis - 2.7%, HBV - 0.2%, HCV - 0.7%. Symptoms indicative of HPV - 44.5% and Gonorrhea / Chlamydia - 20.8%. Only 26% received sexual health education from reliable sources (educational or healthcare systems). Recreational drug use behavior was reported by 31%. Rates of other substances were collected in Figure 1. The majority (81.1%) reported having multiple partners in the past 3 months and 45% reported inconsistent condom-use with casual partners. Condom-use behavior was associated (p < 0.001) with source of sexual health education (adj.OR: 1.67) and level of education (adj.OR: 2.12). Recreational drug use was associated (p < 0.001) with smoking (adj.OR: 2.49), having multiple partners (adj.OR: 4.14), and being a university student (adj.OR: 2.08).

**Conclusions:** This study is the first in Lebanon and MENA region to estimate the prevalence of HIV and other sexually transmitted infections and their association with sexual behavior and substance use among 1351 MSM in Lebanon.
**TUPEC183**

**Human immunodeficiency virus (HIV) and the association of male circumcision with HIV, and history of Viral and non-viral sexually transmitted infections in Rwandan men who have sex with men**

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1Rutgers Military Hospital, Kigali, Rwanda; 2COTREC REGIONAL LTD, Kigali, Rwanda; 3Albert Einstein College of Medicine, Epidemiology and Population Health, Bronx, United States; 4Albert Einstein College of Medicine, General Internal Medicine, Bronx, United States; 5New York Medical College, Valhalla, United States; 6University of Rwanda, Kigali, Rwanda; 7University of California, San Francisco, United States

**Background:** Male circumcision (MC) protects against HIV acquisition and other sexually transmitted infections (STIs) in heterosexual men. However, results from numerous studies of MC on risk for STI in HIV-infected men who have sex with men (MSM) remain inconclusive. There are few studies MSM in Africa and Rwanda. We therefore examined the associations of male circumcision with HIV infection, and self-reported history of viral and non-viral STIs in Rwandan MSM.

**Methods:** 322 self-identified MSM in Kigali, Rwanda completed a 45-minute questionnaire, including prior history of STI, using audio-computer-assisted survey interview (ACASI). Respondents were tested for HIV. Data were analyzed using SAS. Alpha ≤ 0.05 was considered to be statistically significant.

**Results:** Participants were 90 % aged 18-36 years, 90.7 % were single, 59% had low income (< $25/month) and most were circumcised (72%). HIV prevalence was 13.6% in the study population and 5.8% when we excluded 27 participants deliberately recruited with HIV infection. Fewer HIV-positive MSM were circumcised (43% vs.76%) and were less likely to report viral STIs (29.5% vs. 11.9%) and non-viral STIs (45% vs. 19%) than HIV-uninfected MSM. In multivariate stepwise logistic regression, MC was inversely associated with HIV infection (adjusted OR 0.30; 95% CI=0.5-1.9), marital status and sex with a man ≥10 years younger were associated with increased likelihood of having HIV infection. MC (aOR 0.25; 95% CI=0.1-0.9) and being aged ≥ 24 years were respectively as associated with increased likelihood of having HIV infection. MC (aOR 0.25; 95% CI=0.1-0.9) was associated with lower risk of viral STIs whereas a previous report of sex with a man at least 10 years older (aOR 2.8; 95%CI 1.2-5.7) was associated with higher risk of viral STIs. Male circumcision (aOR 0.99; 95%CI 0.5-1.9) marital status and sex with a man ≥10 years older were not associated with non-viral STIs.

**Conclusions:** We found a higher HIV prevalence (6.7%) in Rwandan MSM than in general population of men ≥18 living in Kigali, and that MC was associated with significantly reduced risk of HIV and other viral STIs, but not of non-viral STIs.

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**TUPEC184**

**HSV-2 and HSV-1/2 coinfection are associated with HIV among young sexual minority men: Findings from the P18 cohort**

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1New York University College of Global Public Health, Department of Epidemiology, New York, United States; 2New York University Rory Meyers College of Nursing, Center for Drug Use and HIV Research, New York, United States; 3New York University College of Global Public Health, Center for Health, Identity, Behavior, and Prevention Studies, New York, United States; 4New York University School of Medicine, New York, United States; 5Bellevue Hospital, Adult Primary Care Center, New York, United States; 6Rutgers University School of Public Health, New Brunswick and Newark, United States; 7Rutgers University RWJ School of Medicine, New Brunswick, United States

**Background:** There is a strong and consistent relationship between HIV and herpes simplex virus (HSV)-2. Disparities in HIV may be attributable, in part, to HSV-2. Less understood, however, is the relationship between HSV-1 and HIV, which is of interest given the higher prevalence of HSV-1 vs. HSV-2 as well as virological and pathological similarities between HSV-1 and HSV-2.

**Methods:** P18 is an ongoing prospective cohort study of young sexual minority men (YMSM) in New York City. At each semi-annual visit, men complete risk assessment surveys and undergo HIV testing. Beginning in October 2015, serologic testing for HSV-1 and HSV-2 was conducted among all YMSM.

**Results:** The mean age of the sample is 23.7 years (range 22-25). Most were male- (91.2%) and gay-identified (83.8%); 33.3% were Hispanic/Latino, 29.8% were black, 26.2% were white. 10.7% were Asian or another race. HIV prevalence was 7.9%. Prevalence of any HSV was 68%; 48.4% had HSV-1 only, 70.9% had HSV-2 only, and 11.8% were co-infected with HSV-1 and HSV-2. Of the 38 HIV+ men, 97.4% were co-infected with at least one HSV-type; 29.0% had HSV-1 only, 21.1% had HSV-2 only, and 44.7% were co-infected with HSV-1 and HSV-2. Blacks were significantly more likely to have HSV-1 and HSV-2 as compared to Whites. Only 5.8% of those testing positive for HSV-1 or -2 reported painful sores on their penis or genitals. Almost 68% had been ever tested for herpes. 57.0% of those with HSV-1 and 63.2% of those with HSV-2 had never been tested. In a multivariate logistic regression model, HSV-2 and HSV/2 coinfection were associated with increased odds for HSV after controlling for ethnicity (HSV-2: aOR 15.6; 95% CI 3.1- 78.2 and HSV-2/2 aOR 26.2; 95% CI 5.7-120.4) as compared to no HSV.

**Conclusions:** These cross-sectional data suggest that HSV-2 and HSV-1/2 coinfection are associated with HIV infection; HSV-1/2 coinfection demonstrates a larger AOR than HSV-2 alone. Moreover, there are racial disparities in HSV-1 and HSV-2 prevalence. HIV may lead to HIV especially since it often goes undiagnosed and can be asymptomatic. Prospective studies are needed to determine whether both HSV-1 and HSV-2 increase risk for HIV acquisition.
TUPEC186
What is happening to condom use? A longitudinal sexual event-level analysis of anal intercourse by partner HIV status concordance among men who have sex with men in Vancouver, Canada

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Momentum Health Study
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Background: Condoms are a mainstay of HIV prevention among men who have sex with men (MSM). Promotion of Treatment as Prevention in British Columbia has been followed by the campaign “Undetectable = Untransmissible” (U=U). We evaluated trends in condom-use during anal intercourse among HIV-positive and HIV-negative MSM disaggregated by partner HIV status concordance in Vancouver, Canada.

Methods: Prospective data were collected from 09/2014-02/2017 from sexually-active Vancouver MSM, recruited using respondent-driven sampling (RDS). Participants completed assessments every six months, providing event-level data on their last sexual encounter with their five most recent partners. We used four-level mixed effects models (RDS recruitment chain; participant; visit; event) to evaluate temporal trends (6-month calendar periods) among four outcomes: condomless receptive anal intercourse (RAI), condom-protected RAI, condomless insertive anal intercourse (IAI), and condom-protected IAI. Analyses were conducted overall and stratified by participant self-reported HIV status for different partner HIV status concordances: seroconcordant, serodiscordant, and unknown status. Odds ratio (OR) and 95% confidence intervals (95%CI) are shown.

Results: 481 participants completed 1930 visits reporting on 3786 sexual events (80%) from self-reported HIV-positive MSM. Of note, HIV-negative MSM reported PEPU in only 3.0% of events. There were no significant trends in condomless RAI overall (mean:26.3%), by partner concordance (all: P>0.05). There was an overall decrease in seroconcordant condom-protected RAI (20% to 14.7%; OR=0.87, 95%CI:0.77-0.99) driven by a significant decrease among HIV-negative MSM (24.0% to 18.3%; OR=0.88, 95%CI:0.77-0.99). There were significant increases in condomless IAI with seroconcordant (29.6% to 34.6%; OR=1.10, 95%CI:1.00-1.22) and unknown status partners (9.2% to 20.3%; OR=2.12, 95%CI:1.02-4.34). There was a decrease in seroconcordant condom-protected IAI among HIV-positive participants (3.3% to 0.0%, OR=0.07, 95%CI:0.37-0.08).

Conclusions: No significant trends in condom-use during serodiscordant anal intercourse highlights no risk compensation based upon Treatment as Prevention or U-U principles. Further, levels of condomless RAI were stable. However, condom-protected sex decreased between seroconcordant partners, perhaps indirectly reflecting reduced perceived HIV risk, increased confidence of assumed HIV concordance, or both; this has important implications for STI transmission. Finally, increases in condomless IAI with unknown status partners may reflect shifting expectations of HIV status disclosure and perceived risk.

TUPEC187

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Background: From 2011-2015, HIV diagnoses in the United States (U.S.) decreased among most groups, but increased 14% among Latino men who have sex with men (MSM). To help understand these trends and guide HIV prevention strategies, the study’s objective was to compare longitudinally country of birth and age among newly diagnosed Latino MSM in Florida.

Methods: We used records from Latinos who met Centers for Disease Control and Prevention HIV case definition over a 10-year period (2006-2015) and were reported to the Florida Department of Health HIV/AIDS surveillance system. The following birth countries/regions categories were examined: Central America, Cuba, Mexico, Puerto Rico, South America, U.S.-mainland, and other. The following age categories were examined: 0-12, 13-24, 25-49, ≥50. SAS 9.4 was used to compare trends in country of birth and age by year using a two-sided Cochran-Armitage Trend Test.

Results: Of 12,082 new diagnoses among Latinos, 7,654 (63.3%) were among MSM. The proportion of diagnoses attributable to MSM increased from 52.1% in 2006 to 78.3% in 2015 (p-value < .0001). Additionally, compared to the decreasing trend in the proportion of new MSM diagnoses born in U.S.-mainland (31.8% to 27.1%), the proportion born in Cuba (20.1% to 30.2%) and South America (13.6% to 16.6%; p-value .005) increased significantly. The proportion born in Central America decreased at a significantly faster rate than the proportion born in U.S.-mainland (9.5% to 3.7%; p-value < .0001). Further, the increasing proportion of MSM aged 13-24 (12.0% to 23.8%; p-value < .0001) and ≥50 (8.2% to 11.2%; p-value 0.012) was significantly different than the decreasing trend of MSM aged 25-49 (79.8% to 65.0%).

Conclusions: Over the past 10 years, the Latino MSM population newly diagnosed with HIV has changed significantly with respect to both birth country and age. In Florida, the state with the 2nd highest HIV rate in the U.S. excluding District of Columbia, HIV prevention strategies should consider targeting Cuban and South American immigrants and young and older Latinos to address the increasing trend in HIV diagnoses among Latino MSM. Similar analyses may be performed across U.S. states to inform national strategies.

TUPEC188
Prevalence and correlates of group sex participation alongside other risky sexual practices among men who have sex with men in Malawi

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Background: HIV prevalence among Malawian adult men is estimated at 6.4% compared to 18.2% among men who have sex with men (MSM). Little is known about prevalence of group sex events (GSEs) participation among Malawian MSM. We assessed GSEs participation alongside other risky sexual practices and characterized these experiences to inform HIV and other STIs prevention among MSM.

Methods: Between May and November 2016, we recruited MSM through Respondent Driven Sampling (RDS) in a cross-sectional study done in Lilongwe. We enquired from MSM about participation in group sex and other sexual practices that increase HIV and other STIs acquisition and transmission.

Table 1: Factors associated with HIV acquisition among young men who have sex with men
Results: Of 455 responders, 94 (21% RDS weighted) participated in GSEs in the prior year. Almost half (48%) of GSE attendees had single marital status with a woman, 30% were bisexuals. Almost 23% reported either condomless anal sex (CAS) or non-lubricant use with at least one of their partners (insertive: 37%; receptive: 28% and both 36%). In bivariate analysis, single MSM were less likely to participate in group sex (Odds Ratio (OR) 0.23 CI: 0.11 - 0.48) compared to those married to a female. Participants were 2.4 times likely to participate in GSEs under alcohol influence (OR 2.4 (CI: 1.04 - 5.7)). In multivariable regression analysis, MSM aged 30-35 were almost three and half times likely to participate in GSEs (Adjusted Odds Ratio (AOR) 3.4, CI: 1.10 - 11.1) compared to 18 - 24 age group. Men participating in GSEs were almost four times to have felt STI symptoms past 12 months (OR 3.9, CI: 1.6 - 10.3); had low risk HIV perception (OR 0.34 CI: 0.14 - 0.86) compared to non GSE attendees.

Conclusions: We established prevalence of group sex participation alongside other sexual behaviours such as bisexual interactions, CAS, non-lubricant use and GSEs participation under alcohol influence. These sexual practices coupled with low perception towards HIV, pose significant risk for HIV, STIs acquisition and transmission within the group sex setting. Our findings demonstrate the importance of focusing on risky sexual practices coupled with low perception towards HIV, pose significant risk among Malawian MSM.

TUPEC189
HIV prevalence and incidence among men who have sex with men attending community-based HIV testing and counseling clinics in metropolitan Manila, 2012-2017

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Background: Little is known about HIV prevalence and incidence among men who have sex with men (MSM) in the Philippines. This information is essential to understand the HIV epidemic and to inform and implement targeted behavioral and biomedical interventions in this population.

Methods: LoveYourself Foundation (LYS) operates 2 community-based clinics providing HIV/STI testing, counseling and treatment services for MSM and transgender in metropolitan Manila, the Philippines. Testing is provided free-of-charge. Blood specimens are collected by phlebotomy and evaluated for the presence of HIV infection using 3rd Gen EIA and confirmed with positive re-test. Men testing HIV infected are referred instantly for publicly funded antiretroviral treatment available at the clinic. Condoms, lubricants and risk behavior counseling are provided at every visit. Here we report the HIV prevalence among first-time testers and HIV incidence among those returning for retesting (testing HIV uninfected previously) from 2012 to 2017.

Results: LYS clinics experienced a strong increase in new HIV testers, from 1,379 in 2012 to 11,290 in 2017. Overall HIV prevalence during this period was 15.7%, highest in 2012: 23.6% and lowest in 2013: 13.2% (table). HIV prevalence during the observation period inclined with age: from 8.7% in 15-21-year olds, 14.4% in those 22-25 years to 18.6% in men 26 years and older. While the number of HIV seroconversions among re-testers increased from one in 2012 to 246 in 2017. HIV incidence density in the recent population remained approximately the same, ~4.0 per 100-person years (PY) (discounting 2012 due to small numbers) (table). HIV incidence density was inversely associated with age: 5.8 in 15-21-year olds, 4.8 in those 22-25, and 3.8 per 100 PY in those of 26 years and older.

Conclusions: HIV prevalence and incidence are high among MSM attending HIV testing and counseling services in community-based clinics in Metropolitan Manila, the Philippines. HIV incidence was highest among the youngest MSM. Increased behavioral and biomedical interventions, including HIV pre-exposure prophylaxis, in MSM are urgently necessary.
TUPEC191
Bisexuality among men who have sex with men and transgender women in sub-Saharan Africa: Findings from the HPTN 75 study

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Background: Studies in sub-Saharan Africa (SSA) among men who have sex with men and transgender women (MSM&TW) have primarily focused on the epidemiology of HIV infection. However, little is known about important behavioral variations within this population, despite the critical role it plays in the ongoing general epidemic. We set out to identify personal, interpersonal and contextual characteristics of MSM&TW in SSA, who engage in sex with both men and women versus those who only have sex with men.

Methods: Four sites (Kisumu, Kenya; Blantyre, Malawi; Cape Town and Soweto, South Africa) enrolled a total of 401 adult MSM&TW. Psychosocial and behavioral data were collected using a structured questionnaire. Participants who had sex with both men and women (PSMW) were compared with those who only had sex with men (PSMO). For this analysis, data from the enrollment visit were available for 387 participants. For all reported differences: P<0.05.

Results: Overall, 21.7% (84/387) of the MSM&TW reported having had sex with both men and women in the preceding three months. PSMW were more likely to be married (17.9% vs. 4.0 %) have children (46.4% versus 15.5%), identify as bisexual (64.3% versus 30.0%), and less likely to identify as female or transgender (9.6% versus 23.3%). Compared to PSMO, PSMW were on average older (26.0 versus 23.8 years) and more likely to be from Blantyre (43.3%) and less likely from Cape Town and Soweto (7.5% and 7.1%). PSMO had on average more lifetime sexual partners but few sexual partners in the previous three months than PSMW

Conclusions: Our findings demonstrate that there is a substantial proportion of sub-Saharan African MSM&TW who recently have engaged in sex with both men and women. We also found significant differences in sexual behavior and risk factors that may place these populations at risk for HIV infection. In-depth understanding of their practices presents an opportunity for developing targeted public health interventions.

TUPEC192
Transactional sex among men who have sex with men participating in the Coh MSM prospective cohort study in West Africa

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Background: Men who have sex with men (MSM) are at much greater risk of HIV infection, especially in sub-Saharan Africa, where little is known about their involvement in transactional sex (TS). We aimed to characterize MSM reporting TS (MSM-TS) and to identify factors associated with TS in that population in West Africa.

Methods: We used data from the prospective cohort study Coh MSM conducted in Burkina Faso, Côte d’Ivoire. Mali and Togo. We focused on MSM recruited between 06/2015 and 06/2017 by a team of trained peer educators. Participants completed scheduled study visits at 6 months and 12 months, which included a medical examination, HIV screening, counseling and a face-to-face interview. At each visit, participants provided information on their sociodemographic and economic characteristics, sexual behaviours, HIV risk-reduction strategies, alcohol and drug use, and on stigmatization. Three stigmatization sub-scores (experienced, perceived, internalized) were constructed according to the algorithm of Ha and al. 2013. A mixed-effects logistic regression was used for data analysis.

Results: Of the 608 participants recruited at baseline, 528 and 447, respectively, had a follow-up visit at 6 and 12 months. During a total of 1583 study visits, 413 TS events were reported, with 36.8% of participants reporting no TS, 12.5% regular TS and 50.7% occasional TS. MSM-TS were younger, 69.7% of MSM-TS had an educational level < high-school diploma and 83.6% were unmarried. The following factors were associated with a greater likelihood of TS: unstable housing (aOR95%CI1.9501.2-3.3) searching for male sexual partners on the internet during the previous month (aOR95%CI1.9511.1-1.8), group sex with men (aOR95%CI1.9521.7-1.8), and reporting for the previous 6 months - multiple male sexual partners (aOR95%CI1.9511.0-3.0), unprotected receptive anal sex (aOR95%CI1.9510.1-1.8), alcohol consumption (aOR95%CI1.9511.4-2.1) drug use (aOR95%CI1.0291.4-3.0), and sexual violence by male partners (aOR95%CI1.9521.2-3.3), after adjusting for country of study, younger age, an educational level < high-school diploma, satisfaction with current sex life and experiencing stigmatization.

Conclusions: A large proportion of MSM in the Coh MSM study who engaged in TS had high-risk HIV-infection exposure practices and were characterized by socioeconomic difficulties. Existing targeted prevention interventions should be strengthened to improve HIV prevention efforts in this subpopulation.
TUPEC193
Factors associated with discrimination based on sexual orientation among MSM in 12 Brazilian cities

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Background: Discrimination based on sexual orientation (DBSO) may influence vulnerability to HIV through increased exposure to risky sexual behaviors and poor health seeking. We aim to estimate factors associated with high levels of DBSO among men who have sex with men (MSM) in Brazil.

Methods: We conducted a cross-sectional survey using respondent-driven sampling in 12 Brazilian cities in 2016 among 4,176 MSM. Latent Class Analysis (LCA) was used to characterize DBSO among MSM based on 12 variables in the survey and to link levels of DBSO to risky sex practices. For each city individuals were weighted using RDSAnalyst; combined city data was weighted using each city as a stratum. Logistic regression was used to measure factors associated with high DBSO. Odds ratios (OR) with 95% CI were estimated.

Results: Most MSM were younger than 25 years old (58.3%), single (85.3%), with 12+ years of education (70.4%), and self-identified as black (62.8%). DBSO was classified into three LCA classes: class 1 (n=2081) denominated “high DBSO” were MSM reporting high proportions (above 70%) for all of the 12 variables; class 2 (n=1,141) “average DBSO” and class 3 (n=1,552) “low DBSO” was applied to MSM reporting lower proportions for all 12 variables. There was a positive association between sexual violence (OR: 3.16, 95% CI: 1.36-7.34), physical violence (OR: 7.42, 95% CI: 2.44-24.40), media disapproval of sexual orientation (OR: 3.38, 95% CI: 1.11-10.24), suicidal ideation (OR: 4.41, 95% CI: 1.93-10.04). binge drinking (OR: 6.65, 95% CI: 1.35-32.62), and unprotected anal sex with stable partners (OR: 3.54, 95% CI: 1.42-8.82) among those with “high DBSO”, as compared to “low DBSO”. Reporting a religious affiliation (OR: 0.37, 95% CI: 0.14-0.97) was negatively associated with “high DBSO” as compared to “low DBSO”.

Conclusions: Several aspects of Brazilian male gender identity may contribute to the high levels of DBSO reported by MSM in Brazil, including “machismo”, misogyny, and patriarchy. These characteristics can increase exposure of MSM to violence, alcohol consumption, suicidal ideas, stigma, and discrimination, all known risk factors for HIV infection. Anti-discrimination and gender diversity policies are urgently needed to address DBSO routinely faced by MSM.

TUPEC194
Recent decreases in unsuppressed viral load among HIV-positive men who have sex with men in Vancouver, Canada from 2012-2017

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3University of Victoria, Victoria, Canada,
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6University of Victoria, Victoria, Canada,
7Momentum Health Study Community Advisory Board, Vancouver, Canada

Background: The majority of people diagnosed with HIV in Canada are men who have sex with men (MSM). Since 2010, British Columbia has implemented Treatment as Prevention (TasP) as policy. We examined trends in virologic suppression and determinants of significant viremia among a cohort of HIV-positive MSM in Vancouver over a five-year period.

Methods: Using respondent-driven sampling, male-identified participants 18+ years old living in Metro Vancouver and reporting sex with another man in the past 6 months were recruited into the Momentum Health Study between 02/2012-02/2017. Study visits occurred every 6 months, up to 22/2017, and included a computer-assisted self-interview and clinical CD4 and viral load (VL) testing. We also linked participant data with the BC HIV Drug Treatment Program to obtain drug dispensing and VL data. We conducted a trend analysis of VL suppression using univariable generalized estimating equation (GEE) multiple-level modeling (RDS chain: participant; visit) with calendar time as the independent variable. Unvariable and multivariable GEE identified factors associated with episodes of VL ≥200 copies/mL.

Results: Of 774 participants, 223 were HIV-positive at baseline and 11 were diagnosed during follow-up; 2 had incomplete data and were excluded from this analysis (n=232). We observed a significant trend towards reduced levels of unsuppressed VL ≥200 copies/mL from 22% of individuals (107/2012-12/2012) to 12% (107/2015-12/2016) (OR: 0.87, 95%CI:0.63-0.92) for each 6-month period. χ2 0.0001 for trend. 175 HIV-positive MSM had ≥1 follow-up visit (total visits=171; median followup=3.5 years). Median age was 47 years (Q1-Q3 33-52); most identified as gay (85.7%) and white (80.6%). Factors associated with episodes of VL ≥200 copies/mL included younger age, substance use (i.e., ecstasy and crystal methamphetamine), seeking sex online, and lower HIV treatment optimism. MSM who reported condomless anal sex with an HIV-negative partner were less likely to have periods of unsuppressed VL (Table 1).

Conclusions: During a period when TasP policy was actively promoted, we observed a significant trend towards reduced community VL among HIV-positive MSM in Vancouver. In order to maximize rates of VL suppression, continued efforts should promote antiretroviral therapy to younger MSM, those who seek sex online, and those who use substances.

<table>
<thead>
<tr>
<th></th>
<th>Adjusted Odds Ratio</th>
<th>95% Confidence Interval</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (period based; per year older)</td>
<td>0.97</td>
<td>0.95</td>
<td>0.999</td>
</tr>
<tr>
<td>HAART Optimum Scale (per one unit increase)</td>
<td>0.93</td>
<td>0.89</td>
<td>0.96</td>
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<tr>
<td>Ethnicity White/reference</td>
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<td></td>
<td></td>
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<tr>
<td>Asian/Latino/Other</td>
<td>0.61</td>
<td>0.30</td>
<td>1.25</td>
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<tr>
<td>Aboriginal</td>
<td>2.31</td>
<td>0.85</td>
<td>6.23</td>
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<tr>
<td>Ecstasy Use (past 6 months)</td>
<td>1.72</td>
<td>1.15</td>
<td>2.57</td>
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<tr>
<td>Crystal Methamphetamine Use (past 6 months)</td>
<td>1.81</td>
<td>1.25</td>
<td>2.61</td>
</tr>
<tr>
<td>Condomless Anal Sex with HIV-negative Partner (past 6 months)</td>
<td>0.67</td>
<td>0.46</td>
<td>0.97</td>
</tr>
<tr>
<td>Seeking Sex Online (past 6 months)</td>
<td>1.54</td>
<td>1.06</td>
<td>2.24</td>
</tr>
</tbody>
</table>

(Table 1: Multivariable factors associated with episodes of VL ≥200 copies/mL over time among HIV-positive MSM: 2012 - 2017 (n=175))

TUPEC195
Factors associated with unprotected receptive anal sex among MSM in Brazil: A national RDS study

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Background: Unprotected receptive anal intercourse (UAI) is the riskiest sexual behavior for HIV infection among men who have sex with men (MSM). The incidence of HIV among younger MSM is increasing in many countries. The aim of this study was to estimate the prevalence and factors associated with UAI among MSM in Brazil, stratified by age.
Epidemiology of HIV in infants, children and adolescents

TUPEC196

Virologic outcomes of perinatally infected adolescents in the period of early adolescence in South Africa (10-15 years)

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Background: HIV infected adolescents are at higher risk of poor treatment outcomes compared to adults or children both due to their developmental stage and because the transition from paediatric to adult/adolescent care can be very challenging with impacts on adherence and retention. We sought to describe the virologic outcomes of adolescents that started antiretroviral therapy (ART) before the age of 10 years.

Methods: We included all adolescents aged 10-15 years who initiated ART before age 10 years (as a proxy for being perinatally infected) from 2004-2015 in 9 iDeA-SA collaborative cohorts, and had at least 1 viral load (VL) measurement after the age of 10 years. We defined virologic non-suppression as any viral load ≥400 copies/ml. Mixed effects logistic regression models were used to explore the association between current age and viral non-suppression adjusting for patient characteristics and time on ART as potential confounders.

Results: The median age at ART start among 4,872 adolescent children (49% female) who started ART before the age of 10 years was 7.2 years (Interquartile range (IQR): 6.0, 8.4). At age 10 years, 25% of these adolescents had VL ≥400 copies/ml. The overall probability of virologic non-suppression by age 15 years was 18% (95% Confidence Interval [CI]: 16%, 21%). The probability of non-suppression increased with increasing age on treatment (Adjusted Odds Ratio [aOR]: 1.14 per year increase in age; 95% CI: 1.12, 1.19) and was higher in those who started ART in more recent years compared to reference period of 2004-2007: aOR: 1.90 (95% CI: 1.32, 2.73; for years 2008-2010; and aOR 2.03; CI: 1.50, 2.71 for years 2011-2016).

Conclusions: As perinatally infected children progress into adolescence, the likelihood of poor virologic outcomes increases with age on treatment. It is a concern that children that initiated ART in the later years after 2010 are also at a higher risk of virologic failure.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Adjusted Odds Ratios (95% Confidence Intervals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate/High self-perceived risk of HIV infection:</td>
<td>1.75 (1.09-2.82)</td>
</tr>
<tr>
<td>Regular/Poor self-rated health status:</td>
<td>1.86 (1.17-2.96)</td>
</tr>
<tr>
<td>Self-reported Gay/Homosexual sexual identity:</td>
<td>2.75 (1.63-4.63)</td>
</tr>
<tr>
<td>Exchanged sex for money in the past six months:</td>
<td>1.93 (1.17-3.19)</td>
</tr>
<tr>
<td>Lifetime history of sexual violence:</td>
<td>2.07 (1.14-3.75)</td>
</tr>
<tr>
<td>Predominant age of sexual partners (5+ years younger):</td>
<td>2.39 (1.30-4.42)</td>
</tr>
<tr>
<td>Six or more sexual partners in the past six months:</td>
<td>2.72 (1.86-5.42)</td>
</tr>
<tr>
<td>First sexual intercourse was unprotected:</td>
<td>2.64 (1.18-5.52)</td>
</tr>
</tbody>
</table>

(Table 1: Multivariate analysis of URAI among MSM in Brazil (shown variables which differed by age group).)

Conclusions: MSM remain disproportionately affected by HIV in Brazil. The high proportion of URAI is of public health concern. Despite access to free condoms and lubricants, preventive efforts may not be reaching MSM effectively. Age specific and sensible intervention approaches, including stigma, discrimination, and prevention of risk must be considered.

Methods: Cross-sectional study of 4,175 MSM recruited from 12 Brazilian cities by respondent driven sampling in 2016. Participants were interviewed and the associations of behavioral, sociodemographic, and health service related variables with URAI were assessed by age groups (18-24 or 25+ years). Odds ratios with 95% confidence intervals were obtained using multiple logistic regression. For each city, odds were weighted using RDS Analyst®. Combined data was analyzed by SAS® complex survey procedure using each city as a stratum.

Results: There was a higher proportion of MSM 18-24 years old (58.3%) in the sample. Among these younger MSM, there were higher proportions of single (90.3%), white (34.8%), 12+ years of education (75.2%) and higher socioeconomic status (86.0%), as compared to those 25+ years old (75.4%, 28.2%, 63.5%, 34.3%, respectively) (p < 0.05). The prevalence of URAI was also higher among younger MSM (41.6% vs 29.7%) (p < 0.05). Multivariate analysis indicated that perception of risk, sexual identity, self-rated health status, and exchanging sex for money were associated with URAI among younger MSM only. History of sexual violence, sex with younger partners, having six or more partners and unprotected sexual debut were associated with URAI among older MSM only (Table 1). Marital status, having stable partner in the past six month, and reporting sex with men only were associated with URAI in both groups. None of the health service related variables assessed (e.g. access to STI testing, condoms, lubricants or counseling) were associated with URAI.
TUPEC197
High HIV prevalence among adolescent girls and young women participating in a community-based HIV testing services program in Western Kenya
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Background: Adolescents (15-19 years old) and young people (20-24 years old) are priority populations for HIV prevention efforts globally. Adolescent girls and young women comprise 20% of new infections worldwide and 25% of new infections in sub-Saharan Africa. In Homa Bay County, Kenya, HIV prevalence is 6.7% among youth (15-24 years old), and this age group represents 22% of persons living with HIV. We assessed HIV prevalence among youth participating in a community-based HIV testing services (HTS) program.

Methods: The FACES Hybrid HTS program, which entailed community mapping, household census, multi-disease community health campaign (CHCs) and home-based HTS, was piloted in Homa Bay County from July through September 2016. Same-day ART initiation was offered to persons newly-diagnosed at the CHCs. Demographic factors associated with HIV status were assessed using multivariable logistic regression. Multiple imputation via chained equations was used to impute missing values. Multivariable models used the imputed dataset and were adjusted for sex, age, education, marital status, sexual history and alcohol use.

Results: A total of 2,705 youth were reached, of whom 1,506 (55%) were female and 1,279 (50%) were adolescents. HIV prevalence was 5.7% overall. Of the 153 HIV-positive youth, 123 (80%) were previously-diagnosed and 30 (20%) were newly-diagnosed. HIV prevalence was 3.4% among adolescent girls, 15.3% among young women, 17% among adolescent boys and 14% among young men. Prevalence of newly-diagnosed HIV cases was 0.7% among adolescent girls, 2.5% among young women, 0.7% among adolescent boys and 0.5% among young men. HIV-positive status among youth was associated with female sex (aOR=4.38, p<0.01) and ages 20-24 years (aOR=2.42, p=0.01). Of the 25 youth who were newly-diagnosed at the CHCs, 56% initiated ART the same day as part of the campaign.

Conclusions: HIV prevalence was high among adolescent girls and young women participating in the Hybrid HTS program. These data highlight the importance of expanding the reach of HIV testing and prevention services for these priority populations. Community-based HTS may be an effective approach for reaching a broader base of adolescents and young people in order to reduce the number of new infections and improve linkage of HIV-positive youth to treatment.

TUPEC198
Timing of maternal ART and mortality risk in HIV-exposed uninfected infants: Findings from a prospective cohort of a nationally representative sample of mother-infant pairs from Zimbabwe
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Background: It is well-established that maternal antiretroviral therapy (ART) could eliminate mother-to-child HIV transmission (MTCT); however, evidence on mortality among HIV-exposed uninfected infants (HEUI) is limited. We examined mortality among HEUI overall and by maternal ART timing and explored potential causes of death (COD).

Methods: We analyzed data from a prospective cohort of a nationally representative sample of mother-infant pairs in Zimbabwe recruited from n=151 immunization clinics from February-August 2013, enrolled at 4-12 weeks age, and followed every 3 months until incident HIV-infection, death, or 18 months. We estimated cumulative mortality probability and hazard ratios (HR) with 95% confidence intervals (CI) for HEUI using Kaplan-Meir curves and Cox regression, respectively, unadjusted for complex survey design.

Results: Of 1,188 HIV-exposed infants (HEI), 71 (6.1%) contracted HIV. The remaining 1115 HEUI infants had a median enrollment age of 6.6 weeks (interquartile range [IQR] 6.0-8.9 weeks) and were 48.6% female. Overall, 54 (4.8%) HEUI infants died at a median of 5.5 months (IQR 3.6-9.8 months). The most common symptoms preceding death were diarrhea (22% [n=12]), difficulty breathing (14.8% [n=8]), not eating (3.7% [n=9]), fever (9.3% [n=5]), and cough (7.4% [n=1]). Most mothers of HEUI were on ART pre-conception (35.4%) or during pregnancy (20%); 9.6% post-delivery and 24.7% never. Due to non-significant difference, we combined ART pre-conception and during pregnancy, as ART pre-delivery. Mortality was higher among HEUI with mothers never on ART (8.7%) compared with mothers on ART pre- and post-delivery (6.6% and 3.7%, respectively). Compared to HEUI with mothers never on ART, cumulative mortality at 20-months age was lower among HEUI with mothers on ART pre-delivery (HR=0.31, 95% CI: 0.18-0.56) and with mothers on ART post-delivery (HR=0.23, 95% CI: 0.13-0.40), the difference between HEUI with mothers on ART pre- and post-delivery was non-significant (Figure).

Conclusions: The mortality risk was significantly lower among infants born to HIV-infected mothers starting ART pre-delivery, emphasizing the importance of early maternal ART initiation. Pneumonia- and gastrointestinal infection-like symptoms were commonly reported as potential COD, suggesting that besides routine early infant diagnosis efforts, targeting early HIV diagnosis and care for HEI with potential opportunistic infections could prevent early mortality in this population.

TUPEC199
Achieving the second go: Linking adolescents living with HIV to treatment in rural Malawi in the era of Test and Treat
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Background: In 2016, Malawi transitioned to “Test and Treat,” a policy where all people living with HIV (PLHIV) are treated with lifelong antiretroviral therapy (ART) regardless of clinical or immunological status.
This policy has associated concerns for linkage to ART, with particular concern for adolescents living with HIV (ALHIV, 10–19y). There are unique challenges linking ALHIV to ART due to developmental changes, increased fear of stigma and rejection, or lack of social support. We examined linkage to treatment amongst ALHIV compared to other ages in the era of test and treat in rural Malawi.

Methods: A retrospective analysis of routinely collected Baylor-Tingathe program data of ART naive patients from the Ministry of Health (MoH) ART referral registers was conducted at 14 health centers in Mangochi District from October to December 2017. Demographic data of treatment naïve patients who were registered in the ART referral register to ease linkage to treatment were assessed. Chi-square test compared the proportion of patients who linked to treatment in the adolescent age group (10–19y) compared to other ages.

Results: Overall, 846 patients (65% female) were included in the analysis, 59 (7%) of whom were ALHIV. After one month of registration in the ART referral register, 709 (84%) were initiated on ART. 104 (12%) had unknown linkage status, 32 (4%) refused ART, and 1 (< 1%) died. Compared to other age groups, ALHIV had the lowest linkage to ART (81%) (Table 1). Linkage was highest among children < 10y at 92% (55/60). ALHIV had poorer linkage compared to other ages, although not statistically significant (81% vs 84%; p = 0.59).

The probability of survival was increased once and a half times, from 65% to 95% in 144 months, due to the introduction of more powerful therapeutic regimens adopted in the country. They were associated with survival time, as an independent prognostic factor: use of HAART and TCD4+ at the time of diagnosis. The success of the Brazilian policy has had a great impact in the reduction of mortality and increasing survival of the CLWA.

TUPEC200
Survival of children living with AIDS in Brazil - Cohort BIaIDS - Brazil
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Background: The aim of this work was to analyze the "special cases" among the HIV-1 infected children younger than 18-month-old from Argentina

Methods: Retrospective cohort. Data from the Brazilian Integrated Base of AIDS Cohort (BIaIDS-BRAZIL, Cohort) was obtained from a probabilistic record linkage methodology applied to databases of the Ministry of Health: Information System of Notification Diseases (SINAN-AIDS), Control of Laboratory Tests (Siscel)/Logistic Control System of Medicines (Siicim) and Mortality Information System. Kaplan-Meier method, Cox model and estimates of the hazard ratios (HR), with 95% confidence intervals (CI=95%) were used for survival analysis. The main variable was the antiretroviral therapy (ART). To identify factors associated with the outcomes of interest, sociodemographic characteristics, clinical, therapeutic and laboratory evolution were analyzed. The values for each age range were set as altered TCD4+ count: under 1 year =1,500 cells/mm³, 1-15 years < 1,000 cells/mm³ and 16-12 years < 500 cells/mm³.

Results: During the period of 2003-2007, 2,659 CLWA were reported, with 280 deaths; predominance of MTCT in 96% of the cases. All children had detectable viral load. 80% of them >1,000 copies/mL. The probability of surviving 144 months was 95% for those who did not use ART, 100% for those with Pre-HAART (27 children) and 95% with HAART2. They were associated with AIDS death independent of other exposures: non-use of ART (HR=2.495;CI1.73-3.6); to have had TCD4+ in the normal diagnosis for age (HR=0.395;CI0.2-0.5).

Conclusions: The probability of survival was increased once and a half times, from 65% to 95% in 144 months, due to the introduction of more powerful therapeutic regimens adopted in the country. They were associated with survival time, as an independent prognostic factor: use of HAART and TCD4+ at the time of diagnosis. The success of the Brazilian policy has had a great impact in the reduction of mortality and increasing survival of the CLWA.

TUPEC201
Special cases in the diagnosis of HIV-1 perinatally infected children younger than 18-month-old from Argentina
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Background: Prompt identification of HIV infection in children is important to allow early initiation of antiretroviral therapy (ART). However, there are some “special cases”, with discordant results between their samples, making HIV-scdagnosis difficult and delaying the ART initiation. The aim of this work was to analyze the “special cases” among the HIV-1 positive children diagnosed in a five-year period in Argentina.

Methods: A total of 39 HIV-1 infected children younger than 18-month-old by vertical transmission (without breastfeeding) were diagnosed at Retrovirus Laboratory (2013-2017) from different public referral centers: Pediatric Garrahan Hospital, Buenos Aires (GH), Sarra Maternity; Buenos Aires, 22th Articulated Hospitals (ISMI) and Misiones Province (MP). HIV-1 diagnostic was carried out by PCR-DNA and/or viral load-RNA (pVL) with at least two independent positive samples from each patient, as suggested by the National-Guidelines.

Conclusions: Twenty two out of 39 children had a “late” positive diagnosis (>60 days of life), and the majority came from GH and MP. On the contrary, most of the patients (8/10) from the maternity SM were diagnosed before 60 days of life. Among the eight “special cases” identified, four had a first sample before the first month of life with negative result (Group A, Table 1), whereas the other four had pVL < 1000 copies/mL (Group B, Table 1). Surprisingly in...
the absence of antepartum or intrapartum ARV prophylaxis, one patient had negative result in the first sample at 22 days-old and the other one had < 1000 copies/mL at 28 days-old.

**TUPEC203**

HIV status awareness among mothers and their under-5 children in Malawi: Results from a population HIV survey

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**Background:** Mothers’ awareness of their own HIV status is the first step for HIV diagnosis in children. We assessed the HIV status awareness of mothers of HIV-positive under-five children in Nsanje, Malawi.

**Methods:** A cross-sectional population survey was implemented between September and December 2016. Children below five years whose mothers were HIV-positive or with an unknown HIV status were recruited. A multistage sampling was used to select 2,443 households. Informed consent was requested from parents or legal guardians. Child HIV status was assessed using a rapid HIV antibody test algorithm or Deoxyribonucleic Acid (DNA) PCR, depending on the age of the child. A standardised questionnaire was administered to the mother or legal guardian.

**Results:** Of the 1,568 under-five children listed during the survey, 236 (15.1%) were included. The median age was 24.0 months (IQR: 12-36). Overall 149/236 (63.1%) children had been tested for HIV prior to the survey. Of them, 94/149 (63.1%) had been tested previously at least 2 times and 85/149 (57.0%) were tested in the previous 12 months. However, 20/149 (13.4%) had never received the test result. Out of the 227 children tested during the survey, 17 (11.1%, 95%CI: 7.1-18.1) were HIV-positive. The mothers of 8/27 (41.2%) were not aware of the HIV status of their child and among them, 4 (60.0%) mothers were not aware of their own HIV status. The median age of the children not aware of their HIV-positivity was 2.5 months (IQR: 1-3.5). Two of the 8 children unaware of their HIV status had been previously tested for HIV, one at 4 months using DNA PCR and another at 17 months using rapid test.

**Conclusions:** In Nsanje, despite the low HIV prevalence among under-five children, a high proportion of HIV-positive children was not diagnosed and almost half of the mothers were not aware of their child’s HIV-positive status. This was partly due to undiagnosed HIV among mothers. High proportion of previously tested children who did not receive their test result is a concern. Programs should strengthen strategies for HIV testing among mothers and children.

**TUPEC202**

Mapping and population size estimates of street children in six cities with extrapolation to national level in Iran

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**Background:** Iran national HIV strategic plan 2015-2020 has included street children as one of the key population at high-risk for HIV. Knowing the population size of street children is critical for advocacy and planning for this vulnerable population. We adapted and applied four different methods, to locate and estimate the population size of street children in six major cities in Iran.

**Methods:** Our population size estimation methods included direct and indirect count of street children, wisdom of crowds and unique object multiplier in a rapid assessment and response study. From March to May 2017, by interview with 114 city-level, 223 local-level and 933 street children key informants and field observations, we located 485 public venues accommodated frequently by street children in Tehran, Mashhad, Karaj, Kermanshah, Zahedan and Bandar Abbas. After estimating the count by each method, we calculated the median and interquartile range (IQR) of the four estimates in each city. Using the total number of street children estimated for all six cities, we calculated the rate of street children per 10,000 total population and used this rate to estimate the total number of street children in Iran in 2018.

**Results:** Recruited street children were 13.8 (SD: 2.3) years old. 98% girl, 75% born in Afghanistan or had Afghan nationality, and 71.9 have never attended school. The median (IQR) size estimations ranged from 234 (IQR 181, 404) in Kermanshah to 2900 (IQR 1803, 3965) in Tehran. The median number of street children using all methods combined in all six cities was 5237 (IQR 4212, 7391). This corresponds to the rate of 16.4 (IQR 12.7, 22.5) per 10000 children aged 5-19 years old or 32 (2.5, 4.4) per 10,000 total populations. Applying the median (IQR) rate to the total population of Iran in 2018 (81,429,904 person), the total number for street children in Iran is estimated at about 25000 (IQR 20286, 35703) children.

**Conclusions:** The number of street children is considerable in Iran across many cities and venues, majority from immigrant population. Our estimations can be used to advocate and planning for services that improve health and reduce vulnerability of street children in Iran.
**TUPEC204**

TB-HIV program monitoring in PEPFAR-supported countries: Screening, prevention, and treatment results for children and adults. October 1, 2016 - September 30, 2017

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**Background:** Worldwide, an estimated 52,000 children living with HIV died from TB in 2016. Timely and accurate diagnosis and linkage to treatment or prevention for both diseases can reduce pediatric morbidity and mortality, and is an integral part of the President’s Emergency Plan for AIDS Relief (PEPFAR). We analyzed TB/HIV clinical service data for children (<15 years) and adults (>15 years) reported by PEPFAR programs and country and regional programs from October 1, 2016 - September 30, 2017.

**Methods:** We analyzed age-disaggregated program data from TB clinics on patients with a documented HIV status and antiretroviral therapy (ART) coverage, and data from ART clinics on patients routinely screened for TB, initiated on and completed TB preventive therapy (TPT). We assessed the completeness of age-disaggregated data and computed descriptive statistics with the complete data. Proxy ART coverage is comparing the number of ART patients to HIV-positive patients.

**Results:** Thirty-two PEPFAR programs reported on 11 TB/HIV clinical indicator. Fifteen programs (47%) reported complete age disaggregates for HIV status and ART status among TB clinic patients. Twelve programs (38%) reported complete age disaggregates for ART patients screened for TB and 11 programs (34%) reported complete age disaggregates for ART patients initiated on and completing TPT.

**Conclusion:** Less than 50% of PEPFAR-supported programs reported complete age-disaggregated data on ART patients screened for TB/HIV; improvement in reporting is needed to better understand programmatic challenges and opportunities among children. There is still a critical need for additional HIV testing and ART initiation among eligible TB patients. There is also need for improved TB screening, and TPT completion among ART patients.

**TUPEC205**

Efficacy of intensive adherence counselling in reversing virologic failure in adolescents on long-term ART in Uganda

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**Background:** Current WHO guidelines recommend viral load (VL) testing to monitor antiretroviral therapy (ART) efficacy, and intensive adherence counselling (IAC) for those who have elevated VL. Consequently, many patients who have been on long-term ART will be diagnosed with virologic failure after long periods of virologic suppression. We evaluated the effectiveness of IAC in reversing virologic failure among adolescents who have been on long-term ART in Uganda, a population with unique challenges to adherence.

**Methods:** We conducted an analysis of data collected at 6 sites of The AIDS Support Organization (TASO). We selected patients aged 10-18 who had been on ART for ≥4 years, had not had a previous VL test and had a measured VL ≤1000 copies/mL between January 2014 and June 2016. Data was recorded in the TASO clinical database with adherence measured by pill counts. Patients were included in the VL and adherence assessments following a total of ≥40% adherence to monthly IAC sessions for at least three months, followed by repeat VL testing. We conducted bivariate and multivariate logistic regression analyses to examine factors associated with reversal of virologic failure.

**Results:** A total of 185 adolescents (92.4% female) with a mean age of 13.7 years (SD = 2.3) met the inclusion criteria. Participants had been on ART for a mean of 4.5 years (SD = 2.7). Thirty-eight percent had VL below 1000 and 10,000 copies/mL and 62% had VLs ≥10,000 copies/mL. Overall, 41 (22%) of patients had a VL <1000 copies/mL on repeat testing. Reversal of virologic failure varied by TASO site, from 46.2% (Masindi) to 56% (Entebbe). Only 25% of patients had >95% adherence after the third IAC session. Compared to those with ≥95% adherence, adolescents with <85% adherence were less likely to reverse virologic failure (OR=1.1, 95% CI 0.27-5.41). Notably, there was no difference in reversal of virologic failure associated with the level of virologic suppression.

**Conclusion:** Only 22.2% of adolescents who had been on ART for 4 years were able to reverse virologic failure following IAC. Given that only a minority of patients achieved >95% adherence, programmatic changes may be needed to improve adolescent outcomes.
Epidemiology of HIV in other key vulnerable populations (e.g., PWID, women, TGW, sex-workers, prison populations, older groups)

TUPEC206

Forty percent reduction in HIV prevalence among randomly sampled female sex workers in Mombasa, Kenya following intensive prevention programmes

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Background: An estimated 30% of female sex workers (FSWs) in Kenya are HIV-infected compared to 7% of general-population women. In a 2012 survey in Mombasa, HIV prevalence among FSWs was 20%. Since then, multiple interventions, centering on peer educators, sex worker clinics and research programmes, have targeted FSWs in Mombasa. These have raised HIV awareness and reduced high-risk behaviours, but it is not known if these have translated into declines in HIV transmission.

Methods: We recruited 882 FSWs from 93 sex work venues in Mombasa, between September 2016 and May 2017. First stage sampling involved random proportionate to size selection of 102 sex work venues (clusters), using a sampling frame of 750 previously enumerated venues. At the second stage, 10 FSWs were consecutively selected from each venue. Eligible women were 16-34 years, not pregnant and active sex workers in the last 6 months. Prevalence estimates were weighted to account for differences in probabilities of recruitment. Multivariable logistic regression models identified correlates of HIV infection.

Results: Mean age of participants was 25.4 years. As many as 41.6% had no education or completed only primary-level. Median duration of sex work was 4 years (inter-quartile range (IQR)=2-6). The majority did not live with a partner (68%), though 57% reported having a boyfriend. Median number of clients within the past seven days was 4 (IQR=3-6). Overall, weighted HIV prevalence was 11.8% (95% confidence interval (95%CI)=9.5-14.7), and varied with age and level of education. Odds of HIV infection was 15.1 fold higher in women aged 30-34 years than those 16-20 (95%CI adjusted odds ratio=5.6-40.3). Conversely, women with tertiary education had 80% lower odds of HIV than those with no or primary education (adjusted odds ratio=0.2, 95%CI=0.9-0.71).

Conclusions: HIV prevalence among FSWs in Mombasa in 2016/2017 was 41% lower than previous estimates. It is plausible that this decline is due to the multiple, peer-led interventions in the area. While reductions are pleasing, HIV infection levels remain unacceptably high. Considering the central role FSWs play in sustaining population-level infections, continued or further strengthening of these programs is required.

TUPEC207

Intimate partner violence is a key predictor of HIV risk among Black heterosexual women in Baltimore, MD, USA

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Background: Black women are the largest group of US heterosexuals newly infected with HIV, and have the highest rates of HIV mortality. Childhood and adulthood violence were separately identified as direct and indirect risk factors for HIV. Black women disproportionately experience both types of violence. This study examines the relationship between abuse groups (no lifetime abuse, childhood abuse only, adult IPV only, experienced both childhood physical and/or sexual abuse only, 35% (n=127) experienced adult IPV only, and 62% (n=186) experienced both childhood abuse and adult IPV. Experiencing abuse significantly predicted HIV risk, F(3,703)=30.67, p<.01, with the adult IPV only category being statistically significant (B=1.56, SE B=1.33, t=4.68, p<.01) in reference to the no abuse category. Among women experiencing adult IPV only, there were significant correlations between HIV risk and use of force or threats to have sex (r=-.21), threatened with or used a weapon (r=-.22), physical violence (r=-.22) and strangulation (r=.21); whereas controlling (r=.28), afraid (r=-.21), forced sex (r=-.16), weapon use (r=-.15) and choking to unconsciousness (r=-.28) were significant for the childhood abuse and adult IPV group.

Conclusions: IPV is a key factor in HIV risk among Black women. Integrated IPV and HIV prevention programs should be widely implemented, especially in regions with high prevalence of these intersecting epidemics.
Conclusions: Counter to hypotheses, there were no significant differences between trans and non-trans groups in the cascade nor viral suppression and rebound over time. In this initial study, such low suppression levels for all groups is likely related to skew to early ART initiation era in the matched sample. Improved gender ascertainment in clinical cohorts is needed to facilitate further research with larger sample sizes and better characterize HIV clinical care and virologic outcomes for this priority population.

TUPEC209
Patterns of HIV risk and viremia among people who inject drugs in a community-based cohort in Baltimore, Maryland

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Background: Although HIV incidence among people who inject drugs (PWID) in the US has declined substantially over the past decade, there is potential for increases among a new generation using prescription opioids without experience with safe injection practices or harm reduction. In an urban setting with both a historical heroin epidemic and an emerging group of users, we characterized phenotypes of drug use and the associations with prospective injection-related risk and HIV viremia in a long-standing cohort of PWID in Baltimore, Maryland, USA.

Methods: We included data on recent (prior six months) injection and non-injection use of heroin, crack/cocaine, speedball, marijuana, alcohol and prescription opioids, tranquilizers or sedatives (acquired from non-physician source), among PWID in the ALIVE (AIDS Linked to the IntraVenous Experience) cohort between 2014-2017 to define baseline drug use phenotypes using latent class analysis. Logistic regression analysis with generalized estimating equations was used to prospectively examine associations between phenotypes and HIV risk.

Results: Among 1,381 PWID, 32% were female, 81% African-American, 30% HIV-positive, and the median age was 53 years. Five phenotypes emerged:
1) None/Alcohol-only (43%);
2) Crack/cocaine-predominant (24%);
3) Heroin-predominant (18%);
4) Prescription drug-predominant (7%); and
5) Poly-substance use (8%).

Younger, White, HIV- and HCV-negative PWID were more likely to be in groups 3, 4, and 5, in which higher frequency of injection and use of a greater number of substances was reported (Table 1).

Table 1: Drug use phenotypes in the ALIVE cohort (2014-2017) and adjusted odds ratios and 95% confidence intervals for sharing injection equipment

Phenotype N Median number (interquartile range) of substances used (past 6 months) Recent (past 6 months) injection drug use (%) Needle exchange (past 6 months) (%) Adjusted odds ratios (95% CI) for sharing
1. None/Alcohol-only 678 0 (0-1) 4 44 --
2. Crack/cocaine 256 2 (2-3) 41 48 1.00 (0.61-1.90)
3. Heroin 251 1 (2-4) 100 42 1.08 (0.61-1.90)
4. Prescription drugs 83 5 (4-6) 58 29 2.53 (1.23-5.23)
5. Poly-substance 108 7 (6-8) 100 45 2.48 (1.25-4.91)

Among PWID actively injecting, those in the prescription drug group were less likely than all others to use needle exchange. The prescription drug and poly-substance groups had more than a two-fold increased risk of sharing, compared to the crack/cocaine group, adjusting for age, sex, and HIV-status (Table 1). Among HIV-positive PWID, the prescription drug group was more likely to have detectable viral load (adjusted odds ratio=2.13, 95% CI: 1.19-3.83) compared to the crack/cocaine group.

Conclusions: In this urban setting, HIV-positive PWID using prescription drugs represented the highest risk of HIV transmission due to detectable viremia and decreased safe injection practices. Increased efforts are required to bolster antiretroviral treatment and adherence in this group. Harm reduction interventions should target PWID using prescription drugs and multiple substances.

TUPEC210
HIV among female sex workers in Amsterdam, a tale of one city and one specialised health centre (P&G292)

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Background: Worldwide, female sex workers (FSW) are at high risk for HIV and other sexually transmitted infections (STI). In 2000 the Netherlands legalized sex work to increase safer and healthier work conditions. In 2008, a specialized care facility for sex workers (SW), the Prostitution & Health Centre (P&G292), was established in Amsterdam aiming to provide sexual healthcare and social support for sex workers. P&G292 is funded by the city of Amsterdam and located in the city centre. Annually around 3,500 FSW are reached by P&G292, which is estimated to be half of the Amsterdam FSW population. We aimed to assess STI and HIV positivity rates among FSW seeking care at P&G292.

Methods: P&G292 offers free consultations for FSW at the clinic and at their workplace. FSW may also attend the regular STI clinic. FSW are tested for STIs and HIV at each consultation. We assessed HIV prevalence and incidence among FSW in the period 2011-16.

Results: From 2011 through 2016, 3,212 women had 9,457 STI consultations. The majority had a non-Dutch ethnicity (72%). FSW tested for STIs and HIV at each consultation. We assessed HIV prevalence and incidence among FSW in the period 2011-16.

Conclusions: Among FSW in Amsterdam, condom use with clients was very high, bacterial STI positivity rate was relatively low and injecting drugs uncommon. Dutch prostitution laws differ from those in many other countries. The legal nature of prostitution contributes to easy access of FSW to health and social services. These factors help explain the low HIV prevalence of 0.5% among FSW.
TUPEC211
HIV among male sex workers in Amsterdam, a tale of one city and one specialised health centre (P&G292)

A. van Dijk1, T. Heijman1, M. van Rooijen1, S. van der Kolk1, E. Manna1, E. Freriki1, M. Kroone1, A. Hogewoning1, F. Schim van der Loef1,2
1Department of Infectious Diseases, Public Health Service Amsterdam, Amsterdam, Netherlands. 2Department of Dermatology, Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands.

Background: Worldwide, male sex workers (MSW) are at high risk for HIV and other sexually transmitted infections (STI). In 2000 the Netherlands legalized sex work to increase safer and healthier work conditions. In 2008, a specialized care facility for sex workers (SW), the Prostitution & Health Centre (P&G292), was established in Amsterdam with the aim to provide sexual healthcare and social support for SW. P&G292 is funded by the city of Amsterdam and located in the city centre. Even though sex work is permitted, most MSW work at unlicensed (illegal) venues. We aimed to assess STI and HIV positivity rates among MSW seeking care at P&G292.

Methods: P&G292 offers free consultations for MSW at the clinic and at their place of work: MSW may also attend the regular STI clinic. MSW are tested for STIs and HIV at each consultation. We assessed HIV and STI prevalence and incidence among MSW in the period 2011-16.

Results: From 2011 through 2016, 688 MSW had 1,561 STI consultations. The majority had a non-Dutch ethnicity (71%). MSW reported a median of 50 sexual partners in the preceding 6 months (IQR 15-150). Of the MSW who reported anal sex with clients 84% reported consistent condom use. The positivity rate for bacterial STIs was 21% (327/1,561). 25/417 men (6%) reported they had ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent injecting in the last 6 months. Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months). Eighty-four men (12.2%) self-reported to have ever injected drugs; 16 of these (3.8%) reported recent drug injecting (in last 6 months).

Conclusions: Although most MSW report consistent condom use during anal sex with their clients, bacterial STI positivity and HIV prevalence were high. In addition, injecting drugs was not uncommon among MSW. Dutch prostitution laws differ from those in many other countries. The legal nature of prostitution contributes to easy access of MSW to healthcare for MSW also enables surveillance of STI and HIV trends among MSW.

TUPEC212
HIV testing and treatment cascade among key populations in Mozambique

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1University of North Carolina at Chapel Hill, Chapel Hill, United States. 2Centro de Investigación Operacional da Beira (CIOB), Beira, Mozambique. 3Amsterdam Infection and Immunity Institute (AI&I), Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands. 4University of North Carolina at Chapel Hill, under the USAID/PEPFAR-supported and FHI 360-led LINKAGES project, conducted a biobehavioral survey in five provinces of Mozambique between June and September 2017. Priorities of Local AIDS Control Efforts (PLACE), a venue-based sampling strategy, was used to recruit participants from social venues for a cross-sectional behavioral survey. Based on the behavioral questionnaire, participants were categorized as female-sex workers (FSW), men who have sex with men (MSM), or transgender women (TGW). HIV infection was assessed using two rapid tests and HIV viral load from dried blood spots using Abbott M2000. Individuals were assigned weights based on the probability of recruitment. Populations size estimates were calculated from venue informant participants conducted during venue mapping and adjusted based on participants venue-frequencing behavior. Participants with a suppressed viral load were assumed to be aware of their infection and on ART.

Results: We recruited 1,194 FSW, 118 TGW, and 517 MSM. HIV prevalence was 29% among FSW, 12% among TGW, and 10% among MSM. 13,000 FSW, 1,310 TGW and 11,500 MSM were estimated of which 2,500 FSW, 160 TGW, and 1,160 MSM were estimated to have HIV. Among HIV-positive participants, 66% of FSW, 53% of TGW, and 23% of MSM already knew they were HIV positive: 63% of FSW, 39% of TGW, and 22% of MSM with HIV reported to be on ART; and 52% of FSW, 30% of TGW, and 18% of MSM with HIV were virally suppressed.

Conclusions: Large gaps exist to reach the 90–90–90 goals among key populations in Mozambique. FSW were the most likely and MSM were least likely to know their status. Most people already aware of their serostatus were on treatment and virally suppressed indicating that the Mozambican health system is successful at starting people on treatment. However, TGW were least likely to be on ART, a sign of difficulty in accessing care.

<table>
<thead>
<tr>
<th>Population size estimate</th>
<th>HIV prevalence</th>
<th>Estimate of people with HIV</th>
<th>Percent already aware of serostatus</th>
<th>Percent on ART</th>
<th>Percent virally suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSW (n=1,194)</td>
<td>22%</td>
<td>12,100</td>
<td>19%</td>
<td>66%</td>
<td>63%</td>
</tr>
<tr>
<td>Transgender women (n = 118)</td>
<td>12%</td>
<td>1,310</td>
<td>12%</td>
<td>53%</td>
<td>29%</td>
</tr>
<tr>
<td>MSM (n=517)</td>
<td>10%</td>
<td>11,500</td>
<td>10%</td>
<td>23%</td>
<td>22%</td>
</tr>
</tbody>
</table>

* Among all people with HIV

(HIV testing and treatment cascade for MSM, FSWs, and TGW, percentages of all people with HIV, Mozambique, 2017)
TUPEC213
Characterizing the role of sexual violence in potentiating HIV risks among transgender women in sub-Saharan Africa

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Background: In 2018, the specific HIV prevention and treatment needs of transgender women remain understudied across sub-Saharan Africa. However, transgender women are known to be disproportionately impacted by HIV, even compared to cisgender men who have sex with men (cis-MSM) in analyses across the continent. Moving forward with effective responses necessitates studying specific determinants of HIV-related risks among transgender women.

Methods: To characterize correlates of HIV infection, we analyzed data from 937 transgender women who completed a cross-sectional, structured questionnaire and rapid HIV testing and as part of a larger study focused on cis-MSM. Study participants were accrued using respondent-driven sampling in Burkina Faso, Togo, Côte d’Ivoire, Senegal, The Gambia, Malawi, Lesotho, and Swaziland. Descriptive statistics, bivariate analyses, and stepwise mixed effects multiple logistic regression modeling, with a random effect for study site, identified the best-fitting multivariable model. The final model included age, depression symptoms in the prior 2 weeks, number of male anal sex partners in the prior 12 months, ever being raped, ever being physically attacked, and ever being arrested.

Results: Depression symptoms, physical violence, and rape were commonly reported by transgender women in this study. Pooled HIV prevalence was 25% [95% CI: 23%, 28%]. In bivariate analyses, HIV-infection was positively correlated with increasing age, depression symptoms, history of a sexually transmitted infection, higher number of anal sex partners, experiencing physical violence (being attacked), sexual violence (being raped) or state violence (being arrested because of perceived sexual or gender identity). In the final multivariable model, only being raped (OR 1.12 [95% CI: 1.03, 1.24]) and increasing age (OR 1.02 [95% CI: 1.01, 1.02]) remained statistically significant (p<0.05; Table 1).

Conclusions: Determinants of HIV infection across Sub-Saharan Africa are as complex as anywhere else around the globe. Here, sexual violence emerged as a key HIV-related risk determinant among transgender women across sub-Saharan Africa. While further study of risks will support increased specificity of interventions, there is already enough information to act to ensure that the specific HIV prevention and treatment needs of transgender women are addressed in the region.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at baseline</td>
<td>1.21 (1.11, 1.31)** ***</td>
<td>1.18 (1.11, 1.26)***</td>
</tr>
<tr>
<td>Time in study (3rd follow-up)</td>
<td>1.27 (0.74, 2.18)</td>
<td>1.08 (0.61, 1.93)</td>
</tr>
<tr>
<td>Time in study (2nd follow-up)</td>
<td>1.68 (0.95, 2.91)</td>
<td>1.55 (0.93, 2.78)</td>
</tr>
<tr>
<td>Household assets</td>
<td>1.02 (1.00, 1.05)*</td>
<td>1.01 (0.99, 1.03)</td>
</tr>
<tr>
<td>Time in study (4th follow-up)</td>
<td>4.17 (2.87, 6.05)**</td>
<td>2.98 (2.01, 4.47)**</td>
</tr>
<tr>
<td>In school or graduated high school</td>
<td>0.23 (0.14, 0.38)** ***</td>
<td>0.52 (0.33, 0.82)**</td>
</tr>
<tr>
<td>Community mobilization</td>
<td>0.79 (0.67, 0.92)** ***</td>
<td>0.86 (0.74, 0.99)</td>
</tr>
<tr>
<td>Community characteristics</td>
<td>1.12 (1.03, 1.22)**</td>
<td>1.08 (0.99, 1.17)</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01, ***p<0.001

Table 1: Multivariable Logistic Regression Model for Correlates of HIV Infection in Transgender Women

TUPEC214
Village community mobilization is associated with reduced HIV incidence in young South African women participating in the HPTN 068 study cohort

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Background: Adolescent girls and Young women (AGYW) in South Africa bear a disproportionate burden of HIV. Community mobilization (CM), defined as community members taking collective action to achieve a common goal, has been found to be associated with increased HIV testing and condom use and has been called a “critical enabler” for addressing the HIV epidemic. However, limited research has explored whether CM, or living in a mobilized community, is associated with HIV incidence among AGYW.

Methods: We conducted a longitudinal analysis among 2,533 AGYW (ages 13-21) enrolled in the HPTN 068 cohort in the Agincourt Health and Demographic Surveillance System, South Africa. This analysis includes all participants who lived in 28 villages where we also conducted cross-sectional, population-based surveys among 18-35 year old residents in 2012 and 2014. HPTN 068 participants completed up to five annual visits, receiving an HIV test at each visit (2011-2018). Household-level data were collected from the parent/guardian of each AGYW and census data is collected annually. Mean village-level CM scores were created using a validated CM measure composed of seven components (community cohesion, social control, collective consciousness, shared concerns, organizations and networks, leadership, and collective action). We used pooled generalized estimating equations with a Poisson distribution to estimate the risk ratios (RR) of incident HIV infection, adjusting for the village-level clustering and key covariates.

Results: There were 177 incident infections over the follow-up period. For every standard deviation increase in village-level CM there was a 14% reduction in HIV incidence (RR: 0.86, 95% CI 0.74, 0.99; p<0.05) after adjusting for age, time enrolled in the 068 cohort, education, household assets, and a collated measure of community characteristics (mean community education, proportion of community in highest SES quintile, proportion permanent residents).

Conclusions: These results support that living in a mobilized community, where communities work collectively and organize to address community welfare, can reduce AGYW’s risk of HIV acquisition. Community mobilization efforts may be an important component in HIV prevention programs for AGYW.

Characteristics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unadjusted RR (95% CI)</th>
<th>Adjusted RR (95% CI)</th>
</tr>
</thead>
<tbody>
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<td>Age at baseline</td>
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* p<0.05, ** p<0.01, ***p<0.001

(Adjusted and Unadjusted Risk Ratios (RR) of incident HIV among young women enrolled in HPTN 068 N=2,533)
TUPEC215
Global assessment of the availability of condoms and conjugal visits in prisons: Preliminary results of a global prison survey commissioned by UNODC

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Background: Condoms are an effective way to reduce the risk of contracting sexually transmitted infections (STIs) such as HIV, hepatitis B and syphilis. Most prisoners are males aged 20-35 years, a period of heightened sexual activity. Unsafe sex occurs in prison between prisoners and between prisoners and staff. We aim to assess the availability of condoms and conjugal visits in prisons globally, identifying regions where urgent scale up of condom provision is required.

Methods: In 2017, a global prison survey commissioned by UNODC was disseminated to 397 countries, inviting prison authorities to participate. Data were collected on the availability of the 15 interventions in the UN Comprehensive Package, including condoms, and HIV prevalence/incidence among prisoners.

Results: Of the 35 responses, 27 countries reported on condom availability and conjugal visits spanning six UNAIDS regions (excluding Latin America & the Caribbean). Condoms were available for prisoners and staff in twelve and 3 countries respectively. Fourteen countries did not provide condoms, however, 3 reported distribution upon release. Conjugal visits were permitted in ten out of 27 countries. Of the thirteen countries that did not provide conjugal visitations, nine also did not provide condoms. Both condoms and conjugal visits were reported in six countries. According to survey respondents, prison sex was ’uncontrolled’ and ’taboo’ with condom distribution at staff discretion. Needing to understand provision within the country’s political context’ was also reported and recognised as one of the barriers for provision.

Conclusions: Although the survey response rate is low, results show condom availability and conjugal visits are uncommon for these prison systems. When access to preventative health care is obstructed, human rights and public health are compromised. Therefore, we support condom provision as recommended in the UN Comprehensive Package of 15 key interventions to prevent HIV and other infections. Barriers to prison condom provision include: social attitudes towards homosexuality and political opinion. Current prison harm reduction responses must be increased to protect priority populations. Identifying gaps in services may inform policies, supporting countries to develop evidence-based responses, such as condom programs.

TUPEC216
Building bridges, not walls: Prevalence and correlates of injecting with United States residents among people who inject drugs in Tijuana, Mexico

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1University of California San Diego, Infectious Diseases and Global Public Health, La Jolla, United States, 2University of California San Diego, Infectious Diseases and Global Public Health, San Diego, United States, 3University of California San Diego, Family Planning and Public Health, La Jolla, United States, 4Northwestern University, School of Law and Boon College of Health Sciences, Boston, United States, 5University of California San Diego, Medicine, La Jolla, United States, 6Comisión de Salud Frontieriza México-Estados Unidos, Tijuana, Mexico

Background: In Tijuana, Mexico, HIV prevalence among PWID is 3.4% versus 9.8% in bordering San Diego (U.S.). Characterizing PWID living in Tijuana who inject with PWID visiting from the U.S. is important to prevent cross-border transmission.

Methods: We analyzed baseline data from participants enrolled in 2011-2012 in a cohort study of PWID who live in Tijuana. We calculated prevalence of injecting with PWID from the U.S. while in Mexico and used logistic regression to identify independent correlates of this practice.

Results: Of 730 participants (mean age = 37.4 years; 62% male; 93% born in Mexico; 60% Spanish-only speakers), 232 (32%) had injected during the past six months in Mexico with a PWID visiting from the U.S. in the U.S. multivariable analysis, injecting with PWID from the U.S. was independently associated with higher income (odds ratio [OR]=2.1, p<0.01), speaking English and Spanish (OR=1.9, p<0.001), younger age at first injection (OR=0.97 per yr. p=0.053), receptive syringe sharing in the past 6 months (OR=1.3, p<0.01) and exchanging sex for money/commodities in the past 6 months among men (OR=2.6, p<0.01) but not women (OR=0.92, p=0.82). PWID from the U.S. were described as friends (65%), acquaintances (26%), strangers (15%) or sex trade clients (5%). Most reported lending their syringe (67%) or borrowing (32%) or sharing cookers/cottons (70%) when injecting with PWID from the U.S.

Conclusions: Nearly one-fifth of PWID in Tijuana reported injecting with PWID from the U.S.; these PWID had a higher risk profile than other Tijuana PWID, which could facilitate cross-border transmission of HIV and HCV. Our findings call into question the U.S. government’s proposal to reinforce border walls to prevent drug use and disease transmission, given that many U.S. drug users travel to Tijuana of their own volition. This also highlights the need for strengthening HIV and HCV prevention services on both sides of the border.

TUPEC217
The paradox of migration: Assessing protective and risk factors among transgender women in Lima, Peru

K. Morlatty1, E. Segura1, W. González1, A. Perez-Brumer1, J. Lake2, R. Cabello1, J. Clark3
1University of California, South American Program in HIV Prevention Research (SAPHR), Los Angeles, United States, 2Brown University Alpert Medical School, Providence, United States, 3Asociación Civil Via Libre, Lima, Peru, 4Columbia University, Mailman School of Public Health, New York, United States, 5University of Texas, Houston McGovern Medical School, Houston, United States

Background: Paralleling global trends, HIV and rectal STIs continue to disproportionately burden transgender women (TGW) in Peru. While migration by TGW to urban centers is common to improve discrimination and economic opportunities, there are few studies assessing the health risks associated with migration. Addressing this gap, we explored the association of HIV and STI risk factors and migration among TGW in Lima, Peru.

Methods: In 2017, 126 TGW participated in a study assessing the relationship between rectal STIs and HIV prevention. Eligibility was limited to HIV-uninfected or serostatus-unknown TGW reporting recent condomless receptive anal intercourse (cRAI). Participants were tested for rectal GC/CT using GenProbe Aptima TMA (Hologic) and screened for HIV and syphilis. Participants completed a bio-behavioral survey on demograph-
ics, sexual behaviors, recent partnerships, and other HIV/STI risk factors. Participants born outside of Lima who lived in Lima at the time of the survey were considered migrants. We explored associations between migration and number of cRAI partners, patterns of drug and alcohol use during sex, problem drinking (AUDIT score), and prevalence of rectal GC/CT, syphilis, and HIV.

**Results:** Among 125 TGW (median age 29), 29.6% were diagnosed with rectal GC/CT and 12.9% with HIV; 37.6% were migrants. 63.2% of the sample reported transactional sex and 89.5% reported cRAI. In the past 30 days, migration status was associated with younger age (p<0.01), increased prevalence of rectal GC/CT diagnosis (p<0.04), and increased frequency of anonymous sexual partners (p<0.02). Yet, TGW migrants were less likely to report substance use during sex (p<0.03) or to report alcohol abuse (p<0.05). There was no difference between migrant and non-migrant TGW in total number of recent sexual partners, number of cRAI partners, engagement in sex work or HIV infection.

**Conclusions:** Further attention is needed to understand differences among TGW that contribute to their HIV/STI vulnerability. Migration emerges as a paradoxical status associated with increased prevalence of rectal GC/CT, but lower alcohol and substance use during sex. Additional research is needed to explore the intersection of migration patterns with sexual networks (e.g., sex work) associated with vulnerability to HIV and STIs.

**TUPEC218**

Deconstructing the relationship between non-fatal opioid overdose and HIV/HCV risks among PWID in Kazakhstan

L. Gilbert1, T. Hunt1, S. Primbetova1, A. Terlikbayeva1, M. Chang3, T. McQuirr1, P. Marotta1, E. Wu1, N. El-Bassel1, 1Columbia University School of Social Work, Global Health Research Center of Central Asia, New York, United States, 2Global Health Research Center of Central Asia, Almaty, Kazakhstan, 3Columbia University School of Social Work, Social Intervention Group, New York, United States.

**Background:** Although opioid overdose is the leading cause of death among people who inject drugs (PWID) in Kazakhstan there remains little research on how opioid overdose may share syndemic risk factors for HIV and HCV among PWID in Kazakhstan or Central Asia. This study aims to examine the relationships between non-fatal opioid overdose and HIV/HCV risks among PWID in Almaty, Kazakhstan.

**Methods:** We used baseline data from a couple-based HIV study for PWID and their sexual partners, restricting the sample to 580 participants who reported ever injecting drugs. We hypothesized that experiencing opioid overdose in the prior six months would be significantly associated with biological indicators for HIV and HCV and drug and sexual-related risk behaviors after adjusting for age, gender, ethnicity, marital status, education, homelessness and food insecurity. We employed multiple regression analysis with shared couple-level random effects to account for the dyadic structure of the data.

**Results:** Of the sample, 60% (n=278) identified as male. About one-fifth (20.5%, n=119) reported experiencing a non-fatal overdose in the past 6 months (See Table 1 for socio-demographic characteristics associated with non-fatal overdose). Non-fatal overdose was not significantly associated with biological indicators for HIV and HCV among PWID in Kazakhstan or Central Asia. This study aims to examine the relationships between non-fatal opioid overdose and HIV/HCV risks among PWID in Almaty, Kazakhstan.

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150 years constitute the only group where HIV incidence has significantly increased (from 8% to 12% between 2014 - 2016). This study qualitatively explored HIV care providers’ perspectives on what facilitates and hinders links toward care of people living with HIV who are older than 50 (PLWH50+).

Methods: We purposively sampled and anonymously interviewed 12 HIV care providers (Infectious Disease physicians and psychologists) in 6 regions of Ukraine. Data were coded using Dedoose qualitative data management software and inductively analyzed for themes using grounded theory.

Results: We found four main themes in providers’ accounts. First, older patients newly diagnosed with HIV were perceived by providers as more socially excluded, stigmatized and vulnerable than younger patients, requiring additional efforts to engage in HIV services. Second, providers thought PLWH50+ were largely ignorant regarding HIV, although many newly diagnosed older patients were infected 5-10 years ago according to their medical history and CD4 level. Third, a challenge unique to newly HIV diagnosed individuals 150 years was poly-pharmacy. Fourth, providers believed that PLWH50+ got HIV infection predominantly through unprotected heterosexual intercourse (including sex with injection drug users). Providers didn’t perceive their clients as MSMs, as clients didn’t disclose it.

Conclusions: Our results address the paucity of data in the literature about access to HIV care among older adults in global settings, synergy between HIV stigma and ageing, and continued exclusion of older adults from medical and policy agendas related to sexual health. While Ukrainian Ministry of Health HIV prevention programs prioritize youth, findings suggest that there is awareness among HIV care providers about increasing role of older adults in HIV epidemic and the need for development of new clinical HIV care and HIV prevention guidelines focused on this group. These guidelines need to pay particular attention to the problem of late case detection and delayed linkage to care.

TUPEC221

HIV prevalence and incidence in adolescent girls and young women in Lesotho: Results from the LePHIA survey 2016-2017

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Background: Adolescent girls and young women (AGYW, ages 15-24) currently account for 74% of new HIV infections in Southern Africa. A Population-based HIV Impact Assessment conducted in Lesotho (LePHIA) in 2016-2017 provides recent data on prevalence and the first assessment of national HIV incidence in AGYW.

Methods: LePHIA used a two-stage sampling design to select a nationally representative sample of adults. Individuals completed an interview and HIV testing. Incidence was measured using HIV-1 LAg avidity paired methods:

1. HIV knowledge (IOR 0.72, 95%CI:0.60-0.86). Correlates of prevalent infection include an HIV-positive partner (adjusted OR (aOR) 11.72, 95%CI:6.07-22.62). Table 1, anal sex history (aOR 3.08, 95%CI:1.11-8.57), and having lived outside Lesotho for >1 month in past year (aOR 1.82, 95%CI:1.01-3.31). For the 642 AGYW living with parents, maternal education was strongly protective, even after adjusting for household wealth.

Conclusions: HIV prevalence is declining in AGYW, but incidence remains high. Indicators of risk are improving, aside from HIV knowledge, which conveys risk for future acquisition.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Odds Ratio (95% CI)</th>
<th>Adjusted Odds Ratio (95% CI)</th>
<th>p-values (determined by logistic regression)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural residence</td>
<td>0.61 (0.46-0.88)</td>
<td>0.60 (0.40-0.90)</td>
<td>0.01</td>
</tr>
<tr>
<td>Never left Lesotho Away for &gt;1 month in lifetime Away for &gt;1 month in past year</td>
<td>1.13 (0.76-2.00)</td>
<td>1.13 (0.68-2.72)</td>
<td>0.01</td>
</tr>
<tr>
<td>Education None Primary Secondary Tertiary/ Above Secondary</td>
<td>1.04 (0.13-1.32)</td>
<td>1.09 (0.62-1.93)</td>
<td>0.37</td>
</tr>
<tr>
<td>Number of lifetime sexual partners One 2 to 3 ≥4</td>
<td>1.26 (1.51-10.3)</td>
<td>1.84 (1.21-2.78)</td>
<td>0.06</td>
</tr>
<tr>
<td>Never had anal sex</td>
<td>3.17 (1.29-7.78)</td>
<td>3.08 (1.11-8.57)</td>
<td>0.03</td>
</tr>
<tr>
<td>HIV status of sexual partners in the past 12 months All HIV-positive partners Any HIV-positive partners Any partner with unknown status</td>
<td>1.30 (0.79-22.43)</td>
<td>1.12 (0.71-1.61)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Mental status Single Married or living with partner Divorced, separated or widowed</td>
<td>1.25 (0.79-2.09)</td>
<td>1.19 (0.62-2.03)</td>
<td>0.75</td>
</tr>
<tr>
<td>Maternal education None-Primary Secondary Tertiary/ Above secondary</td>
<td>1.05 (0.19-8.43)</td>
<td>0.06 (0.01-0.60)</td>
<td>0.04</td>
</tr>
<tr>
<td>Highest wealth quintile</td>
<td>0.81 (0.36-1.83)</td>
<td>0.24 (0.05-1.33)</td>
<td>0.10</td>
</tr>
</tbody>
</table>

(Figure 1. Weighted prevalence in adolescent girls and young women in Lesotho, 2009-2017)
TUPEC222
Caregiver depression and child neuropsychological outcomes in an observational study carried out in four sub-Saharan countries

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1Michigan State University, East Lansing, United States, 2Harvard School of Public Health, Center for Public Health and Human Rights, Boston, United States, 3Michigan State University, Psychiatry, East Lansing, United States, 4Stellenbosch University, Cape Town, South Africa, 5University of Witwatersrand, Johannesburg, South Africa, 6Wits RHI Shandukani Clinic, Johannesburg, South Africa, 7University of Zimbabwe, Harare, Zimbabwe, 8University of North Carolina - Lilongwe Clinical Research Institute, Lilongwe, Malawi, 9Makerere University-Johns Hopkins University, Kampala, Uganda, 10NIH/NIAID, Rockville, United States, 11IMPAACT Data Management Center, Amherst, United States, 12FHPI.6. Durham, United States

Background: Depression symptoms in caregivers may influence their young children’s behavior and cognitive development. Few research studies have focused on Sub-Saharan countries where high prevalence of pediatric HIV may impact child neuropsychological development and caregiver mental health.

Methods: We investigated cross-sectional associations between caregivers’ depressive symptoms and child neuropsychological outcomes in a multi-center study in sub-Saharan Africa sponsored by the International Maternal Pediatric Adolescent AIDS Clinical Trials (IMPAACT) Network. 611 children between 5-11 years (246 HIV+, 183 HIV unexposed, 182 HIV uninfected) were included. Assessments were conducted at 6 research sites: South Africa (3), Malawi, Uganda, and Zimbabwe. Children were assessed using the BRIEF Behavior Regulation Index and the TOVA. Caregivers responded to the HSLC-25 depression subscale and evaluated their child with the BRIEF and UNICEF Multiple Indicators Cluster Survey (MICS) Questionnaire for Children. Data were analyzed using Pearson correlations and with unadjusted and adjusted (for study design, caregiver and child characteristics) linear regression using generalized estimating equations (GEE).

Results: Children’s mean age was 7.2 years (SD= 1.4) and 290 (47%) were boys. Most caregivers (68%) were HIV- and 36% had HSCL-25 score above 1.75. Caregiver depression scores were comparable across groups of HIV+ children, 96% had suppressed viral load. In adjusted GEE models, caregivers with high (≥1.75 mean score) levels of depression reported higher BRIEF scores (e.g. more executive function problems) by an average 5 to 7 points (p<.001) and almost 3 point lower average MICS development scores (p<.001; e.g. less development for age). BRIEF and TOVA scores showed no significant associations with caregiver depression (Table). Exploratory regression models with interactions between caregiver depression and child HIV status showed a trend: adjusted KABC MPI mean scores decreased with increasing levels of caregiver depression in HIV+ children (adjusted p<.02).

Conclusions: Caregiver depressive symptomatology in caregivers was a significant predictor of child behavioral problems and poorer development. Cognitive performance was not associated with symptomatology. Results suggest that depressive symptoms can affect the socioemotional development of children. Considering the mental health of the caregiver should be part of integral neuropsychological evaluations and care in the context of HIV disease.

TUPEC223
Global burden of HIV among Immigrants: A systematic review

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Background: Immigrants are vulnerable to HIV due to multiple social and structural factors. Limited HIV research suggests immigration is a risk factor for HIV acquisition and is often associated with increased stigma and reduced access to HIV prevention and care. With increasing globalization, it is imperative to assess the burden of HIV among immigrants to inform responses in HIV prevention and care. We conducted a systematic review and meta-analysis of the global HIV epidemiology among international immigrants.

Methods: Immigrants were defined as non-nationals (foreign born migrants) regardless of citizenship status, including documented migrants legally traveling to or staying in host countries, undocumented migrants legally traveling to but out-stayed in host countries, and illegal migrants illegally traveling to host countries. A systematic review of articles published between 2011 through 2016 and indexed in PubMed and Embase was conducted to identify information on HIV prevalence, incidence, and prevention and intervention services among immigrants. UNAIDS’ website was also searched to identify relevant data in country reports. Extracted data were pooled and analyzed to produce country and regional level estimates. All meta-analysis utilized random effect models due to heterogeneity across studies and locations.

Results: A total of 10,934 articles were identified and 133 were retained for data analysis. HIV prevalence among all immigrants was estimated to be 3% (95% CI: 0.03-0.02); though with significant heterogeneity across countries. Prevalence was especially high among immigrant female sex workers (20%, 95% CI: 0.18-0.23) and tuberculosis patients (17%, 95% CI: 0.07-0.31). Only one study conducted in Denmark reported HIV incidence (0.37%) among African born immigrants, underscoring high post-migration HIV acquisition. Meta-analyses estimated that the burden of HIV is 1.4 times higher among immigrants than nationally globally (IRR=1.41, 95% CI 1.34-1.71), especially for immigrants from Africa (IRR=2.09, 95% CI 1.69-2.57) and for female immigrants (IRR=6.64, 95% CI: 2.28-19.34) compared to nationals. Access to HIV care, treatment and other interventions were reported among a limited number of articles.

Adj. baseline predicted means (95% confidence interval) from GEE models, for neuropsychological outcomes among school-age children by caregiver depression.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Low depressive symptoms &lt;1.75</th>
<th>High depressive symptoms ≥1.75</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>KABC Mental processing index</td>
<td>79.2 (77.2,81.2)</td>
<td>78.7 (76.8,80.6)</td>
<td>0.58</td>
</tr>
<tr>
<td>BOT-2: Total score</td>
<td>51.8 (50.3,53.3)</td>
<td>51.2 (49.7,52.7)</td>
<td>0.41</td>
</tr>
<tr>
<td>BRIEF Behavior Regulation Index</td>
<td>48.9 (46.7,51.1)</td>
<td>50.0 (48.6,51.5)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BRIEF Metacognition Index</td>
<td>49.6 (47.0,52.2)</td>
<td>53.5 (52.4,54.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BRIEF Global Executive Composite</td>
<td>49.2 (46.7,51.6)</td>
<td>55.9 (53.1,58.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TOVA ADHD</td>
<td>0.01 (-0.53,0.54)</td>
<td>0.08 (-0.48,0.65)</td>
<td>0.76</td>
</tr>
<tr>
<td>TOVA D-prime standard score</td>
<td>87.5 (85.2,89.8)</td>
<td>87.0 (84.9,89.1)</td>
<td>0.70</td>
</tr>
<tr>
<td>MICS Disability (%)</td>
<td>4.0 (2.5,5.6)</td>
<td>5.6 (3.6,7.5)</td>
<td>0.03</td>
</tr>
<tr>
<td>MICS Development (%)</td>
<td>72.8 (71.4,74.1)</td>
<td>70.9 (68.8,73.0)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Adjusted baseline predicted means (95% confidence interval) from GEE models, for neuropsychological outcomes among school-age children by caregiver depression.

Conclusions: There is a heightened burden of HIV among immigrants compared to nationals. Coupled with data from other studies that highlight post-migration HIV acquisition, this study suggests that HIV prevention and care services are urgently needed for immigrants.
TUPEC224

Sex work stigma and its effects on healthcare: Data from a large RDS study among FSW in Brazil

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The Brazilian FSW Group
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#Bahia State University, Department of Life Sciences, Salvador, Brazil

Background: Based on the hypothesis that stigma within health services may be detrimental to health seeking attitudes, this study investigates non-disclosure among female sex workers (FSW) in Brazil and its impact on the utilization of healthcare services.

Methods: Cross-sectional RDS study carried out in 12 Brazilian cities to identify practices related to HIV infection among FSW. Study variables were categorized into four groups to represent social rights, human right violations, health service access and utilization, stigma and discrimination. To investigate the effects of non-disclosure of FSW status on preventive healthcare, we used multivariate logistic regressions for different outcomes: HIV testing in the past year, Pap smear exam in the past two years, awareness of PEP, and PEP use after a risky sexual behavior.

Results: Among 4,245 recruited FSW, a high percentage received free condoms (82%) but only 24.4% were counseled on STI. Most FSW used non-specialized public healthcare routinely (62.6%). However, less than 40% were tested for HIV in the last 12 months and only 51.5% had a Pap smear exam in the last two years. Among FSW engaged in risky behavior (49.6%), only 8.3% used PEP. Regarding sexual work exploitation, approximately 15% were required to give part of their earnings to owners of workplace establishments and 38% started sex work under 18 years old. Six percent were required to present HIV test results periodically, which is illegal in Brazil. While 21.3% reported having been discriminated in health services, only 24.3% always disclosed their FSW status. Multivariable logistic models indicated significant effects of non-disclosure on the four healthcare outcomes, with lower odds of using preventive health services among women who had not revealed their FSW status to healthcare staff, even after controlling for age, educational level, NGO affiliation, and type of healthcare routinely used.

Conclusions: Our results indicate that sex work stigmatization within health services may be one of the main barriers to STI control and HIV combination prevention among FSW. It is essential to combat stigmatization and discrimination against FSW in health services to guarantee the appropriate uptake of preventive methods available in the public health system in Brazil.

TUPEC225

Gender-affirming genital surgery associated with reduced HIV sexual risk among transgender women: A respondent driven-sampling survey

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Background: Transgender women are a key population disproportionately impacted by HIV globally. Social and medical gender affirmation are theorized to promote health behaviors and health care access among transgender women. Few studies have assessed relationships between gender affirmation and HIV risk, particularly for gender-affirming surgeries, which remain inaccessible in most settings. Drawing on these analyses were limited to transgender women who had ever had sex (n=171) and weighted using RDS II weights. As half of transgender women were sexually inactive, polytomous logistic regression models estimated odds of past-year high-risk sexual behavior, or reporting sexual inactivity (separately), with low-risk sexual activity as the referent. Condomless vaginal/anal sex outside of a seroconcordant, monogamous relationship was classified as high-risk.

Results: Of sexually-experienced transgender women, 20.9% (95% CI: 11.7, 32.0) reported past-year high-risk sexual behavior. About half (53.3%; 95% CI: 24.0, 85.8) were living full-time in their identified gender, 59.6% (95% CI: 47.0, 72.1) were using feminizing hormones, and 42.8% (95% CI: 6.9, 22.8) had undergone genital surgery. After adjustment for demographics including socio-economic status, genital surgery was associated with lower sexual risk (adjusted odds ratio: 0.08; 95% CI: 0.02, 0.46). This association was robust to sensitivity analysis with a different definition of sexual risk. Genital surgery was also associated with lower odds of sexual inactivity. Neither social gender affirmation nor hormone therapy were associated with sexual risk.

Conclusions: Transgender women in Ontario who had completed gender-affirming genital surgery were at lower HIV risk. Moreover, they were less likely to be sexually abstinent. These results indicate that access to gender affirmation surgeries may enhance transgender women’s sexual health, including but not limited to HIV/STI prevention. Longitudinal studies of surgical outcomes should evaluate impacts on sexual risk, and efforts should be made to enhance access to genital surgeries for transgender women who require them.

TUPEC226

Sex work among female workers at the Koko artisanal gold mining site in Mali - results from the ANRS-12339 Sanu Gundo cross-sectional study


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Background: Female sex workers (FSW) in mining sites are considered to be at very high risk of HIV infection due to risky sexual behaviours associated with migratory work patterns. We aimed to characterize FSW and identify factors associated with their sex work (SW) at the Koko mining site in Mali.

Methods: We used data for FSW and female workers not involved in SW (FNSW) from the ANRS-12339 Sanu Gundo cross-sectional study, conducted in 2015 at the mine by ARCAD-SIDA, a Malian non-governmental organization. People attending prevention activities organized by ARCAD-SIDA (including medical check-ups, HIV testing) were invited to participate in the study’s quantitative and qualitative surveys (focus groups). A probit logistic regression was used for data analysis and marginal effects (M-E) were computed to show how predicted probabilities change when the dichotomous explanatory variable changes from 0 to 1.

Results: Of the 101 women recruited, 26.7% reported having SW as their main activity. With respect to FSW, 44.4% were unmarried, 44.4% were uneducated and 59.6% came from other countries. FSW were younger than FNSW. M-E from the multivariate analysis showed that the probability of SW as a main activity decreased by 1% per 1-year age increase (p=0.02). SW was significantly more likely to be reported by single, divorced or widowed women with a probability of 25.4% (p=0.007). FSW were significantly more likely to be non-Malian (36.3% probability (p=0.003), more likely to have a secondary activity (77% probability (p=0.002), more likely to work fewer than 56h/week (40.2% probability (p=0.001) and more likely to have a good health status (12.1% probability (p=0.016). In addition, an awareness of STI, a higher consumption of psychoactive products and unprotected receptive anal sex during the previous 6 months were significantly more associated with SW (52.2% (p=0.008), 45.6% (p=0.003) and 7.4% (p=0.016) probability, respectively). Qualitative findings confirm that poverty and boyfriends’ refusal to use condoms remain key barriers to consistent condom use among FSW.
Conclusions: FSW participating in the Sanu Gundo study inconsistently use condoms because of economic and relationship-based factors, and because of drugs and alcohol consumption. Existing targeted prevention interventions should be strengthened in mining sites in Mal.

TUPEC227
Disparities in viral suppression and non-adherence to antiretroviral medicines among women living with HIV infection, 2011 - 2016
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Background: In the United States (US), women accounted for 19% of HIV diagnoses (2016). Black/African American (black) and Hispanic women/Latinas (Latinas) were disproportionately affected; they comprised 61% of women diagnosed with HIV infection. Adherence to antiretroviral therapy (ART) enables HIV viral suppression (VS). A national goal is to have 80% of HIV-infected persons reach VS by 2020. We examined correlates of non-adherence and VS among women to inform HIV care interventions for women.

Methods: We used clinical chart abstraction and audio computer-assisted self-interview (ACASI) data from the HIV Outpatient Study (HOPS), a cohort of adults receiving HIV care at nine US sites. We limited analyses to women aged ≥ 18 years with ≥ 1 HOPS visit, ≥ 1 viral load (VL) test and ≥ 1 ACASI between 2011 and 2016. We defined non-adherence as missing at least one ART dose in the past three days and VS as VL < 50 copies/mL. Generalized estimating equations were used to assess factors associated with non-adherence and non-VS.

Results: Among 426 women (median age=46 years), 263 (61.7%) were black, 101 (23.7%) were white. 62 (14.6%) were Latina. At last measurement, non-adherence was more prevalent among black women (28.1%) compared with Latinas (21.0%) and white women (12.9%), (p=0.005). VS was less prevalent among black women (63.1%) compared with Latinas (72.6%) and whites (78.2%), (p=0.01). In multivariable analyses, non-adherence was more likely among black women (adjusted prevalence ratio [aPR]=1.56; CI=1.02-2.38) versus ≥ 350 cells/mm3. Non-VS was associated with non-adherence (aPR=2.33; CI=1.51-3.59) vs. > 350 cells/mm3. Non-VS was more likely among women aged ≥ 49 years (aPR=2.72; CI=1.44-5.16) versus older, and women with CD4 < 350 cells/mm3 (aPR=1.56; CI=1.02-2.38) versus ≥ 350 cells/mm3. Non-VS was associated with non-adherence (aPR=2.33; CI=1.51-3.59), age ≥ 29 years (aPR=2.26; CI=1.01-5.02) versus ≥ 50 years, public insurance payers (aPR=2.06; CI=1.19-3.58) compared with private insurance payers (aPR=1.19-3.58) compared with private payers (aPR=1.19-3.58) compared with none, and CD4 < 350 cells/mm3 (aPR=1.56; CI=1.02-2.38) versus ≥ 350 cells/mm3.

Conclusions: Racial/ethnic disparities in VS and adherence persisted among HIV-infected women. Interventions targeting improvement in ART adherence and VS among younger, black, and publically-insured women are warranted.

TUPEC228
Association between serodiscordance status and ART use in the African Cohort Study
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Background: HIV-infected partners of serodiscordant relationships may experience psychological stress that could interfere with antiretroviral therapy (ART) use. ART use, or may have increased motivation to prevent transmission. Conversely, serodiscordant relationships are associated with increased social support that may impact ART use. We assessed the association between serodiscordance status and ART use.

Methods: The African Cohort Study (AFRICOS) prospectively enrolls HIV-infected and -uninfected individuals at 12 PEPFAR-supported sites across Uganda, Kenya, Tanzania, and Nigeria. HIV serology, clinical assessments, and sociobehavioral questionnaires are collected. We analyzed enrollment visits of the first HIV-infected individuals (index) within two kinds of sexual dyads, serodiscordant or seroconcordant relationships. Participants were considered a member of a sexual dyad if both partners reported each other as a partner within the study. Dyads were categorized as serodiscordant if only one partner was serologically confirmed HIV-infected. Serodiscordant dyads were defined as having both partners serologically confirmed HIV-infected. Pearson’s chi-squared and Fisher’s exact tests were used to compare characteristics of indexes between the types of dyads. Poisson regression models with robust error variance were used to estimate the overall and gender-specific prevalence ratio (PR) of ART use while controlling for confounders that changed the prevalence ratio by at least 10%.

Results: As of September 2017, there were 284 sexual dyads: 323 indexes from serodiscordant dyads and 61 indexes from seroconcordant dyads. The majority of the indexes were aged 25-34 years (50.2%), female (53.4%), and married (56.6%). Serodiscordant indexes were more likely to disclose their status to partners than were seroconcordant indexes (61.6% vs. 82.0%, p<0.001). Additionally, 47.5% of serodiscordant indexes used ART compared to 80.6% of seroconcordant indexes (p<0.001). After adjusting for site and WHO stage, there was a 36% increased prevalence (95% CI: 1.1 to 1.8). Figure 1 of ART use among serodiscordant indexes compared to seroconcordant indexes. There were no significant trends by gender.

Conclusions: The prevalence of ART use is greater among serodiscordant indexes. This may be driven by treatment as prevention, and continuing to emphasize ART use in this population is key. Additional emphasis on ART use in seroconcordant partners is necessary even if transmission is not of immediate concern.

TUPEC229
The need to improve HIV care for migrant populations in Botswana: Addressing the unknowns
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Background: Botswana has among the highest level of HIV viral suppression in the world, yet maintains HIV incidence >1% per year. Immigrant status has been found elsewhere to correspond to greater risk of infection, and poorer treatment outcomes. Although Botswana provides free antiretroviral therapy (ART) for all HIV-infected citizens, non-citizens are ineligible. Identifying testing/treatment gaps for its large immigrant population may help Botswana achieve greater viral suppression, and reduced transmission.

Methods: We reviewed published scientific/demographic literature to identify potential empirical gaps needed to address the following questions:

Conclusions: Migrant populations may help Botswana achieve greater viral suppression, and reduced transmission.

(1) Overall and Gender-specific Adjusted and Unadjusted Prevalence Ratios and 95% CI

[Figure 1. Overall and Gender-specific Adjusted and Unadjusted Prevalence Ratios and 95% CI]
TUPEC230
Prevalence and risk factors for unsuppressed viral load among HIV-positive female sex workers on antiretroviral therapy in Kampala, Uganda

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Background: There is limited information on viral suppression in key populations on antiretroviral therapy in Sub-Saharan Africa. We aimed to assess prevalence and risk factors for unsuppressed viral load (VL) among HIV-positive female sex workers (FSW) on antiretroviral therapy (ART) in Kampala, Uganda.

Methods: We conducted a cross-sectional study between January 2015 and December 2016, using routinely collected data at Good Health for Women Project (GHWP). Plasma samples collected from FSW at least 18 years old on ART were tested for HIV viral load (VL) at the Central Public Health Laboratories (CPHL) in Uganda. Unsuppressed VL was defined as ≥ 1000 copies of viral RNA/mL plasma. Socio-demographic, sexual behaviour, clinical and VL data were extracted from clinic records. We used logistic regression to identify factors independently associated with unsuppressed VL.

Results: Four hundred and thirty two HIV-positive FSW on ART were included in the analysis; mean age was 32.5 years (SD=6.3). Of these, 38 (9.3%) had unsuppressed VL. In the adjusted analysis, unsuppressed VL was independently associated with participant age (young age (≤18-24) adjusted odds ratio (aOR) = 5.3 [95% CI 1.6-17.9]), having ever been married, wedlock or other than being single, and receiving an invitation letter from the gynecologist to attend an examination (aOR = 1.85 [95% CI 1.02-3.35]).

Conclusions: These results show that there is a need for improving the access to sexual and reproductive health services among Roma women who are not living in partnerships and for women who are not pregnant or have given birth. Furthermore, there is a need to strengthen the implementation of measures that are effective in engaging Roma women in utilizing sexual and reproductive health services.

TUPEC231
Factors associated with self-reported utilization of sexual and reproductive health services among Roma women in Macedonia


Background: The support from Global Fund to Fight AIDS, Tuberculosis and Malaria in Macedonia has phased out at the end of 2017 and the sustainability of the programs is under discussion as Macedonia is transitioning towards governmental funding of these programs. As a result, there is a need to ensure continuous provision of interventions that engage marginalized communities in the health system. Roma population in Macedonia is a highly marginalized community living in poverty with limited access to health services. This study aims to determine factors associated with attendance at preventative gynecological examinations among Roma women in five municipalities in Macedonia.

Methods: Roma women aged 18 or older were included in a standardized cross-sectional study conducted in Macedonia on five different locations, Shuto Orizari municipality and Topaana neighborhood in Chair municipality in Skopje, Delcevo, Vinica and Pehcevo during 2017. We conducted bivariate and multivariate logistic regression to assess the correlates with the attendance at preventative gynecological examinations for all municipalities combined.

Results: Fifty-six percent (501/894) of the participants had not received a preventative gynecological examination within 3 years. Factors associated with attending preventative gynecological examinations were being married, wedlock or other than being single, and receiving an invitation letter from the gynecologist to attend an examination (aOR = 2.28 [95% CI 1.29-4.02]) and having received an invitation letter from the gynecologist (aOR = 2.05 [95% CI 1.18-3.55]).

Conclusions: These results show that there is a need for improving the access to sexual and reproductive health services among Roma women who are not living in partnerships and for women who are not pregnant or have given birth. Furthermore, there is a need to strengthen the implementation of measures that are effective in engaging Roma women in utilizing sexual and reproductive health services.
TUPEC232
Correlates of HIV infection among transgender women and men who have sex with men in Peru: Implications for targeted HIV prevention strategies
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Background: Men who have sex with men (MSM) and transgender women (TGW) in Peru bear a disproportionate burden of HIV infection. We examined correlates of HIV and sexual risk behaviors among MSM and TGW in Peru, and compared characteristics between the two groups.

Methods: We conducted comparative analyses of HIV/STI prevalence, self-reported sexual risk behavior, alcohol and drug use and demographic characteristics between HIV-infected and uninfected participants, and between MSM and TGW.

Results: Between June and October 2011, 5,148 high-risk MSM were recruited using convenience sampling in five Peruvian cities to participate in a cross-sectional bio-behavioral survey. HIV prevalence among TGW was two-fold greater than among MSM (14.9% vs. 7.0%, p < 0.001) and HIV-infected participants compared to their HIV-uninfected counterparts were significantly (p < 0.001) more likely to be commercial sex worker (CSW; 42.2% vs. 32.9%) and have more mean sexual partners (15.8 vs. 10.3). TGW were also significantly (p < 0.001) more likely than MSM to be CSW, have an alcohol use disorder (69.1% vs. 62.1%) have a higher mean number of sexual partners (36.0 vs. 6.7), and unprotected sex events in the past X months (6.7 vs. 3.2).

Conclusions: Both MSM and TGW in Peru engage in high-risk sexual behaviors, placing them at increased risk for HIV/STI transmission. TGW, however, are more likely to be infected and have even higher risks. Risk behaviors for both groups include commercial sex-work, multiple partners and unprotected sex. Prevention efforts in Peru should continue to target these groups for primary HIV prevention and TGW may require more targeted efforts. This may change after you do the multivariate model.

TUPEC233
Perceived undertreated pain is associated with overdose among older HIV-positive people who inject drugs in Vancouver, Canada
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Background: Pain is common and often inadequately managed among people living with HIV (PLWH). As has been highlighted in recent clinical practice guidelines for managing chronic pain among PLWH, increasing concerns regarding opioid overdose trends and comorbidities related to aging populations of PLWH, we sought to explore the impact of perceived undertreated pain on non-fatal overdose among age subgroups of PLWH who inject drugs.

Methods: Bivariate and multivariable generalized estimating equations (GEE) were used to examine the impact of perceived undertreated pain on non-fatal overdose among HIV-seropositive people who reported ever injecting drugs in the AIDS Care Cohort to Evaluate exposure to Survival Services (ACCESS) prospective cohort study in Vancouver, Canada. From June 2014 to May 2016. Participants were considered to have perceived undertreated pain if they reported feeling the need to take more of, or a stronger type of, pain medication than they had been prescribed, based on sub-questions of the Brief Pain Inventory.

Results: In total, 555 participants were eligible for this analysis, of which 359 (65.6%) were male. The median age was 49 years (interquartile range: 43-54 years). In total, 113 overdoses were observed over the study period from 93 (66.7%) unique individuals. Perceived undertreated pain was significantly associated with overdose in bivariable analyses (adjusted Odds Ratio [OR]: 2.05, 95% Confidence Interval [CI]: 1.32-3.16) and in a multivariable analysis adjusted for confounding variables (Adjusted Odds Ratio [AOR]: 2.24, 95% CI: 1.40-3.59). In the multivariable analysis, perceived undertreated pain remained independently associated with overdose, while drug use variables (e.g., daily heroin injection) did not. Within age strata, perceived undertreated pain was independently associated with overdose in the oldest stratum aged 50-60 (AOR: 3.73, CI: 1.75-7.94), but not in younger strata aged 30-40 (AOR: 2.51, CI: 0.49-12.80) or 40-50 (AOR: 1.87, CI: 0.86-4.06).

Conclusions: The positive independent association between perceived undertreated pain and overdose in this study highlights the potential role of pain management in mitigating overdose among PLWH who inject drugs—particularly older subpopulations. These findings also suggest that perceived undertreated pain may be a more significant predictor of overdose than drug use patterns alone.

Risk factors for acquisition, infectivity and transmission of HIV
TUPEC234
Latent profiles of behavioral and sexual risk for HIV-negative and positive young African American men who have sex with men: Implication for HIV prevention and pre-exposure prophylaxis
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Background: Young African American men who have sex with men (YAMSM) have high HIV risk, but are less likely than other groups to be prescribed pre-exposure prophylaxis if they are HIV-negative and less likely to be retained in care or virally suppressed if they are HIV-positive. Thus, in order to inform HIV prevention and intervention efforts, the present study identified profiles of HIV-related behavioral risks and protective factors and whether these profiles could be distinguished by socioeconomic risk factors and HIV status.

Methods: YAMSM (N=1,808) in two Texas cities completed a survey of sociodemographic characteristics, HIV status, HIV-related behavioral risk and protective factors (i.e., condom self-efficacy, negative condom
TUPEC235

The young, the old and the risky: HIV risk factors by age among voluntary medical male circumcision clients in Zambia 2017

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Background: Circumcising men with the highest baseline HIV infection risk achieves the greatest absolute risk reduction from male circumcision. In practice, voluntary male medical circumcision (VMMC) programs have relied on age as a proxy for risk. However, previous studies have not reported risk factors according to VMMC client age. We investigated the association between age and self-reported HIV risk factors among clients in a VMMC program led by the Zambia Ministry of Health and Jhpiego.

Methods: In May 2017, a VMMC program began asking clients aged ≥15 years about several HIV risk factors to better inform counseling during preoperative evaluation. Clients were asked about recent (≤6 month) sex partners, alcohol use, condom use, intravenous drug use, history of sexually transmitted infections (STIs), and other factors.

Results: Among 2,846 interviewed VMMC clients during May-September, 2,318 (81.4%) had complete data. Of these, 380 (16.4%) clients reported at least 1 HIV risk factor in the past 6 months, and 153 (6.6%) reported ≥2. The proportion of clients reporting any, ≥2, or any of the six individual risk factors varied by age group (p<0.05), with all but drug use increasing with age (Table).

TUPEC236

Factors associated with mother-child HIV transmission in Uruguay: The importance of goals 90-90-90 in the elimination strategy

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Background: There are approximately 130 children per year who are born exposed to HIV-infected women in Uruguay. Although measures to prevent mother-to-child transmission (PMTCT) of HIV have been implemented years ago, it has not yet been possible to achieve sustained elimination of MTCT. An analysis of the national cohort of children exposed to HIV in Uruguay was conducted to evaluate the variables associated with MTCT.

Methods: A cross-sectional study of live births HIV exposed between 2012 and 2016 in Uruguay.

Results: A total of 610 pregnancies resulted in 622 live births exposed to HIV. The overall MTCT rate was 2.7% in 2012, 1.5% in 2013, 0.7% in 2014, 1.8% in 2015, 1.6% in 2016. The women’s average age was 28 ± 7 years, CD4 count 508 ± 311 cells/µl. The median gestational age and interquartile range of the first pregnancy control was 12 (11-17) weeks, HIV diagnosis was 37 (21-47) weeks in women without previous diagnosis and, of the start of HAART was 20 (14-27) weeks. The percentage of women with diagnosis of HIV prior to pregnancy and the HAART coverage was 65% and 48%, respectively. An improvement in these indicators was verified from 43.6% to 65.4% and from 27% to 67% between 2012 and 2016, respectively (figure).

At 18-month follow-up, the MTCT rate was 0% in women with HAART prior to conception or initiating it before 14 weeks, 1% among who started HAART between 14 and 27 weeks, 13% among who started at gestational age greater than 27 weeks, and 15% among who did not receive HAART.

The factors associated with MTCT in the univariate analysis were: poorly controlled pregnancy, not receiving any prophylaxis or start HAART late, breastfeeding, virological suppression, newborn without chemoprophylaxis (table). There were no variables independently associated in the multivariate analysis.

TUPEC235

Factors associated with mother-child HIV transmission in Uruguay: The importance of goals 90-90-90 in the elimination strategy

S. Cabrera1, A. Visconti1, M. Guirado2, D. Pérez3, A. Bálsamo1, J. Quian1
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The factors associated with MTCT in the univariate analysis were: poorly controlled pregnancy, not receiving any prophylaxis or start HAART late, breastfeeding, virological suppression, newborn without chemoprophylaxis (table). There were no variables independently associated in the multivariate analysis.
Conclusions: The diagnosis of HIV and HAART coverage prior to pregnancy are the main factors in the PMTCT of HIV, so the achievement of 90–90–90 goals in HIV-infected women would make it possible to achieve the goal of eliminating perinatal HIV transmission.

<table>
<thead>
<tr>
<th>Variables</th>
<th>OR (CI 95%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor controlled pregnancy (&lt; 5 controls)</td>
<td>4.03 (1.11-14.68)</td>
<td>0.045</td>
</tr>
<tr>
<td>HIV diagnosis before pregnancy</td>
<td>0.20 (0.07-0.61)</td>
<td>0.002</td>
</tr>
<tr>
<td>HIV diagnosis in pregnancy &gt; 28 weeks</td>
<td>20.74 (7.41-58.00)</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>Acute infection during pregnancy</td>
<td>17.71 (4.43-66.94)</td>
<td>0.007</td>
</tr>
<tr>
<td>No HAART in pregnancy</td>
<td>4.97 (1.99-12.68)</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>HAART started &gt; 28 weeks</td>
<td>14.37 (4.18-49.33)</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>Suppressed viral load</td>
<td>0.15 (0.05-0.46)</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>No chemoprophylaxis for the newborn</td>
<td>9.01 (2.42-33.96)</td>
<td>0.02</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>11.64 (3.26-41.59)</td>
<td>0.014</td>
</tr>
</tbody>
</table>

(TUPEC238)

Comorbidities and antiretroviral therapy treatment failure synergies: A case-control study in low resource settings - Kadoma, Zimbabwe 2017

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Background: Antiretroviral Therapy (ART) treatment failure remains a public health concern threatening the goal of viral suppression. In Kadoma, a concomitant increase in prevalence of comorbidities (non-communicable and infectious diseases) among clients failing ART was noted from 2012-2016. An investigation to determine the role of comorbidities in ART treatment failure was conducted.

Methods: A 1:1 unmatched case-control study was conducted, a case of treatment failure defined as per World Health Organisation clinical, immunological or virological criteria. Cases and controls were randomly selected. Data collection comprised of interviews, records review, screening tests for hypertension, metabolic syndrome, diabetes, hepatitis, syphilis, cryptocoecosis and depression. Epi Info 7 was used to generate frequencies, proportions and means for descriptive statistics. Bivariate analysis was done to explore relationships between comorbidities and treatment failure. Logistic regression analysis was done to determine the independent factors associated with treatment failure.

Results: One hundred and eighteen cases and 118 controls were recruited. In bivariate analysis, male sex (OR=2.4, CI 1.3-4.2) and having ≥ 2 comorbidities (OR=3.1, CI 1.6-6.2) were risk factors for treatment failure whilst having ≤ 1 sexual partner in previous month (OR=0.42, CI 0.23-0.85) was protective. Tuberculosis infection (OR=2.5, CI 1.3-4.8) and oophoryngeal candidiasis (OR=4.3, CI 1.2-15.8) were predictors of treatment failure. In logistic regression analysis, reported use of dual contraception (aOR=0.44, CI 0.23-0.85) was protective whilst having detectable urobilinogen (aOR=4.32, CI 1.88-11.70) at urinalysis was a risk factor. A stronger dose response relationship was exhibited between coinfections (No coinfection OR=0.42, 1-2 coinfections OR=1.5, 3 coinfections OR=3.0) and ART treatment failure.

Conclusions: Although comorbidities have shown to play a role in ART failure, male sex and use of dual contraception have shown a bigger role in ART failure. These findings suggest sexually transmitted HIV drug resistance as being key to treatment failure in this setting. We recommend use of dual contraception, screening and treatment of comorbidities and a study to explore the significance of urobilinogen in treatment failure.

TUPEC239

An increase in rates of HIV infection among people who inject drugs in Petrovatslov, Kazakhstan, 2016-2017

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Background: Drug injection is a major driver of HIV infection in Kazakhstan with HIV prevalence among people who inject drugs (PWID) from 9.3 to 26.5% in different regions. Between July 2016 and May 2017, 256 new cases of HIV were reported among PWID in a northern Kazakhstan region, and local authorities were concerned the cases were linked to an influx of injecting drugs.
of synthetic drugs ('bath salts'). These cases accounted for 31% of HIV infection attributed to drug injection in the country. Of the 256 cases, 244 (95%) were detected in Petropavlovsk City. We aimed to identify factors associated with this increase in HIV infection.

**Methods:** Between June and July 2017, we performed a case-control study among PWID aged 18 years in Petropavlovsk. Cases with a new HIV infection after July 1, 2016 and HIV controls were identified through active surveillance and contact tracing. Participants responded to a questionnaire on demographics and sexual/drug injecting behaviors. Controls received serologic testing for HIV. Logistic regression was used to examine the association of exposures with HIV infection.

**Results:** Prevalence of risk behaviors was high among 73 cases and 111 controls, with mean duration of drug injection 10 and 12 years (range 3-19 and 4-20) respectively. In multivariate regression, heroin injection (adjusted odds ratio [AOR]=6.9, 95% confidence interval [CI] 1.1-135.1), bath salts use (AOR=3.6, 95% CI 1.4-10.4), sharing syringes (AOR 3.5, 95% CI 1.6-8.1), invasive medical procedures (AOR=3.5, 95% CI 1.4-9.3), and condom use (AOR=0.2, 95% CI 01-0.9) were strongly associated with HIV infection.

**Conclusions:** Heroin and bath salts use, sharing syringes and invasive medical procedures are key factors of HIV infection in Petropavlovsk. Scale-up of unlimited access to harm reduction commodities, HIV testing and treatment for PWID as well as strengthened hospital infection control are recommended to reduce HIV transmission risk in Petropavlovsk.

### TUPEC240

**Predictors of condomless sex among non-suppressed adolescent MSM and transgender women in the United States**


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**Background:** A minority of HIV+ youth in the United States achieve viral suppression, with rates lower for Black young men who have sex with men (YMSM). Elevated viral loads (VLs) increase the likelihood of viral transmission during condomless anal intercourse (CAI).

**Methods:** From 10/2015 to 9/2016, HIV+ YMSM and transgender women (TW) who have sex with men (age 16-24) with detectable VLs were enrolled in a smartphone app-based antiretroviral therapy (ART) adherence intervention. Baseline data, stratified by any CAI and any serodiscordant CAI, were computed. Random Forests and regression methods were used to determine covariates of importance for predicting each type of CAI. Prevalence rate ratios and 95% confidence intervals were calculated.

**Results:** 126 participants enrolled; median age was 21.5 years; 50.7% started ART within 12 months. Median VL was 4096 copies/mL. Most identified as male (93.2%), gay (77.4%) and Black (75.3%). The population exhibited high rates of problematic substance use (49.3%), 32.8% reported daily marijuana use. Half (51.7%) reported engaging in CAI in the past 3 months; 52.1% of those reported serodiscordant CAI. Significant predictors of CAI (Figure 1A) included any marijuana use, problematic substance use and being in a committed relationship. Youth with problematic substance use were 3x more likely to engage in serodiscordant CAI (p<0.001) (Figure 1B). Youth with higher internalized homophobia were more likely to engage in both CAI (p<0.001) and serodiscordant CAI (p<0.01). There was no association between HIV transmission beliefs and serodiscordant CAI. Only 47% of participants endorsed the belief that they were less likely to infect another person through CAI if they had a low or undetectable VL.

**Conclusions:** High rates of CAI and serodiscordant CAI among HIV+ YMSM/TW with detectable VLs is concerning. In addition to being associated with CAI, substance use can negatively impact ART adherence; thus, multifaceted interventions that address conditions impacting HIV+ YMSM/TW is critical. CAI among those in relationships argues for a better understanding of communication patterns, relationship formation and dissolution that could guide interventions to increase protective behaviors among both partners. Addressing internalized homophobia through individual and structural methods, including promotion of messaging reinforcing ‘undetectable=untransmittable’, should be targeted to YMSM/TW.

### TUPEC241

**Key drivers of the changing HIV/AIDS epidemic in North-East of India**

P. Adhikary

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**Background:** The HIV/AIDS epidemic in North-East of India started in early 1990s and until recently it was mainly driven by injecting drug use. However, some recent research studies as well as new evidences indicate that the epidemic in North-East of India, particularly in the states of Mizoram and Nagaland, is transitioning from an injecting drug use to a heterosexual epidemic. Urgent need was felt to assess and understand the underlying socio-eco-demographic, cultural and epidemiological factors of the HIV epidemic there.

**Methods:** The methodology of the assessment included three components:

1. An extensive review of existing literature (both published as well as non-published)
2. In-depth analysis of available secondary data including huge amount of program data e.g. ICTC data, ART data etc. and other data sources like HSS, IBSS etc.
3. Discussions with key policy makers, program managers at national as well as state levels. Mizoram and Nagaland were covered in the first phase of the assessment. The first phase of the assessment was undertaken from Oct 2016 to Jan 2017.

**Results:** In Mizoram, the key drivers of the changing HIV epidemic include very high HIV prevalence among injecting drug users in some districts, high degree of casual sex, very low condom use, recent disruptions in program interventions, low treatment coverage, high lost-to-follow up of HIV positive cases, non-coverage certain important vulnerable groups and repeal of the Mizoram Liquor Total Prohibition Act. Whereas, in Nagaland, the key identified drivers of the changing epidemic are high STI prevalence among key populations, significant overlap between injecting drug use and commercial sex work, high degree of unprotect-
ed casual sex, late identification of positive cases and absence of Link Worker Scheme, an effective HIV intervention program in rural areas. All these key drivers are identified based on in-depth analysis of program data as well as other available data sources.

Conclusions: The findings clearly indicate that a more comprehensive intervention strategy needs to be adopted immediately to respond to the changing epidemic scenario in North-East of India. The sexual risk behaviours need to be addressed urgently with an equal priority.

TUPEC242
Depressive symptoms, substance use and sexual risk behaviors among Black men who have sex with men (MSM)

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Background: MSM experience elevated rates of depression, which is associated with risk factors for HIV infection, including substance use and sexual risk. Depression in racial minority MSM is not well-studied and may contribute to persistently high HIV rates among black MSM in the United States (US). We explore the prevalence and correlates of depressive symptoms in HIV-negative US MSM enrolled in a pre-exposure prophylaxis (PrEP) study.

Methods: Participant inclusion criteria were self-identified black MSM who screened eligible for PrEP. Participants with a CES-D score ≥16 were considered to have depressive symptoms. Problematic drug use was measured with the TCU Drug Screen II (score ≥3) and problematic alcohol use with the Alcohol Use Disorders Identification Test (AUDIT, score ≥8). Structured interviewer-administered questionnaires were used to assess sexual risk behaviors, including transactional sex (giving or receiving goods such as money, alcohol, or drugs in exchange for sex) with sexual minority partners (MSM) and other partners and condomless sexual intercourse with MSM and other partners. Comparisons between groups were measured using Student’s t-tests, Chi-square tests, or Fisher’s Exact tests, as appropriate.

Results: Among 193 MSM enrolled, 44.0% reported depressive symptoms; 16.6% reported problematic alcohol use and 15.0% reported problematic drug use. 17.7% of participants reported condomless sex with MSP and 11.8% reported engaging in transactional sex. Depressive symptoms were significantly associated with problematic drug use (p<0.0002), condomless intercourse with MSP (p=0.02) and transactional sex (p=0.008). Participants with depressive symptoms were at an almost 4-fold higher risk for problematic drug use [RR (95% CI): 3.99 (1.79 - 8.90) * 0.0002*] compared to those without, a 15-fold higher risk of not using a condom with MSP [RR (95% CI): 1.49 (1.06 - 2.09) *] and a 13-fold higher risk of exchanging goods for sex with other partners [RR (95% CI): 13.06 (1.73 - 98.63) *].

Conclusions: Depressive symptomatology was highly prevalent in this population of black MSM eligible for PrEP and was associated with problematic substance use and sexual risk. Our findings highlight the need for mental health services in this highly HIV-impacted population. Addressing depression and substance use in this vulnerable population may strengthen PrEP and other HIV prevention efforts.

TUPEC243
Factors associated with sexually transmitted infections among sexually active U.S. Navy and Marine Corps personnel across a shipboard deployment

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Background: Longitudinal data are limited on risk factors associated with sexually transmitted infections (STIs) in deploying military populations who may acquire or transmit STIs transnationally. This study examined factors associated with STIs 12 months prior to international deployment departure (T1), during deployment (T2), and within 3 months of returning from deployment (T3) among US military personnel.

Methods: Data were collected among active duty U.S. Navy and Marine Corps personnel assigned to 11 deploying ships using an anonymous, voluntary, self-report survey. Including questions on demographics, chlamydia, gonorrhea, trichomoniasis, or syphilis diagnosis by a healthcare provider, transactional sex, alcohol misuse, and drug use. Descriptive and generalized regression model analyses were conducted to determine the effects of main exposures after adjusting for sex, age, race, marital status and education. When longitudinal data were included, generalized estimating equations were used.

Results: Among 2,400 participants, 2,232 (T1); 649 (T2); and 1,200 (T3) met inclusion criteria i.e. reported age, sex and that they were sexually active in the relevant time interval) and were accordingly included in analysis. The proportion of sexually active individuals with a STI diagnosis was 2.8% (n = 63/2232, T1); 6.8% (n = 44/649, T2); and 2.3% (n = 28/1200, T3). After adjusting for demographics, participants with an STI diagnosis had significantly higher odds of screening positive for severe alcohol misuse, reporting transactional sex, MSM/MSMW anal sex, and drugs with sex. The association between risk factors and STI diagnosis significantly varied by timepoint.

Conclusions: The majority of STIs were reported before or after international deployment, but there was a higher proportion of STIs reported among those sexually active during deployment. Proportions of STIs were substantially higher among individuals engaged in behaviors that could be screened for before and during deployment. Individuals that screen positive for these risk behaviors could receive differentiated care, more frequent STI testing, and provision of other supportive care (substance abuse or mental health resources, safer sex education) to possibly mitigate STI transmission risk while deployed internationally. These data may be relevant to other military who support international peacekeeping or deploying personnel.
TUPEC244
Trajectories of physical intimate partner violence among adolescent girls in rural South Africa: Who is at consistently high risk? (HPTN068)
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Background: Adolescent girls are at high risk of HIV in South Africa, and intimate partner violence (IPV) is considered an important risk factor. Little is known about how IPV develops differently across individuals over time and what predicts those experiences.

Methods: We identified longitudinal trajectories and related baseline predictors of physical IPV (PIPV) among adolescent girls in the MRC/Wits-Agincourt Health and socio-Demographic Surveillance Site, South Africa. Data came from HPTN068, a randomized controlled trial of conditional cash transfers for HIV prevention. Adolescent girls in grade 8 or 9 in 2011 (baseline visit) who had at least three annual assessments for PIPv (yes/no in the prior 12 months) were included in the analysis (n=907). We used group-based trajectory modeling to identify latent groups with different temporal patterns of PIPv and simple logistic regression to assess baseline predictors of group membership.

Results: We identified two distinct PIPv trajectories among adolescent girls: A “High PIPv” group, comprising an estimated 64.6% of the population, was characterized by an increase in the predicted probability of PIPv from ~12.5% to ~31.6% over the first year, followed by a probability of ~37.5% and ~23.7% thereafter. The “Low PIPv” group, comprising an estimated 35.2% of the population, had a 0% probability of reporting PIPv in the first two years, followed by an increase to ~10% between years 2 and 3 (Figure 1). Girls in the high group were more likely to report at baseline that they had ever had vaginal or anal sex (unadjusted odds ratio [uOR]=1.09; CI: 0.93-1.28) than girls in the low group. Additional cash transfers for HIV prevention. Adolescent girls in grade 8 or 9 in 2011 (baseline visit) who had at least three annual assessments for PIPv (yes/no in the prior 12 months) were included in the analysis (n=907). We used group-based trajectory modeling to identify latent groups with different temporal patterns of PIPv and simple logistic regression to assess baseline predictors of group membership.

Conclusions: Longitudinal patterns of PIPv varied among adolescent girls, with nearly two-thirds experiencing a consistently high probability of PIPv. Targeted intervention strategies tailored to those at higher risk could maximize reductions in PIPv.

Figure 1. Physical IPV Trajectories among Adolescent Girls in the MRC/Wits-Agincourt HIV and socio-Demographic Surveillance Site, South Africa.

TUPEC245
"Probable seroconversion" is associated with having non-tested positive people who inject drugs (PWID) in the referral chain
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Background: Timely HIV detection to increase the number of people who know they are infected can reduce mortality and new infections. Analysis of PWID network structure may enhance case finding rates.

Methods: We analyzed 2013 Ukrainian integrated bio-behavioural surveillance (IBBS) data for PWID for “probable seroconversion”, which we defined as a current positive HIV test with a self-reported prior HIV-negative test. We used logistic regression to analyze association between seroconversion status of PWID and HIV test results of peers immediately adjacent in the recruitment chain. A participant X is adjacent to participant Y if one of them was recruited by the other’s coupon.

Results: 1902 PWID participated in IBBS 2013, of whom 6,255 PWID had prior HIV testing experience. 4,860 of these reported their most recent prior HIV test was negative. Comparing them with HIV testing results within the study, 238 probable seroconversions were found. In multivariate logistic regression, having either at least one HIV-positive PWID with previously unknown serostatus (AOR=2.07; CI: 1.46-2.93) was a predictor of probable seroconversion. Having a PWID in the referral chain who shared syringe during last injection (AOR=2.46; CI: 1.21-5.00), as well as having only female PWID in the recruitment chain (AOR=1.66; CI: 1.03-2.68) also increased the odds for probable seroconversion.

Conclusions: PWID in Ukraine continue to have substantial HIV seroconversion rates, particularly if their peers include HIV-positive PWID who practice high-risk injection behaviour. HIV case finding that incorporates innovative network tracing techniques may be more effective.

TUPEC246
Replicable research on anal sex amongst female sex workers in India towards initiation of effective HIV prevention interventions across continents
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Background: Anal-sex between men and women has not received much attention as anal-intercourse between men. However, it plays an important role in HIV transmission amongst heterosexuals. This study attempts not only to explore the occurrence and drivers of anal sex practices amongst Female Sex Workers (FSWs) in India but also to authentically ally provide new insights and base for future research.

Methods: Pre-tested questionnaire (translated and validated in Hindi and Kannada languages) was administered for interview by involving 120 FSWs from two important states of India namely Uttar Pradesh (UP) and Karnataka representing northern and southern India. Basti district, UP and Belgaum district, Karnataka were the study locations (60 FSWs from each state/district). Mean age of FSWs were 29.6 years (18 years-39 years) for UP while 32 years (20-42 years) for Karnataka. Informed consent was obtained from participants. Overall, study was conducted during 16th August 2017 to 15th November 2017.

Results: Data analysis revealed that 29% of FSWs had anal sex with clients and 66% used condom during their last anal sex in Karnataka while these ratios were 28% and 62% for UP. Dangerous misconception was observed prevailing amongst FSWs that anal sex is safer in terms of STI/ HIV infection for which 50% of 60 i.e. 93.3% in Karnataka and 81.6% in UP FSWs considered it safe while this percentile was relatively high amongst illiterate respondents in Karnataka (31.6%) and UP (29.6%). Multivariate analysis further showed that risk of pregnancy, preserving appearance of virginity, avoidance of contact with menstrual blood, sake of enhanced physical pleasure, experimentation as a matter of style,
Increased methamphetamine use in Hai Phong, Vietnam and associations with sexual and injection risk behaviors among persons who inject drugs, 2016-2017

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Background: Methamphetamine is associated with both injection and sexual risk behaviors. The use of methamphetamine has increased significantly in Vietnam in the last 10 years. This study examines effects of increased methamphetamine use on an existing HIV-epidemic among heterosexual persons who inject drugs (PWID) in Hai Phong, Vietnam, with specific focus on potential sexual transmission of HIV.

Methods: Using respondent driven sampling (RDS), we recruited persons currently injecting drugs. Participants were administered a quantitative questionnaire on risk behaviors and were tested for HIV and hepatitis C virus (HCV). Bivariate and multivariable logistic regression assessed associations between current (in last 30 days) methamphetamine use, injection risk and sexual risk behaviors.

Results: We recruited 1336 heterosexual PWID in 2016-2017, they were predominately male (94%), injecting heroin (100%) and 51% reported current methamphetamine use. In the previous six months, among those sexually active (54%), 71% reported unsafe sex with any partner and among those with primary partners (45%), 79% reported unsafe sex with their primary partners. In multivariable analysis, current methamphetamine use among HIV seropositives was associated with any unsafe sex (AOR 2.30, 95% CI: 1.20-4.42) and unsafe sex with primary partners (AOR 2.06, 95% CI: 1.68, 2.58).

Conclusions: The association with current methamphetamine use and potential sexual transmission of HIV in Haiphong is of considerable concern. Methamphetamine increases the likelihood of PWID transmitting HIV to non-injecting primary sexual partners. Methamphetamine use can also reduce adherence to ART and can lead to exhaustion of the immune system. All participants were injecting heroin, and methamphetamine use may interfere with opiate use treatment. Public health efforts should focus on the large increase in methamphetamine use and the associated sexual risk behaviors. Emphasis on sexual risk behavior, particularly among those that are HIV positive, in conjunction with continued monitoring of ART adherence and HIV viral loads will be critical.

TUPEC248

Predictors of abstinence and condom use among rural youth and adults in Malawi

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Background: Abstinence and condom use are effective strategies for reducing new infections, but they are seldom examined together or for both youth and adults. We compared abstinence and condom use predictors among youth and adults in a high-prevalence rural district in southern Malawi.

Methods: Baseline surveys of 544 youth (ages 15-19) and 410 adults from a community HIV prevention study were used. Dependent variables were abstinence and condom use (among sexually active individuals) in the past 2 months. Predictors were age, education, in school (youth only), religion, religious involvement, HIV-related knowledge (9 items), self-efficacy (4 safer-sex items, range 0-12) and partner communication (4 safer-sex topics, range 0-4). Logistic regression and ordinal proportional odds logistic regression models were conducted, for abstinence and condom use respectively, with backward selection, controlling for a two-sided Type I error probability of 0.05.

Results: Mean age was 16 for youth and 35 for adults. Mean education was 8.8 years for youth and 8.1 for adults, 77% of youth were in school. Both youth and adults were half female, 70% Protestant, and had high religious involvement (66%). Knowledge and self-efficacy scores. Mean partner communication was 2.8. Among youth, 48% abstained. Younger age, more education, currently in school and high religious involvement were significantly associated with abstinence (Table 1). Among sexually active youth, 52% always used condoms and 34% used sometimes. Being older, in school and partner communication predicted more condom use.

Variable Youth If Abstained Adult If Abstained Adult Condom Use n = 544 n = 130 n = 302
Age 0.74 (0.65, 0.85) 1.34 (1.02, 1.81) 1.04 (1.02, 1.09) N.S.
Gender 1.18 (1.08, 1.29) 2.71 (1.26, 5.81) 8.22 (3.24, 20.84) N.S.
Education (Yrs.) 1.80 (1.13, 2.86) 2.71 (1.26, 5.81) N.S. N.S.
In School Now 1.80 (1.13, 2.86) 2.71 (1.26, 5.81) N.S. N.S.
Religion N.S. N.S. N.S. N.S.
Religious Involvement 1.65 (1.15, 2.36) N.S. N.S. 1.97 (1.21, 3.21)
HIV-Related Knowledge N.S. N.S. N.S. N.S.
Self-Efficacy N.S. N.S. N.S. 1.22 (1.04, 1.43)
Partner Communication – 1.60 (1.10, 2.31) – 2.06 (1.68, 2.58)

(Table 1. Abstaining and condom use among sexually active persons for rural youth and adults (Odds Ratios and 95% Confidence intervals))

Among adults, 12% abstained; older adults and females were more likely to abstain. Among sexually active adults, 25% always used condoms and 37% used sometimes. Greater religious involvement, self-efficacy and partner communication predicted more condom use.

Conclusions: Findings have important implications for HIV prevention. Half of youth are abstaining, and being in school is associated with abstinence and condom use. Therefore youth programs and policies should emphasize both prevention strategies and continued education. HIV prevention should emphasize partner communication skills, a modifiable factor affecting condom use regardless of gender. Gender-related only to adult abstinence, indicating the importance of prevention for both genders. Religious involvement affected youth abstinence and adult condom use, warranting further exploration of collaboration with religious organizations.
TUPEC250
Drivers of HIV Infection in Botswana: Implications for treatment and prevention

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Background: Botswana has one of the most severe HIV epidemics worldwide: in 2013, 23% of 15-69 year olds were infected. The population of Botswana is predominantly urban: 16% live in cities, 5% in towns, 43% in rural villages, 35% in rural villages and 8% are nomadic.

Methods: We analyzed data from the Botswana AIDS Impact Survey IV, a national representative survey of 5,415 households conducted in 2013 using a two-stage stratified sampling framework, 3,365 women and 2,745 men were tested for HIV. We conducted a multivariate analysis to identify gender-specific risk factors for HIV infection. We calculated age-adjusted odds ratios (aOR) with 95% confidence intervals (CI).

Results: In 2013, overall prevalence was higher in women (26%) than men (20%). Prevalence was highest in women 35-39 years old (50%) and men 45-49 years old (42%). Living in cities was found to be much riskier than living in towns for both women (aOR 1.78 [95% CI, 1.04-3.04]) and men (aOR 2.10 [95% CI, 1.13-3.92]). Co-infection with other sexually transmitted infections was also a risk factor for both women (aOR 1.69 [95% CI, 1.24-2.30]) and men (aOR 2.19 [95% CI, 1.41-3.39]). For women, we found an additional risk factor: having a current male partner who was ten or more years older (aOR 1.61 [95% CI, 1.00-2.51]). For men, we found that medical circumcision was effective in preventing HIV infection (aOR 0.52 [95% CI, 0.34-0.79]), but traditional circumcision was not (aOR 0.98 [95% CI, 0.47-1.96]). 22% of men were circumcised, 84% of these medically. Figure. Notably, neonatal levels of circumcision were low (~1%).

Conclusions: There are significant differences in HIV prevalence in Botswana based on geography, gender, and age. HIV prevention, treatment and care services should take these differences into consideration. There is an urgent need to treat STIs; this would both decrease susceptibility to, and transmission of, HIV. Prevention programs need to not only target women with high numbers of partners, but women who are having sex with much older men. Scaling up medical circumcision, a current goal of the government of Botswana, is very likely to have a substantial impact on decreasing HIV transmission.

TUPEC251
Exploring gender-based violence experienced by female sex workers in Gaborone, Botswana

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Background: Female sex workers (FSW) are disproportionately affected by HIV in Botswana, with an HIV prevalence rate of 61.6% compared to the 19.2% within the female general population. Amongst other variables correlated with HIV, a link exists between Gender Based Violence (GBV) and HIV. In Botswana, 1 in 3 women experience GBV, but little has been documented on the experiences of GBV among sex workers. The objective of this study is to explore the experiences of GBV among FSW’s in Gaborone and their subsequent increased risk of HIV infection.

Methods: Overall, 20 FSW’s from Gaborone shared their experiences of GBV through 10 in-depth interviews and 2 focus group discussions between November and December 2017. On average each interview session lasted 30 minutes, while focus group discussions lasted 45 minutes. The participants were purposely sampled from Nkaikela Youth Group (NYG), a non-government organization providing FSW friendly services. Data was collected, transcribed, and analyzed using thematic analysis by a NYG social worker and an intern from Pitzer College.

Results: GBV was identified to be one of the variables that promotes entry into sex work. Of the 20 respondents, 25% cite that their introduction into sex work was somewhat influenced by experiences of GBV. In addition, sex work has been found to expose FSW’s to abuse, with
TUPEC252
Relationship between intimate partner violence and risk behaviors for HIV/STIs among Black women accessing publicly funded STD clinics in Baltimore, MD, USA

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Background: In the United States (U.S.), Black women bear the greatest burden of both HIV infection and sexually transmitted infections (STIs). Further, previous research suggests that intimate partner violence (IPV) is linked to HIV/STI risk and infection among heterosexual women. However, few studies have examined associations between recent IPV and increased HIV/STI risk behaviors among Black women in geographic areas with high HIV prevalence in the U.S. The goal of the proposed study was to examine associations between recent IPV and risk behaviors for HIV/STI risk behaviors among Black women in Baltimore, MD.

Methods: A cross-sectional survey was conducted with Black women ages 18-44 (n = 265) seeking health care at government funded STD clinics in Baltimore, MD. USA from November 14 to December 17, 2017. The survey assessed sociodemographic characteristics, recent and past IPV (physical and/or forced sex), substance abuse, history of incarceration and HIV/STI sexual risk behaviors. Multivariate logistic regression models were conducted to determine whether recent IPV (physical and/or forced sex) were associated with risk behaviors for HIV/STIs.

Results: The mean age was 26.6 years, 72.7% were married and 64.3% were living at or below the federal poverty level. Furthermore, 15.2% reported being HIV-positive, 17% reported not knowing their HIV status and 74% reported ever testing positive for an STI (e.g., chlamydia, gonorrhea, syphilis, hepatitis B, hepatitis C, trichomomas, herpes). Recent IPV (physical violence and/or forced sex), substance abuse, history of incarceration and HIV/STI sexual risk behaviors. Multivariate logistic regression models were conducted to determine whether recent IPV (physical and/or forced sex) were associated with risk behaviors for HIV/STIs.

Conclusions: IPV was common among study participants and was associated with greater HIV/STI risk behaviors. Future efforts should focus on prevention (e.g. PreP) and advocacy interventions among Black women experiencing and/or at risk for IPV and HIV/STIs when they are coming as they are coming into care at STI clinics.

TUPEC253
Dose-response relationships between substance use frequency, self-reported involvement in sexual HIV transmission behaviors and HIV viral load among men who have sex with men in Los Angeles

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Background: Despite demonstrated links between the use of such drugs as illicit stimulants, alcohol and alkyl nitrate and HIV-related outcomes among men who have sex with men (MSM), limited research has explored the possibility of dose-response relationships between substance use and involvement in sexual HIV transmission behaviors and HIV disease progression among this group. We investigated whether more frequent use of methamphetamine, cannabis and amyl nitriles, and a higher frequency of heavy alcohol consumption, was associated with: 1) Self-reported involvement in sexual HIV transmission behaviors (last anal sex partner in past three months) among both HIV-positive and HIV-negative MSM; and, 2) Having a detectable viral load among HIV-positive MSM.

Methods: Data were sourced from the mSTUDY, an ongoing prospective cohort mainly comprising men of color who have sex with men in Los Angeles County. We fit three logistic regression models, each with a per-subject random intercept and varying by HIV-related outcome and subsample, and examined how odds ratios (ORs) varied across frequency categories for each drug.

Results: The sample comprised 485 participants with 1,319 observations (72% provided ≥2 observations). At baseline, the median age of participants was 31 (range: 18-46 years). 51% were HIV-positive, 48% identified as Hispanic/Latino and 45% identified as African American/black. For self-reported involvement in sexual HIV transmission behaviors, there was evidence of monotonic dose-response relationships for amyl nitriles among HIV-negative participants, and for methamphetamine across the whole sample; among HIV-negative participants, for example, the odds of reporting involvement in sexual HIV transmission behaviors increased with frequency of methamphetamine use from 3.03 (95%CI: 1.08, 8.69) for ‘less than monthly’ to 8.95 (95%CI: 2.80, 32.93) for ‘daily’ use. Overall, heavy drinking was not strongly associated with involvement in sexual HIV transmission behaviors among HIV-positive or HIV-negative participants; however, heavy daily drinking was associated with viral suppression.

Conclusions: Compared to the use of alcohol (heavily), cannabis and amyl nitriles, methamphetamine had the clearest deleterious dose-response relationships with HIV-related outcomes among our sample.

TUPEC254
The impact of severe drought and HIV in Southern Africa: Results from the LePHIA survey 2016-2017

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Background: An analysis of the impact of drought in Africa on HIV by Burke, et al. (2014) demonstrated an 11% increase in prevalence in HIV-endemic rural areas attributable to local rainfall shocks. The Lesotho Population-Based HIV Impact Assessment (LePHIA) was conducted...
November 2016-May 2017, after one of the most severe droughts in Southern African history, allowing for reevaluation of this relationship in a setting of expanded antiretroviral (ART) coverage.

Methods: LePHIA selected a nationally representative sample of adults and children. Individuals completed an interview and HIV testing. Deviations in rainfall for May 2011–June 2016 were measured using precipitation data from Climate Hazards Group InfraRed Precipitation with Station Data (CHIRPS), with severe drought (SD) set at ≥15% of the average rainfall from 1981-2016. The association between SD and HIV-related outcomes was assessed using logistic regression, incorporating survey weights and stratified by age, gender and geography (urban vs rural), with a particular focus on young persons.

Results: All of Lesotho suffered from drought, with regions receiving 1% to 31% of their historical rainfall. Only 5.7% (677/12,289) of households were in regions without SD, corresponding to 5.6% of children (737/2,491) and 5.8% of adults (742/12,887). In rural areas, 35.5% of households in SD areas reported food shortage in the past four weeks vs. 27.8% in non-drought areas (p=0.01). SD was associated with higher HIV prevalence in 15-19 year old females in rural areas (odds ratio [OR]=2.27, 95%CI:1.19-4.67, p=0.002), and lower awareness of HIV status in urban females aged 15-24 (OR=0.44, 95%CI:0.25-0.78, p=0.005). In rural 15-24 year old females, SD was associated with higher transactional sex (OR=3.56, 95%CI:1.78-7.88, p=0.001), early sexual debut (OR=3.11, 95%CI:1.42-6.74, p=0.004), lower attendance of secondary school (OR=0.44, 95%CI:0.25-0.78, p=0.005), and lower condom use (at last sex, OR=0.55, 95%CI:0.31-0.99, p=0.05). In a multivariable model, the impact of drought on HIV prevalence in 15-19 year old females persisted after adjusting for household wealth.

Conclusions: Severe drought was associated with higher HIV prevalence in adolescent girls, lower educational attainment and higher risky sexual behavior. Policy-makers should adopt potential mechanisms to facilitate HIV-1 acquisition by augmenting similar genital inflammation pathways. Our results suggest that in the presence of CD101 Ig-like variants, BV does not increase HIV-1 acquisition risk. Further studies of this may provide insights for a generalized target for HIV-1 prevention interventions.

TUPEC256

Cannabis use and increased risks for HIV among young black sexual minority males in Los Angeles County, California

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Background: Young black men who have sex with men (YBMSM) are at particularly high risk for cannabis abuse/dependence, with the probability of dependence increasing with frequency of use. Further, when used as a sex-drug by YBMSM, cannabis is associated with condomless and group sex resulting in increased HIV/STI risks. High rates of cannabis use within a sample drawn from Los Angeles County prompted us to explore the relationship between cannabis use and HIV risk factors among YBMSM.

Methods: Survey data were analyzed from a convenience sample of YBMSM (n=161, ages 18-24, mean-22 years) participating in our wellness project from 2016-2018 to explore the influence of peer support on 1) HIV/ hepaticus C testing and 2) Reduction of problem alcohol and cannabis use.

Results: Cannabis/hash was the most commonly used substance: 57.8% reported use in the past 30 days, while 42.2% used cannabis at least 5 days in the past 30 days, and 18.6% used cannabis daily or almost daily (20+ days out of 30). Cannabis smoking in the past 30 days was also related to problem alcohol use measured by the AUDIT problem drinking scale (t=2.743, p=0.007), but no other substances. Using a 16 variable composite, cannabis smoking was significantly associated with an overall sexual risk profile (t=4.378, p<0.001). Chi-squared tests revealed cannabis use was positively associated with HIV risk behaviors: 1) Engaging in anal sex (p = 0.05), 2) Sex with more than five male partners in the past 3 months (p=0.04), 3) unprotected sex with a partner known or suspected to inject drugs (p = 0.05), and 4) Exchanging sex for money, drugs or shelter (p < 0.05).

Conclusions: These initial findings suggest that cannabis may be an important contributor to the overall sexual HIV risk profile for YBMSM and point to the importance of identifying opportunities for developing holistic wellness intervention approaches that take into account the context within which YBMSM engage in high risk sexual behaviors. This is particularly important given the expansion of cannabis legalization in the U.S.
TUPEC257
Factors associated with risk HIV-infection among pregnant women in Cameroon: Evidence from the 2016 national sentinel sero-surveillance study

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Background: HIV/AIDS remains a major public health concern in Cameroon that requires regular surveillance for informed policy-making toward programmatic interventions. Using the national sentinel surveillance survey in Cameroon, we ascertained HIV prevalence and factors associated with risk of infection among pregnant women.

Methods: A cross-sectional study was conducted throughout 2016 in the 10 regions of Cameroon among 7000 first antenatal care (ANC-1) attendees (4000 from urban and 3000 rural sites) in 60 sentinel sites. HIV serological testing was performed by seroalgorithm at the National Reference Laboratory (NRL). Prevalence was determined and multivariable logistic regression was used to assess determinants of HIV infection, with p-value<0.05 considered statistically significant.

Results: Of the 7000 targets, a total of 6859 first ANC-1 were enrolled (98.0% sampling coverage). Median age was 26 (IQR: 21-39 years) and 47.40% had a secondary level of education. Acceptability of HIV test was 99.12% (6513/6566). The national prevalence of HIV was 5.70% (95% CI: 4.93 - 6.40). The national prevalence of infection was significantly different by sex, marital status and region. The results were as follows: (1) the age group 20 to 44 years old had a higher risk of being HIV infected; (2) married women were less likely to be infected than single ones (aOR 0.60; 95% CI: 0.46 - 0.78); and (3) the geographical setting revealing that participants in the Adamawa region were 2 or 3 times less likely to be infected than those living in the Centre, East, North-West and South-West regions of the country.

Conclusions: The burden of HIV infection is still high among pregnant women nationwide, thus prompting the need for interventions in priority populations. This, to further decrease new cases of HIV-infection and move toward eliminating AIDS by 2030, preventive actions should prioritize interventions preferentially among single pregnant women, particularly sub-Saharan Africa, the epidemics of HIV and schistosomiasis being substantially high in Africa.

TUPEC258
The association of schistosomiasis and HIV acquisition: A review of the literature

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Background: Schistosomiasis is an infectious disease that affects more than 230 million people worldwide, of whom 90% are in Africa. Schistosomiasis infection usually occurs in childhood with freshwater contact and recurrent exposures throughout the lifespan. In some regions, particularly sub-Saharan Africa, the epidemics of HIV and schistosomiasis closely overlap. Communities with the highest burden of schistosomiasis also have high HIV prevalence (Figure). Furthermore, endemic schistosomiasis, specifically female genital schistosomiasis (FGS), which affects 19 million girls, may increase risk of HIV infection, particularly among adolescent girls and young women (AGYW). FGS, caused by Schistosoma haematobium, causes mucosal changes in the vaginal epithelium and alters host immune response, rendering women at higher risk of infertility and potentially, HIV acquisition.

Methods: We examined peer-reviewed literature published between January 1, 2011 and October 18, 2016 to assess currently available evidence regarding effects of schistosomiasis on HIV with a focus on sub-Saharan Africa. The databases searched were OVID/Medline, Embase, and Global Health. Of the 175 abstracts identified, 16 focused on HIV and S. haematobium and were reviewed. 4 reported on prevalence of HIV relative to S. haematobium.

Results: Three cross-sectional studies have shown increased HIV prevalence (2-4 times) among communities endemic for S. haematobium infection and an ecological study of 43 sub-Saharan Africa countries demonstrated that for each 100 individuals infected with S. haematobium, there was a 2.9% relative increase in HIV prevalence. Mathematical modeling predicted that mass drug administration at school-age children to treat schistosomiasis could reduce HIV incidence by 9-22% and overall HIV prevalence by 6-20%.

Conclusions: The association of schistosomiasis, specifically FGS, with increased HIV acquisition is biologically plausible but research has been suboptimal. Research is needed to understand the effects of FGS and its treatment on HIV acquisition, particularly among AGYW. Furthermore, studies are necessary to understand whether the increased risk of HIV acquisition is substantial enough to warrant offering pre-exposure prophylaxis for HIV among AGYW with FGS and whether treatment of FGS affects the risk of HIV acquisition. Data suggest that uptake of WHO’s mass drug administration for schistosomiasis policy may prevent infertility and potentially HIV infection among AGYW.

TUPEC259
Delayed HIV testing among men who have sex with men in China is common: Findings from the T2T study

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Background: Guidelines in China recommend yearly HIV testing for men who have sex with men (MSM) and some other countries recommend up to 3-monthly for MSM at higher risk of HIV transmission. We assessed the prevalence and factors associated with delayed HIV testing among MSM in China.

Methods: MSM aged ≥18 years old who had ≥2 male sex partners were recruited between January and August, 2017 in 3 metropolitan cities: Guangzhou and Shenzhen in southern China and Wuxi in eastern China. A self-completed tablet-based questionnaire was collected about HIV/STI testing history, socio-demographic characteristics and sexual behaviors. HIV, syphilis, rectal/urethral gonorrhea, rectal/urethral chlamydia and anogenital warts were tested/checked. Patients were as-
sighed "high-risk" status if they had >5 partners or an STI in the past 6 months. Delayed testing status was defined as having no test within the past 6 months for high-risk men, 12 months for non-high-risk men. Mixed effects logistic regression models were used to determine factors associated with delayed testing status.

Results: A total of 603 MSM were enrolled in our study, with a mean age of 27.9 years (SD=7.8). Overall, 81.4% (491/603) had ever tested for HIV. High-risk (27.0%, 163/603) and non-high-risk men (73.0%, 440/603) had similar rates of delayed HIV testing: 31.3% vs 28.2% (χ²=1.118, P=0.290). Younger men were significantly less likely to have ever tested (60.0% in < 20 vs 84.9% in ≥20 years, P<0.001) and more likely to have delayed HIV testing (53.3% vs 26.3%, P<0.001). Men with delayed HIV testing status were significantly more likely to have more sex partners (26.3% vs 17.3%, P=0.012), have inconsistent condom use with casual partners (54.8% vs 37.7%, P=0.009) and be diagnosed with HIV (16.6% vs 5.6%, P=0.001) and urethral chlamydia (10.9% vs 3.8%, P=0.002).

Conclusions: Delayed HIV testing is common among MSM in China. Efforts are needed to further decrease delayed HIV-testing among MSM, particularly young men who engage in high-risk sexual behaviors.

TUPEC260

Male partners of adolescent girls and young women in Durban, South Africa: How high is their HIV risk and what groups are most at risk?

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Background: Adolescent girls and young women (AGYW, ages 15-24) are at high-risk of HIV in South Africa. Context-specific data on characteristics, HIV risk and health-seeking behaviors of male partners of AGYW are sorely needed to develop more effective HIV programs. Methods: We surveyed 962 men ages 20-40 recruited at community “hot spot” venues (n=649) and HIV service sites (n=313) in two informal settlements in Durban, from May-September 2017. We present descriptive and regression analyses of men’s characteristics and their partner- and service-use experiences.

Results: Men’s average age was 28.15% were married/cohabiting, and 61% were employed. Over two-thirds (71.4%) reported two or more sexual partners in the last year. 24.5% had five or more. Overall, 75% had AGYW partners; 52% had both AGYW partners and partners age ≥25. Men’s last three partners were 3.4 years younger on average; 8% had partners 10+ years younger. Thirty-two percent reported consistent condom use with their last partner. 14% with each of their last three non-marital partners. Sixty-four percent reported HIV testing in the last year. Among HIV-positive men (n=8), 87% were on treatment, and 24% knew that they were positive. Results from multivariate analyses controlling for demographic characteristics, men with more sexual partners in the last year were more likely to have a technical college/university education (p<0.05), be employed (p<0.01), and be small business owners/entrepreneurs (p<0.01). Taxi drivers had more age disparate partners (p<0.001) as well as more partners ages 15-19 in the last year (p<0.05) and were less likely to have tested for HIV (p<0.05). Formally employed men were about half as likely to be virally suppressed as informally or unemployed men (p<0.05).

Conclusions: Men in informal settlements in Durban are at very high risk of both acquiring HIV and transmitting to AGYW. Male partners of AGYW and older women, inconsistent condom use, suboptimal testing, and low viral load suppression. Engaging men in primary HIV prevention and targeted health services is critical, and in Durban, focusing on reaching men at workplaces, technical colleges/universities, taxi ranks and self-owned businesses may yield the greatest results.

TUPEC261

HIV incidence and treatable STIs among adolescent girls and young women in Swaziland

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Background: Swaziland continues to have the highest prevalence of HIV in the world, and one of the highest HIV incidences among adult populations (aged 15-49). In 2015, the Sitakhela Likusasa Impact Evaluation enrolled 4389 HIV negative adolescent girls and young women (AGYW) aged 15-22, 50% of whom were out of school at enrolment, in a 3-year impact evaluation to test the cost effectiveness of incentives on reducing HIV incidence. Methods: The Sitakhela Likusasa midline survey - consisting of determining participants’ HIV status, syphilis status and trichomonas vaginalis status, and administering a behavioural, schooling status, and service coverage questionnaire - of all enrolled study participants was conducted between November 2016 and July 2017. Results: The loss to follow rate was 15.8%. Of those loss to follow up, participants who were out of school at baseline were 48% less likely to participate at midline. HIV incidence rate per 100 years at midline for AGYW who were under 18 years of age and out of school at baseline was almost identical to AGYW who were 18 or older and out of school at baseline, 3.635 [95%CI: 2.064-6.401] vs. 3.666 [95%CI: 2.851- 4.792]. Prevalence of treatable STI was highest among 15-17 year-olds who were out of school compared to all other AGYW regardless of schooling status. AGYW who were out of school at baseline were more than twice likely to have a treatable STI at midline compared to AGYW who were 18-22 years old and out of school at baseline OR: 2.36.

Conclusions: The data presented here highlights the importance of school enrollment as a significant determinant of vulnerability to HIV incidence in Swaziland. The association between school enrollment and HIV incidence is stronger than the association with age, as out-of-school girls AGYW are more vulnerable to HIV incidence irrespective of age. HIV prevention programs for the out-of-school participants are essential, under-served at the moment, yet hard because of the challenges in reaching these mobile, hard-to-reach populations.
TUPEC262

HIV incidence and associated factors among men who have sex with men (MSM) in a treatment as prevention environment: Benefits of a prospective cohort study and administrative health data linkage

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Background: In British Columbia (BC), new HIV diagnoses are stable among men who have sex with men (MSM). 57% of all cases in 2015 despite implementation of Treatment as Prevention since 2010. We measured HIV incidence and associated factors within a prospective cohort of MSM in Vancouver, BC, Canada.

Methods: Sexually-active MSM were enrolled starting 02/2012 in a longitudinal cohort study recruited using respondent-driven sampling. Study visits occurred every six months and included a computer-assisted self-interview on demographics, sex and substance use, and a nurse-administered sexual health check-up with point-of-care HIV testing. Participants consented to data linkages with the BC Centre for Excellence in HIV/AIDS database containing all provincial HIV viral load and treatment data. We calculated HIV incidence rates and examined factors associated with HIV seroconversion using Poisson regression (adjusted for follow-up time).

Results: At 02/2017, 497 HIV-negative MSM at baseline contributed a mean follow-up time of 2.32 years. At baseline, 61.7% were gay-identified, 74.5% Caucasian, and 40.2% aged under 30. Of 17 HIV seroconversions, 6 (35.3%) were identified through administrative health data linkage. The HIV incidence rate from observational study follow-up alone was 0.93/100 person-years, but was 1.47/100 person-years with data linkage. Compared with MSM who remained HIV-negative, MSM who seroconverted were more likely to report more recent anal sex partners (median=10 versus 2, RR=1.02, p=0.001), recent condomless sex with an HIV-positive or unknown status partner (64.7% versus 31.9%, RR=3.93, p=0.001), and recent group sex (41.5% versus 16.0%, RR=3.61, p=0.008), a lifetime STI diagnosis (41.2% versus 12.5%, RR=4.93, p=0.001), and self-perceived high HIV risk (29.4% versus 7.9%, RR=4.47, p<0.005). There were no differences in HIV Treatment Optimism Scale scores (median=27, p=0.963), awareness of post-exposure prophylaxis (82.4% versus 77.9%, p=0.245), or awareness of pre-exposure prophylaxis (64.7% versus 66.7%, p=0.747). Based on HIV Incidence Risk Index for MSM (HIRI-MSM), 94.1% (two-sided 95%CI: 94-100), 94% (two-sided 95%CI: 68-100), and 91% (two-sided 95%CI: 68-100) of cases met the threshold for being at high-risk for HIV acquisition.

Conclusions: Data linkage identified a third more seroconversions than observational cohort follow-up alone. HIRI-MSM was validated in this sample. Despite no difference in biomedical prevention awareness, only a third of seroconverters self-perceived high risk of HIV acquisition indicating need of targeted health promotion and provider-initiated interventions.
TUPEC264
Performance of vaginal self-sampling for HPV testing among HIV-infected women in Botswana
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Background: Despite wide coverage of antiretroviral therapy (ART), 26% of adult women in Botswana are HIV-positive and at increased risk for cervical cancer. Multiple professional societies and health organizations recommend testing for high-risk human papillomavirus (hr-HPV) in place of or in addition to visual inspection and pap smear screening. However, in resource limited settings, high screening coverage may not be feasible with provider-collected samples. We conducted the first assessment of self-collected vaginal samples compared to provider-collected cervical samples in Botswana, and report the prevalence of hr-HPV in an HIV-positive population.

Methods: We recruited HIV positive women ≥25 years attending an HIV clinic in Gaborone, the capital city. Participants self-collected vaginal samples using flocked swabs and then had a provider-collected cervical sample taken for comparison. All samples were tested for hr-HPV within 24 hours using the Cepheid GeneXpert HPV assay. Women with any hr-HPV positive result returned to the clinic for colposcopy. Unweighted β

Results: A total of 103 eligible women were recruited with a median age of 44 (IQR: 40-51). All participants were on ART with a median CD4 count of 691 (IQR: 491-893), and 97 (94.2%) reported previous cervical screening. Thirty-one (30.1%) women tested positive for any hr-HPV (Table 1), of these 10 tested positive for more than one genotype. The most common genotypes were HPV 31/35/52/58 (self 16.5%; provider 13.6%) and of these 10 tested positive for more than one genotype. The most common genotypes were HPV 31/35/52/58 (self 16.5%; provider 13.6%) and of these 10 tested positive for more than one genotype. The most common genotypes were HPV 31/35/52/58 (self 16.5%; provider 13.6%).

Conclusions: In this well-managed HIV-positive population, hr-HPV prevalence was 30%, and detection was comparable between self and provider samples. Despite a small number of inadequate samples, self-sampling is a feasible and accurate alternative to provider screening.

TUPEC265
CD4/CD8 ratio and risk of Kaposi sarcoma and non-Hodgkin lymphoma in people living with HIV achieving suppressed viraemia on antiretroviral therapy
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Background: A persistently abnormal CD4/CD8 ratio despite combination antiretroviral therapy (cART) reflects ongoing immune dysfunction and has been inversely correlated with the risk of non-AIDS defining cancer in people living with HIV (PLHIV). However, the predictive value of the CD4/CD8 ratio has never been studied for AIDS-defining cancers such as Kaposi sarcoma (KS) and non-Hodgkin lymphoma (NHL) which remain the most frequent cancers in PLHIV receiving cART. Here, we evaluated the impact of CD4/CD8 ratio restoration (≥1) on KS and NHL risks in PLHIV achieving suppressed viraemia on cART.

Methods: PLHIV from the Collaborative Observation of HIV Epidemiological Research Europe (COHERE) were included if they achieved virological control (viral load<50 copies/mL) within 9 months following cART initiation between 2000 and 2014. Baseline was the time of the first CD4/CD8 measurement after virological control, with persistent suppressed viraemia. Patients with KS or NHL before baseline were excluded. Cox models were used to identify factors associated with KS and NHL risks.

Results: A total of 56308 patients (76% men, median(IQR) age 38 [32-45] years) were followed-up during 59[30-96] months. At baseline, CD4 count, CD8 count and CD4/CD8 ratio were 412[292-550]/mm3 and 0.430.28-0.64 respectively. Overall, 223 KS and 187 NHL were diagnosed, 92-37 and 18-42 months after baseline respectively. At 2 years, CD4/CD8 ratio was restored (≥1) in 28% (95%CI:27-28). CD4/CD8 ratio restoration in addition to CD4 restoration, tended to decrease KS risk (see table). High baseline CD4 count was associated with higher NHL risk. Both KS and NHL risks were strongly increased in case of virological failure.

Conclusions: In this population of patients who had achieved suppressed viraemia, restoration of the CD4/CD8 ratio may confer an additional benefit to CD4 restoration with regard to KS risk. For NHL risk, the main immunological associated factor was baseline CD4 count. Furthermore, avoiding virological failure appeared to be key to minimize KS and NHL risks. A closer clinical monitoring should be proposed in patients with high CD4 count despite virological control and low persistant CD4/CD8 ratio.

<table>
<thead>
<tr>
<th>Characteristics of women attending HIV clinic by HPV result</th>
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<tr>
<td>Positive for any hr-HPV (%)</td>
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<tr>
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<td>31 (30.1)</td>
</tr>
<tr>
<td>Age, median (IQR)</td>
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<td>44 (37-48)</td>
</tr>
<tr>
<td>Single, never married</td>
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<tr>
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<tr>
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<tr>
<td>18 (17-20)</td>
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<tr>
<td>Concurrent sexual partners</td>
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</table>

% (Characteristics of women attending HIV clinic by HPV result)
TUPEC266
Characterization of advanced HIV disease in a rural sub-Saharan African cohort

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Background: Globally, up to half of people living with HIV (PLWH) have advanced HIV disease (AHD) at diagnosis. However, there is scarce information about AHD in sub-Saharan Africa. We assessed the prevalence, clinical-epidemiological characteristics and predictors of AHD and associated mortality in a rural African cohort of PLWH.

Methods: Prospective cohort study including all ART-naïve adult PLWH enrolled in the Kilombero-Ulanga Antiretroviral Cohort, Tanzania, between Jan 2013 and Dec 2016. AHD was defined as having CD4 count <200 cells/µl or WHO clinical stage III or IV at diagnosis. Factors associated with AHD were identified using multivariable logistic regression. Cox regression was used to identify predictors of death among patients with AHD.

Results: Of 1733 participants, 1133 (65%) had AHD. 45% were male, the median age was 40 years (IQR 33-47), and the median CD4 count, 119 cells/µl (IQR 50-206). 75% had symptoms, mostly respiratory (44%) and gastrointestinal (27%). Independent risk factors for AHD were male gender (adjusted Odds Ratio (aOR) 2.0; 95% CI 1.6-2.5), age >40 years (aOR 1.42, 95%CI 1.15-1.76), living alone (aOR 1.61, 95%CI 1.30-1.98), lower education (aOR 1.53, 95%CI 0.99-2.38) and HIV diagnosis through provider-initiated testing (aOR 1.32, 95%CI 1.06-1.63). 1390/1733 (80%) participants started ART, including 939 with AHD (86%), at a median time of 10 days from enrolment (IQR 5-28).

One year after recruitment, there were 74 confirmed deaths (4.5%), 96 (7/17/4) among people with AHD(p< 0.001). Tuberculosis (26%) and cryptococcosis (24%) accounted for most deaths. After adjusting for age, gender, BMI, CD4 counts and tuberculosis diagnosis, not having started ART (adjusted Hazard Ratio (aHR) 7.4; 95%CI 4.09-13.68), having a positive cryptococcal antigen in plasma (aHR 4.66, 95%CI 2.39-9.09), and haemoglobin< 8 g/dl (aOR 1.78, 95% CI 0.96-3.28) independently predicted death among people with AHD.

Conclusions: AHD was prevalent in this rural African population, and most deaths occurred in people with AHD. Prevention and case finding programs should be tailored to older males, living alone, not seeking voluntary HIV testing, and with lower education. To reduce AHD-related mortality in Africa, ART services need to be differentiated to provide adapted packages of care to people presenting with AHD.

TUPEC267
Impact of TB-related interventions on mortality among people living with HIV on anti-retroviral therapy: A national observational cohort study in Papua New Guinea

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Background: In addition to anti-retroviral therapy (ART), screening for TB, enrolling those screened negative to isoniazid preventive therapy (IPT), and initiating anti-TB treatment (ATT) for those screened positive and diagnosed as TB have been strongly recommended as standard services for people living with HIV (PLHIV). This study aimed to assess the effectiveness of interventions in reducing mortality in Papua New Guinea (PNG).

Methods: The National HIV Patient Cohort Database (HPDB) was used to analyse the data of PLHIV on ART from 2005 to 2017 coming to clinics focusing on socio-demographics, screening for TB, enrolment of IPT among those found negative and initiation of ATT among co-infected. Cox proportional hazard models were used to compare mortality among 5 different groups.

Results: Over twelve years, 31,997 PLHIV were registered 164,526 person-years; male 40.2%; female 59.7%; transgender 0.1%; mean age 35.5 years and CD4 cell count 236.2 cells/mm3 at first visit. Three-quarters of them were screened for TB, of which 88.4% were found negative, and 3.3% of those initiated IPT. Of those screened positive for TB, 98.2% initiated ATT. PLHIV not screened for TB had twice as high mortality as those screened, found negative and given IPT (HR=2.08, 95%CI 0.92-2.17, p=0.001). Other groups showing higher mortality were those who were TB positive and not on ATT (HR=1.8, 95%CI 1.25-2.76, p=0.002), and those who were TB negative and not given IPT (HR=1.15, 95%CI 1.05-1.27, p=0.004). The group that were TB positive and given ATT did not show any significant increase in mortality (HR=1.4, 95% CI 0.92-2.17, p=0.12).

Conclusions: This is the first longitudinal cohort analysis reviewing the national HIV/TB programme in PNG. While TB screening rate among PLHIV has been dramatically increasing over the years, the enrolment of IPT still remains extremely low. However, most of the cases diagnosed as TB has been successfully initiated ATT. The statistical analysis showed that not conducting screening, not introducing IPT, and not initiating ATT contributed to statistically higher mortality. It is concluded that screening for TB, enrolment of IPT and initiating ATT were causal to their survival, and should be provided to all eligible PLHIV.
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Background: HIV-positive men-who-have-sex-with-men (MSM) are at increased risk for developing anal cancer. Detection of anal cancer precursor lesions (high-grade squamous intraepithelial lesions (HSIL)) is cumbersome and demanding. Our objective was to identify virological/serological predictors of anal HSIL in HIV-positive MSM.

Methods: Participants, HIV-positive MSM, were recruited from a longitudinal study (2010-2013), during which anal self-swabs and sera were collected at up to five bi-annual visits. Swabs were tested for HPV and genotyped (SPF10-PCR-DEI-LiPA25-system-version 1.0). Viral load of high risk HPV (hrHPV) types in anal swabs was determined using a type-specific quantitative qPCR. Serum antibodies to E6, E7, E1, E2 and L1 proteins of hrHPV types were analyzed by multiplex serology. 193 participants had a high-resolution anoscopy (HRA) after the last study visit, between 2010 and 2015, and were included in the current analysis. Anal HSIL was diagnosed by histopathological examination of anal biopsies. Causative HPV types of anal HSIL were determined by laser capture microdissection and genotyped as described above.

Univariable and multivariable logistic regression using generalized estimating equations (GEE) was used to study whether persistent HPV infection, HPV16/18 viral load and/or HPV seropositivity were predictors of anal HSIL caused by the same HPV-genotype as detected in swabs and sera.

Results: Of 193 HIV-positive MSM (median age 50 (IQR:45-56) years), 50 (26%) were diagnosed with histologically proven anal HSIL. The mean nadir CD4+ was 245 cells/µl (SD 134), and 94% had an undetectable HIV viral load at time of HRA. HPV16 persistence in anal swabs was common (varying by HPV type between 3-21%). The geometric mean titer of the HPV16 viral load was 47.0 DNA copies per human cell (95%CI 12.7-173.6). For HPV16, in total 19% of the participants were HPV L1 seropositive and 3% were E6 seropositive. In univariable logistic regression using GEE, anal hrHPV persistence and higher anal HPV viral load were associated with anal HSIL (OR: 0.001, and P=0.010, respectively). In multivariable logistic regression only anal HPV persistence was associated with anal HSIL (P<0.001, and P=0.010, respectively). In multivariable logistic regression only anal HPV persistence was associated with anal HSIL (P<0.001, and P=0.010, respectively). In multivariable logistic regression only anal HPV persistence was associated with anal HSIL (P<0.001, and P=0.010, respectively).

Conclusions: Only persistent infection with an HPV genotype was associated with anal HSIL caused by the same type.

TUPEC269

Behavioural profile of viral hepatitis co-infected MSM at HIV diagnosis

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Background: Sexual spread of viral hepatitis B and C, apart from conventional bacterial sexually transmitted infections (STI), has gained widespread introduction of antiretroviral therapy. We hypothesize that viral hepatitis co-infected MSM constitute a community group with a unique profile of sexual behavioural risks.

Methods: All adult patients with newly diagnosed HIV infection attending any one of the 4 public HIV services in Hong Kong were invited to join a prospective cohort study involving a self-administered questionnaire, blood sampling for HIV phenotypic analysis, and clinical data transcription. Hepatitis B and C infection status (HBsAg, Anti-HCV) at HIV diagnosis, alongside STI history, were noted and analysed.

Results: During a 1-year period since August 2016, 344 newly diagnosed patients were recruited, of which 57% were MSM. The latter's prevalence of hepatitis B and C infection was respectively 5.37% and 3.69%. Totally 191 MSM (median age 31) with completed questionnaire, HBV subtype and clinical data were analysed. Bacterial STI (syphilis, gonorrhoea, and/or chlamydia) occurred in 40% of them. HIV-MSM with viral hepatitis B (B or C) at diagnosis were more likely to have concurrent partners (odds ratio [OR]: 2.98, p=0.034), participated in group sex, (OR:4.46, p=0.005) and used recreational drugs for sex (chem-sex, OR: 5.79, p=0.001). Specifically HIV/HCV co-infected MSM gave a higher odds of history of chem-sex (OR: 8.62, p=0.026) and infection with syphilis (OR: 9.86, p=0.022) but not the other STIs. All HIV/HCV co-infected patients self-reported local HIV acquisition. There’s no difference in the HIV subtype distribution between MSM with or without viral hepatitis. Having sought partners in sauna in the year before infection showed a marginal effect on their hepatitis status (OR: 2.53, p=0.051).

Conclusions: Viral hepatitis B and C were markers reflecting the practice of high risk sexual activities among HIV-MSM. For HCV co-infected MSM, there was also association with chem-sex and concurrent transmission of syphilis but not chlamydia or gonorrhoea around the time of HIV diagnosis. The unique profile suggested that viral hepatitis infected MSM, especially those with hepatitis C, formed a characteristic network in the community.

TUPEC270

Results of a 15-year targeted HBV-vaccination program for high behavioral risk groups

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Background: In 2002 the Netherlands started a hepatitis B-vaccination program targeted at high behavioral risk groups in absence of a universal vaccination policy. Universal HBV-vaccination for children was only implemented in 2013. The public health services offer free HBV-vaccination to behavioral risk groups like injecting drug users (IDU), sex-workers (SW), men who have sex with men (MSM) and heterosexuals with multiple sexual contacts (HMS). Here the results of a 15 year unique vaccination program are described (2002-2017).

Methods: The program aims to reach the various risk-groups at outreach locations (e.g. Saunas, festivals, brothels, methadone clinics etc.) and STI clinics and administers free HBV-vaccines. To increase vaccination...
TUPEC271
Healthcare utilization and STI incidence in young men on pre-exposure prophylaxis (PrEP) compared to young men who are not on PrEP: The PrEPARE Study

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Background: Many young adult males do not seek healthcare services for a variety of reasons. Regular healthcare visits for pre-exposure prophylaxis (PrEP) prescription required by CDC guidelines may serve as a portal for young male PrEP users to engage in holistic healthcare. In a large, diverse, community-based population, we evaluated the association of PrEP use with healthcare utilization, and incidence of sexually transmitted infections (STIs) among young men.

Methods: Within a large U.S. integrated healthcare delivery system in Southern California, we identified eligible young males (18-34 years) during 07/2014-06/2016. We ascertained demographic characteristics, STI incidence and/or FibroScan®, antiviral treatment and viral clearance. Participants were a large, diverse, community-based population, we evaluated the association of PrEP use with healthcare utilization, and incidence of sexually transmitted infections (STIs) among young men.

Results: We identified 304 PrEP users, 4,496 men who have sex with men (MSM) without PrEP use and 273,050 other young men. Compared to the two comparison groups, PrEP users were older (27-34 vs 18-26 years), had more primary and urgent care visits, more visits with psychiatry and other specialty care providers (P<0.001), slightly more ED visits and similar rate of hospitalization. More PrEP users had a diagnosis of mental health disorder (Figure). The coverage of 3 doses of HPV and hepatitis B vaccines was low among all groups, with higher rates among PrEP users (HPV193%, hepatitis B 81%). Majority of PrEP users received tests for syphilis/ gonorrhea/ chlamydia (97%), hepatitis B (97%), hepatitis C (97%) and HIV (93%) during follow-up, while the testing rates were lower in the comparison groups (MSM: 61-73%, other: <5%). The incidence of syphilis, gonorrhea and chlamydia was 76%, 19.7% and 3.0% among the PrEP users, significantly higher than the comparison groups (P<0.01). In multivariable analyses, PrEP use was associated with greater use of primary care, urgent care and ED visit (Table).

Conclusions: Young male PrEP users are more likely to utilize primary and preventive care and undergo STI screening, but have a higher rate of STIs and mental health disorders compared to their counterparts.

TUPEC272
Eliminating hepatitis C as public health threat: Significant increase in HCV direct-acting antiviral therapy and rapid decline in viraemic prevalence among people who inject drugs in Australia

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Background: Australia implemented subsidised access to hepatitis C virus (HCV) direct acting antiviral (DAA) therapy in March 2016, with no restrictions on disease stage, substance use or provider type. Progress towards the WHO elimination goal of 80% of the eligible chronic HCV population treated by 2030 is encouraging, with one in four Australians with chronic HCV initiating DAA therapy by June 2017. However, little is known about people who inject drugs (PWID) initiating treatment, an important consideration in relation to the WHO goal to also reduce HCV incidence by 80% by 2030.

Methods: Annual cross-sectional bio-behavioural surveillance among PWID involved completion of a self-administered questionnaire and provision of a dried blood spot for HIV and HCV (antibody and RNA) testing. Data from 2015 (pre-DAAAs baseline) and 2017 (post-DAAAs) were used to populate the cascade of HCV care (confirmatory RNA testing, specialist assessment, and/or FibroScan®, antiviral treatment and viral clearance/cure) among respondents with a history of chronic HCV infection.

Results: Samples comprised n=2,304 (2015) and n=2,600 (2017). Just over half were exposed to HCV and ~20% of the exposed group had spontaneously cleared the virus. Among those assessed as eligible for HCV treatment (ever living with chronic HCV), we observed a significant increase (p<0.001) at all stages of the cascade of HCV care in 2017 compared to 2015 baseline (Figure 3). Prevalence of lifetime treatment uptake increased from 8% in 2015 to 48% in 2017, with a corresponding decline in viraemic prevalence among the overall sample from 45% in 2015 to ~25% in 2017.

Conclusions: High levels of HCV treatment uptake are achievable among PWID in settings with no restrictions on access to therapy. Our study also demonstrates that increased uptake of HCV treatment can significantly reduce underlying viraemic prevalence among PWID, the group most at risk of onward transmission, over very short time periods. While results indicate that eliminating hepatitis C as a public health
TUPEC273
Low prevalence and incidence of hepatitis C among men who have sex with men and transgender women in a key population-led Test and Treat cohort in Thailand

R. Ramautarsing1, J. Jantarapakde1, S. Pengnonyang1, R. Meksena1, ThE. men who have sex with men and transgender women in the general population in Thailand is declining, data are lacking on the epidemiology of HCV among men who have sex with men (MSM) and transgender women (TGW). We estimated HCV prevalence and incidence among sexually active, high-risk MSM and TGW in a Key Population (KP)-Led Test and Treat cohort.

Methods: From May 2015 through October 2016, Thai MSM and TGW 18 years and older were recruited from six KP-led clinics in Thailand. Baseline demographics and behavioral risk were assessed using questionnaires. Trained KP health workers provided HIV testing with same-day results every six months, sexually transmitted infection screening every twelve months, and anti-HCV testing at baseline and month 12.

Results: A total of 2,644 participants with a median (interquartile range) age of 24.1 (20.9-29.6) years were enrolled (1,858 [70.3%] MSM, 786 [29.7%] TGW). At baseline, 400 (15.1%) participants were HIV positive, and 362 (13.7%) were HCV RNA positive (HCV RNA in 2015, self-report in 2017 (HCV RNA available in May 2018, results will be updated).

Conclusions: We found low HCV prevalence, regardless of HIV status, and low incidence in a cohort of high-risk MSM and TGW enrolled from KP-led clinics in Thailand. MSM and TGW who have active syphilis, report IVD use, or are practicing risk behaviors for HIV should be the target for HCV screening in Thailand.
Epidemiology of non-AIDS non-communicable diseases (e.g. non-AIDS cancers, CVD)

TUPEC276
Health conditions and use of medications by people living with HIV. The Positive Voices 2017 Survey

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Background: In the UK, the uptake of antiretroviral therapy is high (>97%) among the 91,987 persons seen for HIV care and more than a third (33%) are aged 50 years and older. Population-level estimates of co-morbidities and use of non-HIV related medications are needed to plan the provision of health services, particularly among an aging population.

Methods: Positive Voices is a cross-sectional, probability survey of people with HIV. A representative pre-selected sample of people attending 73 HIV clinics in England & Wales between January and September 2017 was invited to complete a paper or online survey. Participants selected co-morbidities (self-reported ever diagnosed) from a comprehensive list of 25 conditions and reported rarer conditions in free text. Use of prescription medication in the past 4 weeks for each condition was collected in addition to ARV medication.

Results: 74% have been diagnosed with at least one chronic condition, rising to 86% among those aged ≥50 (Table 1). Depression (33%) and anxiety (26%) were the most commonly reported co-morbidities overall with 75% of depression and anxiety diagnoses made at the time of, or after, HIV diagnosis and the most prevalent in the 18-49 age group. However, among people aged ≥50, high cholesterol (45%) and hypertension (36%) were the most prevalent co-morbidities, followed by depression (34%). With the exception of depression and anxiety, most co-morbidities were more common among older adults (Table 1), with the most marked differences being a 4-fold higher prevalence of osteopenia/osteoporosis and a 3-fold higher prevalence of arthritis, peripheral neuropathy and erectile dysfunction compared to under 50. Overall, 98% of respondents were taking ARVs and 64% of people were taking at least one non-HIV medication, rising to 75% in those ≥50 yrs. Differences in rates of co-morbidities and medication use were observed by gender and other demographic characteristics.

Conclusions: Pre- and post-HIV counselling should ensure sufficient and ongoing support for people newly diagnosed with HIV including STI management. However, future research should further investigate why newly HIV diagnosed women struggle (more) to clear their STI infection despite adherence and disclosure.
TUPEC280
Heart rate variability, HIV and cardiovascular disease risk in rural South Africa

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Background: The increased use of anti-retroviral therapy (ART) transformed human immunodeficiency virus (HIV) infection into a chronic disease. Possible HIV-associated complications have emerged including cardiovascular diseases (CVD). Surrogate markers can estimate CVD risk, however data from high HIV-prevalence areas such as rural South Africa are limited. This study aims to determine 1) the distribution of heart rate variability (HRV), a surrogate marker of CVD risk, 2) the association between HIV and HRV and 3) the association between ART and HRV in the rural South African population.

Methods: Participants of the Ndlovu Cohort Study visiting the research centre in Elandsdoorn, South Africa between August and December 2017 were included in this cross-sectional study. HRV was measured using a standardized 5-min resting ECG. HRV was determined using total-frequency (0.04 to 0.5 Hz), low-frequency (0.04 to 0.15 Hz), high-frequency power (0.15 to 0.5 Hz), standard deviation of the normal RR intervals (SDNN), the root of the mean squares of successive RR differences (RMSSD) and the percentage of RR intervals greater than fifty milliseconds different from its predecessor (pNN50). All parameters had a skewed distribution and were log-transformed for multivariable analysis. Information on gender, body mass index (BMI), age, medication use, blood pressure, physical activity, education and income level were obtained using standardized questionnaires. The Kruskal Wallis test was used to test a difference in medians between HIV-infected and HIV-uninfected participants. Multivariable linear regression analyses were performed to identify predictors of HRV.

Conclusions/Next steps: In a cohort with high CD4 count, prevalence of oral cancer risk factors was high. While OPMDS were overdiagnosed on image review, m-Health provided an effective and rapid method of oral cancer screening, without overburdening providers. Scaling up of this strategy will however require better risk communication to improve participant follow-up.

TUPEC278
Opportunities, challenges and implications of m-Health oral cancer screening for HIV-positive individuals in India

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Background: Oral cancer accounts for 30% of all cancers in India. HIV-induced immunosuppression is a risk factor for cancer. Tobacco, alcohol use and oral HPV risk factors for oral cancer are common among PLWH. Screening for oral cancer in India is sparse and patient to provider ratio is high. We evaluated a novel m-Health oral cancer screening approach for PLWH led by non-medical healthcare workers.

Description: Employing a validated oral cancer screening mobile application, PLWH (≥21 years) with no prior history of oral cancer were enrolled June to November 2017 at the ART clinic, Sassoon General Hospitals, Pune, India. Two trained non-medical healthcare workers obtained demographic, HIV, cancer risk factor data and took 8 or more photographs of the oral cavity using a smartphone. Photographs were uploaded to a cloud-based server and reviewed independently by two oral cancer specialists for oral potentially malignant disorders (OPMDs). If disagreement occurred, a third independent senior specialist adjudicated. Image review results were communicated to the healthcare workers. Individuals deemed to have OPMDS were contacted for an in-person clinical evaluation by a specialist and provided additional care as necessary.

Lessons learned: Of 331 enrollees, 50% were male, median age was 40 years (IQR: 34-45), median CD4 was 529 cells/mm3 (IQR: 366 - 727), 15% ever smoked, 2% currently smoked, 39% ever chewed tobacco, 26% currently chewed tobacco; 35% ever used alcohol and 1% drank currently. Oral sex was reported by 15% and multiple sexual partners by 29%. Of 2648 images reviewed, 99% were deemed adequate for making a clinical diagnosis; 42 participants (13%) were judged to have OPMDS by two clinicians. They were older (p=0.01), more likely to be male (p=0.05). Of the 42, 36 did not return after being contacted. Of 27 who returned, 52% were diagnosed with OPMDS on clinical examination and provided standardized care.

Table 1 Mixed Effects Regression Model Results
Abstracts

TUPEC281 Neurocognitive complaints in people living with HIV: Characterizing clusters of patients with similar changes in neurocognitive complaints in the Swiss HIV Cohort Study


Background: Despite the seminal success of antiretroviral therapy (ART), HIV-associated neurocognitive disorders remain one of the most difficult comorbidities for clinicians to deal with. To date, the pathogenesis and risk factors of neurocognitive disorders are only incompletely understood. We use the extensive, longitudinal data of the Swiss HIV Cohort Study (SHCS) to study self-reported neurocognitive complaints over time.

Methods: Since 2013, SHCS patients are routinely asked twice a year whether they have complaints about memory loss, concentration or slowing down in reasoning. We included patients with at least five follow-up visits at least three years apart in the analysis. A hierarchical clustering algorithm based on the difference of scores calculated from the three questions concerning neurocognitive complaints was applied to detect patients with a similar trajectory of scores. Potential confounders and behavioral mal-adaptations. Toxic stress as risk factor for NCD onset and severity through induction of inflammatory processes and behavioral mal-adaptations. Toxic stress as risk factor for NCD onset and severity through induction of inflammatory processes and behavioral mal-adaptations.

Results: Of the 7,829 patients included in the analysis, 2,499 reported at least once having frequent neurocognitive complaints, with a decreasing trend over time (Figure A). Via a cluster algorithm, these 2,499 patients were grouped into three main clusters (Figure B), characterized by a constant small fraction (C1), a decrease (C2) and an increase (C3) of neurocognitive complaints over time, respectively (Figure C). There was no significant difference in gender or ethnicity between the clusters. The median birth year in C1 was 1965, in C2 1964 and in C3 1963. Patients in C2 and C3 suffered significantly more often from depression compared to C1 (p < 0.001). Moreover, adherence to ART was worst in C3 (p < 0.001). No difference in mean CD4 cell counts or viral suppression was found, but patients in C3 had more often a history of central nervous system (CNS) opportunistic infections (p < 0.007). Differential effects of ART were found with respect to C3.

Conclusions: There is an overall decrease of patients reporting neurocognitive complaints in the years 2013 to 2017 in SHCS patients. However, a cluster of patients with even increasing complaints remains present. Factors associated with being in this cluster (C3) included a slightly higher age, depression, less adherence to ART, history of CNS opportunistic infections and different ART regimens.

TUPEC282 Frailty-related phenotype, quality of life and non-communicable disease in older Ugandan adults - associations with toxic stress and HIV infection


Background: Toxic stress may accelerate non-communicable disease (NCD) onset and severity through induction of inflammatory processes and behavioral mal-adaptations. Toxic stress as risk factor for NCD outcomes in older Ugandans with and without HIV-infection is under-investigated. Therefore, we evaluate whether toxic stress is associated with frailty-related phenotype (FRP), low quality of life (QOL) and prevalent NCDs in Ugandan adults at high risk of NCDs.

Methods: We have enrolled, 97 adults 150 years with chronic HIV-infection stably linked to HIV-care and 30 age (15-170) years, sex and village matched HIV-negative community controls from Wakiso District of Uganda. QOL and FRP were measured using the Portable Neurocognitive Assessment tool (CNS) opportunistic infections (p < 0.007). Differential effects of ART were found with respect to C3.

Results: In total 352 participants were included, of whom 202 (62.2%) were HIV-infected. All HRV parameters (median values) were lower for the HIV-infected compared to the HIV-uninfected participants. The multivariate models showed a significant inverse association between HIV and SDNN, RMSSD, pNN50 and LF power, and between age and all HRV parameters. There was no indication of a difference in HRV between participants on ART versus not on ART.

Conclusions: These findings show that HIV-infected participants have a lower HRV, indicating an increased risk of CVD and this suggests that embedding of CVD prevention in HIV-care is necessary.
Conclusions: These preliminary data suggest that intentional reduction of toxic stress could lead to improved QOL and lower frailty in high risk older Ugandans as they age with HIV. We are exploring how to mitigate the effects of toxic stress on these aging adults with HIV.

TUPEC283
Trends of Body Mass Index in HIV positive patients receiving antiretroviral treatment in rural Tanzania

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Background: The risk for non-communicable diseases rises with increased prevalence of overweight and obesity in people living with HIV (PLHIV). Simultaneously, low body mass index (BMI) is a predictor of morbidity and mortality in PLHIV. The objectives of this study were to determine the prevalence of underweight and overweight/obesity and to describe the evolution of BMI in PLHIV on antiretroviral treatment (ART) enrolled in the Kilombero and Ulanga Antiretroviral Cohort, Ifakara, Tanzania.

Methods: Prospective cohort study. Consented non-pregnant adults (≥15 years) enrolled from 01/2013-12/2016 were included and follow-up ended in 6/2017. BMI was classified into three categories, according to WHO: underweight: BMI <18.5 kg/m², normal weight: BMI 18.5-24.99 kg/m², and overweight/obese: BMI ≥25.0 kg/m². Generalized estimated equations with multinomial distribution were adopted to assess the association of BMI and baseline demographic and clinical characteristics.

Results: At start of ART (baseline), 60% of 1,452 participants were female, 87% farmers, 86% with primary school education and 52% had WHO stage III/IV. The median age was 40 years (IQR: 34-49) and CD4 count was 196 cells/µL (IQR: 79-325). Arterial hypertension was diagnosed in 11% and renal impairment in 6%. Prevalence of overweight and obesity was 21% and 15% respectively. Overweight/obesity was frequent in females (20% vs 8%). The median baseline CD4 count was 99 cells/µL (IQR 38-228) and 294 cells/µL (IQR 158-429) in underweight and overweight/obese patients respectively. BMI increased and stabilized in the majority of underweight patients after ART initiation (Figure: Panel a). Patients with normal BMI at baseline remained stable within their BMI class during follow-up (Figure: Panel b). Baseline WHO stage III and IV had increased odds of being underweight OR=3.4, 95% CI [1.9-6.2] and OR=7.4, 95% CI [3.7-14.5] respectively. Male patients with CD4 count ≥350 cells/µL and hypertensive patients had OR=0.3, 95% CI [0.2-0.6], OR=2.3, 95% CI [1.2-4.4] and OR=2.1, 95% CI [1.2-3.5] of being overweight/obese respectively.

Conclusions: There exists double burden of underweight and overweight/obesity, even in a rural HIV cohort. We identified gender and clinical baseline factors associated with low and/or high BMI. Measures to address this double burden of malnutrition should be in place.

TUPEC284
Higher risk of metabolic syndrome among HIV infected women compared to men in Kenya

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Background: Antiretroviral therapy (ART) has enhanced life expectancy in resource-constrained settings. Older age, HIV and ART related inflammatory changes might increase gender specific risk of metabolic syndrome (MetS), a risk factor of cardiovascular disease (CVD).

Methods: In a cross-sectional survey among adults receiving HIV-related care in Eldoret, Kenya, cardiovascular risk factors were assessed using the World Health Organization stepwise approach to surveillance (STEPS) questionnaire and MetS was defined according to International Diabetes Federation consensus criteria. Continuous variables were compared using two-sample t-tests and categorical variables using Pearson’s chi-square tests or Fisher’s exact tests. We estimated prevalence of MetS overall and of components of MetS (waist circumference, HDL-cholesterol, triglycerides, fasting blood sugar and blood pressure) among women compared to men. Using bivariate and multivariate logistic regression, we obtained unadjusted and adjusted odds ratios (OR) respectively for the association between sex and MetS and tested if the association varied by ART use.

Results: Among 300 participants, 192 (64%) were female. Women were younger compared to men (mean age 39 vs 43 years; p=0.002), had higher body mass index (BMI) (26 vs 23 kg/m²; p=0.001), were less likely to be on ART (49% vs 65%; p=0.008), and had higher mean waist circumference (87.3 vs 84.7 cm; p=0.039). Total cholesterol, triglyceride, waist-hip ratio and the blood pressures were not significantly different between men and women. The overall prevalence of MetS was 16% and was three-fold greater in women compared to men (21% vs 7%); OR 3.9, 95% Confidence Interval (CI) 1.5, 7.3; p=0.004). The increased risk remained significant for one or more components (p=0.001) and when adjusted for age, duration of HIV infection, BMI viral load and CD4 count (adjusted OR 3.6; 95% CI 1.5, 8.6; p=0.003) and was not different for those taking versus not taking ART.

Conclusions: Compared to men, women living with HIV were younger, less likely to be on ART and had higher waist circumference, BMI and prevalence of MetS. Risk of MetS was not influenced by ART use. Interventions to reduce CVD risk in HIV infected adults should consider reduction in MetS and central obesity, especially among women.

[Figure: Trends of BMI in patients started ART with all three BMI categories]
TUPEC285
Concurrence of unhealthy alcohol use, tobacco use, and depression on all-cause mortality among persons living with HIV

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Background: Unhealthy alcohol use, cigarette smoking, and depression contribute independently to preventable mortality. While health effects of these individual conditions are well studied, the combined impact of concurrent unhealthy drinking, cigarette smoking, and depression on mortality are understudied, particularly among persons living with HIV (PLWH). We examined the association between the concurrence of these conditions and all-cause mortality among PLWH. We examined the association between the concurrence of these conditions and all-cause mortality among PLWH.

Methods: Data are from the Veterans Aging Cohort Study (VACS), a prospective, observational multi-site cohort of HIV-infected and uninfected US veterans from 2002-2015. Among HIV-infected (N=2903) patients, we assessed baseline number of concurrent conditions (CC 0-3; unhealthy drinking [Alcohol Use Disorders Identification Test], cigarette smoking [former or current], and depression [Patient Health Questionnaire-9]) and all-cause mortality by the end follow-up. We constructed Kaplan-Meier (KM) survival curves, age-adjusted mortality rates and performed Cox proportional hazards regression to estimate the hazard ratio (HR) and 95% confidence intervals (CI) of number of CC on all-cause mortality, compared to those with no CC.

Results: The majority were male (97.2%) and non-White (66.4% Black, 20.0% White, 13.6% Hispanic/other race/ethnicity), with a median age of 49 years. During the median follow-up period of 11.4 years, there were 85 deaths. Most patients had at least one CC (8.5% 0 CC, 26.0% 1 CC, 49.7% 2 CC, 26.0% 3 CC) 15% 3 CC. KM curves (Figure) and age-adjusted mortality rates and compared to those with no CC.

TUPEC286
HIV nor ART contribute to cardiovascular disease risk proxy in a young urban African population

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Background: The HIV-infected population is aging with increasing anti-retroviral (ART) coverage. HIV and ART are risk factors for cardiovascular disease (CVD) in high-income countries, but the risk in low- and middle-income countries is unknown. This study sets out to investigate the risk of cardiovascular disease, using carotid intima-media thickness (CIMT), an established proxy for CVD risk, in an urban African population.

Methods: A cross-sectional study was performed in Johannesburg, South Africa. Comparison of cardiological, cardiovascular risk factors, HIV- and ART factors. CIMT was measured as a surrogate marker for CVD. The thickness of the common carotid artery (CCA) wall was measured using B-mode ultrasound. The mean thickness of the right and left CCA near and far wall was used for analysis. The difference in CIMT between groups was analyzed using a generalized linear model.

Results: 548 participants were included: 103 in the HIV-positive/ART-naive group, 94 in the group using first-line ART, 197 in the group using second-line ART and 153 HIV-negative controls. The mean age was 379
years, 62% were female and almost all were black Africans (>99%). (Table 1) Participants in the group receiving second-line ART were mainly female, older, with a higher BMI and a higher prevalence of abdominal obesity than those in the other groups. Median CCA thickness was significantly higher in this group compared to any of the other groups (P <0.01) (figure 1), but the difference disappeared when adjusting for gender and age.

Conclusions: CIMT (and hence possibly CVD risk) did not differ between HIV-negative and HIV-positive individuals, whether or not on ART, in this urban African population. Further research on CVD risk due to HIV and/ or ART with aging is needed. CIMT may need re-evaluation as a proxy for CVD in African populations.

TUPEC287
Association between recommended first-line antiretroviral therapy regimens and chronic kidney disease in HIV-positive adults in Thailand: A retrospective cohort study
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Background: Antiretroviral therapy (ART) has shifted the causes of mortality for HIV-infected individuals from infectious diseases to non-communicable diseases, including chronic kidney disease (CKD). Other than the known risk factors of CKD, lower CD4 counts, higher HIV RNA viral loads and receiving individual antiretroviral drugs (tenofovir disoproxil fumarate [TDF] and lopinavir/ritonavir [LPV/II]) in HIV-positive patients are also risk factors. However few studies have investigated the association between specific ART regimens and risk of CKD. We investigated the association of World Health Organization (WHO) 2016 and Thailand 2017 recommended first-line ART regimens and the risk of CKD in HIV-positive adults in Thailand.

Methods: We analyzed all records of a large retrospective cohort study of HIV-positive adults within the Thai National AIDS Program from October 1, 2006 to September 30, 2014. Adults who received a first-line ART regimen of (i) zidovudine(AZT)+lamivudine(3TC)+nevirapine(NVP), (ii) TDF+3TC+NVP, (iii) TDF+3TC+ efavirenz(EFV), (iv) TDF+3TC/emtricitabine(FTC)+EFV (v) AZT+3TC+LPV/r, and (vi) TDF+3TC+LPV/r were included in this analysis. CKD was defined as (1) decreased glomerular filtration rate < 60 mL/min/1.73 m² for >3 months as per KDIGO 2012; or (2) a confirmed 2010 WHO diagnosis (ICD10 code N183, N184, N185). CKD incidence was the number of new cases divided by that of person-years of follow-up (PYFU). We used competing risks survival models, treating mortality as a competing event, to identify ART regimens associated with CKD, adjusted for sex, age, history of diabetes mellitus and kidney stone, absolute CD4 cell count and propensity scores.

Results: Of 31,997 adults receiving first-line ART, 240 patients developed CKD. With 101,417 PYFU, the overall incidence of CKD was 2.4 per 1,000 PYFU. In the multivariable analysis, using AZT+3TC+NVP as the control group, regimens associated with a higher risk of CKD were TDF+3TC/FTC+EFV adjusted sub-distribution hazard ratio 1.7, 95% confidence interval 1.2-2.3; TDF+3TC+NVP (3.6, 2.2-5.8) and TDF+3TC-LPV/r (4.8, 2.6-8.9). In a subgroup analysis, TDF+3TC+NVP (2.3, 1.4-3.7) and TDF+3TC-LPV/r (2.6, 1.4-4.7) were associated with a higher risk of CKD, compared to TDF+3TC/FTC+EFV regimen.

Conclusions: Most of the currently recommended TDF-containing first-line ART regimens, particularly with NVP and LPV/r, were associated with a higher risk of CKD compared to AZT+3TC-NVP.

Describing the spread of HIV through molecular epidemiology
TUPEC288
A web-based searching program for nationwide HIV transmission clusters efficiently detected local HIV transmission in the MSM group in Japan
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Background: Viral sequence-based transmission clustering of HIV-1 infected individuals among men who have sex with men (MSM) in Japan was conducted using advanced phylogenetic inferences. HIV-1 transmission networks spread with a consistent pattern in MSM groups; therefore, cluster information estimated from viral sequences are useful for an active prevention program. In order to make the transmission cluster (TC) information of newly diagnosed patients readily available to medical staff, we have developed a web-based searching program for HIV nationwide TC based on sequence data (SPHNCS).

Methods: SPHNCS contains reference sequences of the protease-reverse transcriptase region from 4,386 subtype B-infected individuals registered in the Japanese Drug Resistance HIV-1 Surveillance Network between 2003 and 2012 with the associated TC information. The system exhaustively estimates the number of base substitutions per site between a query sequence and the reference using Tamura and Nei's method. TC of the query was identified as that of the most closely linked neighbor, at a distance of less than 1.5%. To verify the quality of the algorithm, we compared the estimated TCs of both the conventional method and SPHNCS for 87 individuals recruited from University of the Ryukyus Hospital in Okinawa from 2013 to 2016.

Results: Using the conventional method, 32/87 individuals from Okinawa were linked to any TCs. 8 were classified as non-B subtypes, and 27 were singletons. SPHNCS accidentally classified two singletons and one newly detected cluster as existing TCs, and failed to detect 18 TC-involved individuals. The specificity and sensitivity of the program were 0.959 and 0.599, respectively. It perfectly detected Okinawa-specific 7 new TCs and 4 sub-clusters of the existing TCs. The specificity was constantly >0.95 until a 1.5% threshold distance, whereas the sensitivity increased linearly from 0.400 to 0.813 in 1% to 2% threshold distances.

Conclusions: Understanding HIV transmission dynamics allows individuals involved in public health activities to define a local key population for implementation of prevention strategies. SPHNCS can detect ongoing HIV transmission among MSM populations with high accuracy, achieving on-site targeting for the active prevention program, PrEP, by medical staff in Japan.
TUPEC289

A comprehensive mapping of HIV-1 genotypes in various risk groups and regions across China based on a nationwide molecular epidemiologic survey

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Background: In the last 30 years, China has experienced several waves of HIV-1 epidemics. The main driving factors of HIV-1 epidemic have shifted considerably, from blood transmission to sexual transmission. It is about 10 years since the last survey has been conducted, there is increasing need for the geographic and demographic distribution of HIV genotypes on present stage.

Methods: We estimated the likely prevalence and distribution of HIV-1 genotypes through 5,627 newly diagnosed HIV positive individuals from various risk groups in all of the 31 provinces of mainland China in 2015.

Results: A total of 435 HIV-1 sample were amplified and sequenced successfully. 20 HIV subtypes or Circulating recombinant forms (CRFs) were detected. In addition, a large number of different types of unique recombinant forms (URFs) or genotypes inconsistent strains, were determined. CRF07_BC, CRF06_AE, CRF08_BC and B were estimated as the predominant HIV-1 subtypes circulating in China and together accounted for 89.2% of all HIV infection (accounting for 41.2%, 32.6%, 11.3% and 4.0% respectively).

We compared the results of the molecular epidemiological studies of 2006 and 2015. The results shown that the growth in reported cases of HIV infection from 2006 to 2015 come mainly from the increase of sexual networks with migrants is likely to be sub-optimal. There is an urgent need to develop testing and treatment interventions that flexibly support mobile/migrant populations in order to control the ongoing HIV epidemic.

TUPEC290

External introductions sustain endemic HIV incidence in South Africa: Implications for public health interventions

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Background: Despite prevention efforts, HIV incidence in rural KwaZulu-Natal (KZN) remains very high. KZN reports high rates of migration, primarily temporary labour and circular migration. Although mobility and migration are both associated with increased HIV acquisition risk, the manner in which these impact HIV dynamics within this area is unclear. This limits our ability to implement preventative measures within the mobile and migrant populations. We therefore investigated the contribution of mobility/migration to HIV transmission within the AHRI Demographic Surveillance Area (DSA).

Methods: We conducted epidemiological, phylogenetic and bioinformatics approaches using AHRI data (2006–14) to investigate patterns and rates of HIV transmission between geographical categories (randomly sampled subset; 790 of 2,179 sequences, 250 from each of three geographical categories: individuals residing in ‘High’ or ‘Low’ prevalence areas of the DSA, or ‘external sources’). We identified individuals who shared mobility/migration to HIV transmissions within the AHRI Demographic Surveillance Area (DSA). Since continuous reintroduction of new infections is not captured by traditional public health strategies, the efficacy of existing interventions among those that share sexual migration with migrant populations is likely to be sub-optimal. There is an urgent need to develop testing and treatment interventions that flexibly support mobile/migrant populations in order to control the ongoing HIV epidemic.

TUPEC291

Modelling the potential impact of prevention strategies on the HIV epidemic

A mathematical modeling analysis of HIV transmission following release from prisons in the US among participants in the impACT intervention trial

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Background: Freely accessible antiretroviral therapy facilitates viral suppression for persons with HIV in prison, but if post-release challenges in accessing medication are coupled with resumption of sexual behavior, it is likely that external introductions remain a substantial source of HIV infections accounting for over 45% of transmissions. We also find that external sources introduce infection to those residing in ‘High’ prevalence areas within the DSA, who subsequently seed infection in ‘Low’ prevalence areas (Figure 1). Furthermore, transmission events often remain localised in geographical categories (78.4% external-external, 38.6% high-high and 23.5% low-low transmissions).

Conclusions: Viral imports play a significant and ongoing role in driving and sustaining the HIV epidemic in the AHRI DSA. Since continuous reintroduction of new infections is not captured by traditional public health strategies, the efficacy of existing interventions among those that share sexual networks with migrants is likely to be sub-optimal. There is an urgent need to develop testing and treatment interventions that flexibly support mobile/migrant populations in order to control the ongoing HIV epidemic.
onward HIV transmission can occur. We sought to model secondary sexual HIV transmission in the mpACT (individuals motivated to Participate in Adherence, Care, and Treatment) trial following participants’ release from state prisons in North Carolina and Texas.

Methods: 405 virally suppressed persons with HIV awaiting prison release were randomized to standard care (routine discharge planning) or the mpACT intervention (motivational interviewing, linkage to care, medication text reminders). HIV RNA and sexual behavior (frequency of sexual contact and condom use by partner HIV status and act type) were assessed at weeks 2, 6, 14 and 24 post-release. We conducted 10,000 simulations of a Bernoulli process model to estimate secondary transmissions in four intervals (the first 2 weeks after release and the 30 days before weeks 6, 14, and 24), incorporating individual-level viral load and behavioral data. We also modeled a hypothetical scenario of 0% condom use and 0% viral suppression to estimate the potential increase in HIV transmission that could occur under these extreme conditions. In all analyses, we combined study arms and included only the 323 participants who contributed data at ≥1 visit.

Results: In the first six months post-release, 37% of participants reported sex with an HIV-negative or status-unknown partner and 62% were virally suppressed at 24 weeks. Given observed sexual behaviors and viral load, we estimated 1.72 transmission events total (95% CI: 0.92-3.11) across the four post-release intervals. In the hypothetical extreme of 0% condom use and viral suppression, this estimate increased to 7.03 (6.14-9.17) events.

Conclusions: Suboptimal viral suppression combined with reported sexual behavior were predicted to produce approximately two secondary HIV transmissions in the six-month period after prison release, with a predicted increase to seven events under hypothetical elimination of viral suppression and condom use. These analyses highlight the importance of efforts to support care engagement, treatment adherence, and risk reduction for people with HIV who are re-entering their communities from prison.

TUPEC292

Oral Pre-Exposure Prophylaxis (PrEP) modeling for strategic planning: Results from thirteen countries

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Background: Many countries are incorporating oral PrEP into their combination prevention strategies following WHO’s 2015 guidance on oral PrEP for individuals at substantial risk of contracting HIV. In an effort to inform oral PrEP policy and programs, the USAID-funded Health Policy Plus (HP+) project applied a new mathematical modeling approach to estimate the impact, cost, and cost-effectiveness of providing oral PrEP to different subpopulations in thirteen countries.

Methods: HP+ estimated HIV incidence by risk group and province and considered the impact of oral PrEP through 2030 in the context of the national HIV prevention program using the Incidence Patterns Model (IPM) and an adaptation of the Goals model that incorporated additional risk groups using adjustment factors based on incidence ratios derived from IPM. These two models are linked through a workbook in Microsoft Excel to develop targets and summarize cost and impact modeling results.

Results: In most cases, the vast majority of HIV infections averted by oral PrEP were achieved by focusing on female sex workers (FSW); female sex workers; SDC: sero-discordant couples; AGYW: adolescent girls and young women ages 15-24 years.

Conclusions: Oral PrEP is an important component of combination prevention programs, given its potential to protect highly vulnerable and underserved populations. Even in the context of 90-90-90 achievement, our modeling results support oral PrEP scale-up for high-incidence populations. These data will be used to assist countries in rolling out PrEP while taking into account considerations such as equity, human rights, and implementation realities.

TUPEC293

Determinants of the predicted effectiveness of universal test and treat in a high prevalence generalised HIV epidemic: Insights from the HPTN 071 (PopART) individual-based model

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Background: HPTN071(PopART) is a three-arm cluster-randomized trial in 12 communities in Zambia and 9 in South Africa, measuring the impact of a combination prevention intervention including universal testing and treatment (UTT) on population-level HIV incidence. Data were collected on the baseline characteristics, and uptake of the intervention. Mathematical modeling informed the trial planning and was developed into an efficient stochastic individual-based simulation model (IBM) of heterosexual HIV transmission in generalised epidemics. Gains in algorithmic efficiency mean that IBM of HIV can be used in fitting to trial data and understanding which determinants are expected to influence the trial outcome.

Methods: Model output was calibrated to historical prevalence and community-level UTT data, identifying the most likely parameter values. Stochastic IBM uncertainty and heterogeneities across communities were assessed by running simulations repeatedly with community-specific parameters. Sensitivity analyses identified the most important determinants of predicted trial impact and long-term effectiveness.

Results: The IBM adequately replicates heterogeneities across sex and age-groups in the trial data. The mean predicted reduction in incidence in the intervention arm was 39% (range 17% to 52%) compared to control communities. The most important determinant of outcome was the uptake of intervention. Conditioning on this, increasing the proportion of infections from individuals in the acute phase, and increasing the number of infections from outside a trial community (both from 10% to 20%) causes on average a 4% decrease in the trial impact. The parameterisation of the sexual contact network explains differences of up to 2%. On average the trial outcome varies by 3% across communities, attributable to variability in the proportion of women in the community.
to heterogeneities in demography, baseline HIV prevalence, and linkage
to care. Differences between Zambia and South Africa can be explained
by country-specific differences in the proportion of partners from out-
side a trial community and the baseline prevalence of male circumcision.

**Conclusions:** The choice of IBM parameters (some obvious and some
less so) has a substantial effect on the predicted trial outcome. Detailed
modelling of the trial allows identification of determinants of effective-
ness, that will in turn improve long-term modelling projections, offering
insight into developments far beyond the trial horizon, relevant for deci-
sions to be taken after trial completion.

**TUPEC294**

The impact of more frequent HIV testing on HIV transmission among men who have sex with men

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**Background:** One of the goals of UNAIDS is to increase the diagnosed fraction among HIV-infected individuals to 90% by 2020. To achieve this, efforts are made to promote HIV testing. In this study, we assess the impact of increased HIV testing among men who have sex with men (MSM) in the Netherlands.

**Methods:** We developed an individual-based model that describes transmission of HIV and N. gonorrhoeae (gonorrhoea) among MSM. The model was fitted to annual HIV diagnoses during 2007-2014. Based on data from STI Clinics, we assumed that, until 2017, 20% of MSM tested consistently for HIV every six months. We increased this percentage in 2018 to:

(a) 30%,
(b) 50%,
(c) 50% among MSM with at least 10 partners in the preceding 6 months;
(d) 50% among MSM diagnosed with gonorrhoea in the preceding 12 months.

We calculated the incidence of HIV for each scenario in the subsequent ten years.

**Results:** With the current 20% six-monthly testing, the incidence of HIV infection is estimated to be 0.300 (interquartile range, 0.186-0.432) infections per 100-person-years in 2027. With 30% or 50% six-monthly testing, HIV incidence in 2027 was reduced by 13% or 37%, respectively. Increasing testing to 50% among MSM with at least 10 partners reduced HIV incidence in 2027 by 23%. While increasing testing to 50% among MSM with diagnosed gonorrhoea resulted in 12% reduction in HIV incidence.

Compared to the current testing rates, the number of extra HIV tests that would have to be carried out to prevent one new HIV infection is 501 with 30% six-monthly testing; 621 with 50% six-monthly testing; 171 with 50% six-monthly testing among MSM with at least 10 partners; and 24 with 50% six-monthly testing among MSM with diagnosed gonorrhoea.

**Conclusions:** Even small increases in consistent HIV testing can prevent a considerable number of new HIV infections. Increasing HIV testing among high-risk MSM may be less effective than increasing testing among all MSM, but it is more efficient in terms of tests needed to avert an infection.

**TUPEC295**

Estimating the potential impact of PrEP uptake scenarios on the HIV epidemic in the United States

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**Background:** The use of tenofovir disoproxil fumarate and emtricitabine as pre-exposure prophylaxis (PrEP) for the human immunodeficiency virus (HIV) has been available since 2012, but uptake has been low, even among higher risk populations, such as men who have sex with men (MSM). We simulate the impact of increased PrEP uptake on the HIV epidemic among MSM in the United States.

**Methods:** We used the HIV Transmission and Progression (HIV TAP) model, a mathematical transmission and progression model, to simulate PrEP usage impact on HIV incidence and progression among Black, White, and Hispanic MSM in the United States.

We modeled three scenarios: “Baseline” in which no patients received PrEP to isolate the impact of PrEP; “Moderate Uptake”, with 25%, 300%, and 300% growth; and “High Uptake” with 50%, 500%, and 600% growth in uptake rate by 2025, for White, Black, and Hispanic, respectively.

**Results:** Relative to Baseline, Moderate Uptake resulted in 150,000 avoided infections for White MSM by year 20; Black, 79,000; Hispanic, 71,000; totaling 310,000 avoided infections at an incremental cost of $9,500 per avoided infection. High Uptake resulted in 200,000 avoided infections among White MSM by year 20; Black, 111,000; Hispanic, 100,000; totaling 410,000 avoided infections at an incremental cost of $13,000 per avoided infection. The impact of these avoided infections translated to the following gains in quality-adjusted life years (QALYs) in the Moderate Uptake scenario: White MSM: 120,000. Black, 51,000. Hispanic: 50,000; totaling 220,000 by year 20 at an incremental cost of $223,000 per QALY gained. High Uptake resulted in the following QALY gains by year 20: White MSM: 150,000. Black, 65,000; and Hispanic, 66,000; totaling 280,000 at an incremental cost of $139,000 per QALY gained.

**Conclusions:** Increasing uptake of PrEP has the potential to help slow the spread of HIV, preventing a significant number of infections over 20 years. These avoided infections and corresponding QALY gains can be achieved at relatively low incremental costs across the total MSM population.

**TUPEC296**

Modeling the potential impact of the dapivirine ring for HIV prevention

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**Background:** As the dapivirine intra-vaginal ring, developed by the International Partnership for Microbicides (IPM), moves forward through regulatory review and open-label extension studies, the potential impact and cost-effectiveness of this new longer-acting prevention product is unclear. This study uses mathematical modeling to explore dapivirine ring impact under different scenarios of use. With no comparable products on the market, target coverage levels are informed by proxies, such as contraceptive use.

**Methods:** This analysis used the Goals module from the Spectrum suite of models to create different scenarios for ART scale-up (including hold constant at 2016 levels and reaching the 90-90-90 targets), oral PrEP, and dapivirine ring coverage for 13 countries (Kenya, Botswana, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe). Within these scenarios, adherence to the dapivirine ring was varied to represent the range of results observed in clinical trials.

**Results:** The potential impact of the ring varies substantially depending on scale-up of ART and the level of adherence to the ring. In a scenario with all 13 countries achieving the 90-90-90 targets, 52% ring effectiveness (from 75% efficacy and 65% adherence), and a modest peak coverage equivalent to 10% of each country’s modern contraceptive prevalence in the populations of medium-risk women in multiple partners and female sex workers, we estimate over 39,000 new HIV infections could be averted by 2030. However, if the 90-90-90 targets are not reached and higher levels of ring adherence are achieved with open label use (as seen with oral PrEP), the potential impact of the ring is much greater (see Fig 1 for an example showing South Africa). To illustrate that extremes, if ART coverage is held constant at 2016 levels and 90% ring adherence is achieved, as many as 170,000 HIV infections could be averted.

**Conclusions:** The dapivirine ring, as a product able to be used discreetly by women, could be a beneficial addition to the HIV prevention toolkit, however, our modeling suggests that its potential impact is highly vari-
TUPEC297
Modeling projected HIV incidence in the SEARCH study of treatment as prevention in East Africa

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Background: While mathematical models have predicted that antiretroviral therapy (ART) scale-up via universal test-and-treat (UTT) will reduce population-level HIV transmission, this has not been demonstrated in a randomized trial. SEARCH is a cluster-randomized trial of the UTT strategy for HIV prevention (ICT0864203) taking place in 32 rural communities in Uganda and Kenya. We used a mathematical model calibrated to baseline data in all 32 communities and ART scale-up in 16 intervention communities to predict the cumulative three-year HIV incidence rate ratio (IRR) that might be observed in the study.

Methods: Using data on baseline HIV prevalence, viral suppression, male circumcision, and household demographics (N=146,874 adults ≥15 years), we fit an existing microsimulation network model of HIV transmission, EMOD-HIV v2.5, to the SEARCH population. The 32 SEARCH communities were clustered into six nodes reflecting the trial arm and HIV epidemic pattern. We incorporated data on viral suppression in SEARCH intervention communities in follow-up years one and two as proxies of ART effectiveness parameter matters.

TUPEC298
Antiretroviral treatment: prevention of transmission and modeling the HIV epidemic: Why the calculated ART effectiveness parameter matters

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Background: Human immune deficiency virus (HIV) remains a major public health threat with two million infections, 1 million HIV-associated tuberculosis (TB) cases a year and one million deaths each year. Population-based studies suggest a marked decline in incidence, prevalence and deaths, mostly likely due to treatment expansion, in countries in East and Southern Africa. This calls into question the antiretroviral treatment (ART) related parameters used to project HIV incidence and prevalence.

Methods: We reviewed 2015-2016 global and national mathematical modeling studies regarding ART impact on new HIV infections. We extracted ART and HIV transmission parameters (e.g., proportion diagnosed, on ART, on ART and not virally suppressed, on ART and not virally suppressed, reduction in HIV transmission for those on ART and virally suppressed, reduction in transmission for those on ART and not suppressed, and retention). Models assumed varying program implementation rates and we calibrated the derived ART effectiveness to 2020 (see Table 1). Using the extracted parameters, we calculated a model-specific ART Effectiveness percentage for the impact of ART on transmission by 2020. We then compared the two models with the lowest and highest ART effectiveness.

Results: For the 9 models ART effectiveness percentage reduction in HIV transmission by 2020 ranged from 20% to 86%; there were significant disparities between the highest (SACEMA) and lowest (GOALS) models (Figure 1). The GOALS Mozambique model limits ART initiation to 80% of people living with HIV with a CD4+ cell count below 350 cells/mL, assumes 70% retention, and a reduction in HIV transmission of 80% yielding a derived ART effectiveness of 20%. The SACEMA model assumes 90-90-90 by 2020 (i.e., 73% viral suppression of estimated PLHIV), ART reduces transmission by 96% in those virally suppressed, and by 88% in those on ART but not virally suppressed with a derived effectiveness of 86% and consequent decline towards ending AIDS and HIV elimination ART parameter selection and assumptions dominate and low ART effectiveness translates into lower impact.

Conclusions: Using less pessimistic parameters for ART effectiveness suggests that expanding access to sustainable viral suppression could significantly reduce transmission and eliminate HIV in many settings.
TUPEC299

Modeling structural changes allowing scale-up of harm reduction and antiretroviral therapy for people who inject drugs on the HIV epidemic in Russia

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Background: Russia has one of the fastest growing epidemics in the world, fueled primarily by injection drug use. Several regions within the Ural and Siberian Federal Districts have the highest rates of new HIV diagnoses, the majority among people who inject drugs (PWID). Essential harm reduction and HIV services are lacking or prohibited by law: opio-agonist medically assisted therapy (MAT) is illegal, syringe exchange program (SEP) coverage is minimal, and antiretroviral therapy (ART) for PWID is prohibited. We modeled the impact of structural changes permitting scale-up of harm reduction and ART on the HIV epidemic among PWID in two settings in the Russian Ural and Siberian districts.

Methods: We developed a dynamic deterministic model of injection and sexual transmission among PWID, calibrated to two Russian settings: Omsk, an expanding epidemic (8% of PWID infected in 2009, 17% in 2011) and Ekaterinburg, a stable but high prevalence epidemic (60% PWID infected). The model was stratified by HIV stage. ART, injecting risk (high/low), and harm reduction status (low/high). No ART or harm reduction was assumed at baseline. We produced scaled-up harm reduction combination (SEP+MAT, reducing injecting risk from 70% to 20%, 40%, or 60% coverage among PWID, integrated with ART within harm reduction (30%/year) from 2018. We calculated the percentage of HIV cases and HIV-deaths averted by comparing each scenario to the base-case (no intervention) from 2018-2028.

Results: Over a decade, scaling-up harm reduction to 20%, 40%, and 60% coverage integrated with ART in Omsk could avert 35%–52%, 53%, 47%–53%, and 60%–43%–73% of HIV cases, respectively. In Ekaterinburg, scaling up to 20%, 40%, and 60% and coverage levels could avert 19%–35%, 28%–5%–45%, and 40%–22%–57% of HIV cases, respectively. Over half of HIV-related deaths could be averted in the next decade in both settings with 60% harm reduction coverage integrated with ART.

Conclusions: Harm reduction services integrated with ART could have a substantial impact on HIV transmission and morbidity among PWID in Russia. Removing legal barriers prohibiting ART and MAT for PWID, alongside scale-up of SEP is urgently needed in Russia.
TUPEC300
Modelling the impact and cost-effectiveness of oral pre-exposure prophylaxis (PrEP) in Mozambique

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Background: Mozambique is a high-burden HIV country with a generalized epidemic. To assist the national HIV program in integrating oral PrEP into the country’s existing HIV prevention strategy, the USAID-funded Health Policy Plus (HPP) project developed a new mathematical modelling approach to estimate the impact and cost-effectiveness of different oral PrEP scale-up scenarios.

Methods: Three roll-out scenarios were developed to model the cost and impact of providing oral PrEP to female sex workers, serodiscordant couples, and medium-risk young women ages 18-24. HP+ used the Incidence Patterns Model and the Goals model to estimate HIV incidence by risk group and province and oral PrEP impact in the context of the national HIV prevention program through 2030. We developed an Excel-based tool to link the two models, set scale-up targets, and summarize the cost and impact results. In the modeled scenarios, oral PrEP coverage increased following a logistic growth curve that reached 50% of the target population by 2030.

Results: We estimated that targeting female sex workers, serodiscordant couples, and medium-risk young women will avert the most HIV infections without sacrificing much cost-effectiveness, compared to more narrowly targeted strategies. These estimates were sensitive to changes in oral PrEP adherence; strategies with lower adherence averted fewer infections and were less cost-effective. In terms of individual risk groups, the projected cost per HIV infection averted was lowest (i.e. most cost-effective) for serodiscordant couples and female sex workers at US$22,400 and US$27,700, respectively, and highest (i.e. least cost-effective) for medium-risk young women, at US$33,000. Providing oral PrEP to medium-risk young women was projected to have the greatest impact, averting 13,000 HIV infections. If Mozambique achieves its Fast Track 2030 targets, oral PrEP could avert 13,200 HIV infections; if the targets for other HIV prevention and treatment interventions are not met, the impact of oral PrEP would be higher.

Conclusions: We developed a modeling approach that provides policymakers with impact and cost-effectiveness data to guide decision-making on PrEP. Our modeling results encouraged the Mozambique MOH to consider providing oral PrEP to female sex workers, serodiscordant couples, and medium-risk young women, a high-incidence population not previously prioritized for oral PrEP rollout.

TUPEC301
Effectiveness and cost-effectiveness of condomless sex-targeted PrEP in KwaZulu Natal, South Africa: Influence of HIV testing frequency and 1st line ART regimen

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Background: Cost-effective strategies to start/continue PrEP in adolescent girls and young women (age 15-24, AGYW) and other populations in South Africa are not well defined. The role of drug resistance and appropriate frequency of HIV testing are also not clear.

Methods: An individual-based model was calibrated to KZN, South Africa. Variables indicating condomless sex with new and longer term partners, PrEP use, HIV testing, circumcision and, in people with HIV, variables reflecting HIV clinical status, ART use and drug resistance, were updated monthly. We considered PrEP introduction in various demographic groups targeted according to condomless sex. Assumptions on PrEP are in the Table. We assume introduction of dolutegravir-based first line ART from 2018. Cost /year of PrEP: $206. Cost /year for clinical care for people on ART, including drug costs: $378. 3% discounting per year; 50 year time horizon for cost-effectiveness.

Results: With PrEP eligibility/retention such that ~40% of AGYW having condomless sex take PrEP, a 25% reduction in mean HIV incidence 2018-2038 is predicted. If PrEP is targeted at people having new condomless sex partners or those with a longer term HIV diagnosed partner not on ART then it is cost-effective, with most DALYs averted when all men/women ages 15-64 having condomless sex are eligible. Lower PrEP retention (10% stopping/3 mths instead of 3%) is associated with lower impact (68% incidence reduction in AGYW vs 26% in base case) although PrEP remains cost effective. Less frequent HIV testing while on PrEP (6 or 12 monthly rather than 3) did not have an appreciable negative effect on
impact. If the 1st-line regimen remains efavirenz-containing rather than dolutegravir-containing, increased acquisition and transmission of drug resistance is predicted to undermine ART, leading to an overall increase in AIDS death rate with PrEP introduction.

**Conclusions:** If retention can be kept high, PrEP targeted at people having risky condomless sex is likely to reduce HIV incidence and be cost-effective in KZN over a long time horizon. These beneficial effects of PrEP may not be realized if 1st-line ART continues to contain efavirenz rather than dolutegravir due to HIV drug resistance.

**TUPEC302**

PrEP for MSM can result in reductions in HIV transmission and can be cost-effective, even with a small decrease in condom use

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**Background:** Pre-exposure prophylaxis (PrEP) has been shown to be highly effective in reducing HIV transmission among men who have sex with men (MSM). We investigated whether lower condom use (risk compensation) results in a nationwide PrEP programme targeted at high-risk MSM in the Netherlands would reduce the impact on HIV incidence and worsen the cost-effectiveness.

**Methods:** We developed an individual-based model for HIV transmission, which was fitted to annual HIV diagnoses in 2007-2014 in the Netherlands. MSM were eligible for PrEP if they had steady partners with unsuppressed viral load; or had condomless anal intercourse with casual partners in the preceding 6 months; or had gonorrhoea in the preceding 6 months. Eligibility was assessed when MSM got tested for HIV or other sexually transmitted infections. Among eligible MSM, 75% received PrEP for at least one year. We simulated three scenarios in the years 2018-2027: without PrEP, with PrEP and no risk compensation; RC) in a nationwide PrEP programme targeted at high-risk MSM in the Netherlands; and with PrEP and RC, where RC was modelled by increasing the probability of not using condoms by 75% for those on PrEP. Cost-effectiveness analysis was performed, with healthcare-payers perspective. discounting costs with 4% and health benefits with 1.5%. PrEP costs of €125 per 3 months were assumed.

**Results:** Due to RC of PrEP users, the number of PrEP-eligible MSM increases in time and the number of PrEP-users is 5,835 without RC and 6,290 with RC, in 2027. The incidence rate of HIV infection in 2027 among PrEP users is 7% higher with RC than without RC. However, since more MSM are on PrEP with RC than without RC, HIV incidence in 2027 with PrEP is reduced by 73% without RC and by 76% with RC, compared to not using PrEP. With or without RC, PrEP is cost-saving. Risk compensation can result in 118 additional QALYs gained and €13 million additional costs (compared to PrEP without RC), reducing the cost-effectiveness of PrEP.

**Conclusions:** PrEP can be effective in reducing HIV incidence among MSM and can be cost-effective. This holds even with reduced condom use, provided the PrEP programme can be expanded to the additional high-risk MSM who become eligible.

**TUPEC303**

Evaluating the cost-effectiveness and impact of oral pre-exposure prophylaxis for HIV prevention in Swaziland

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**Background:** Swaziland has one of the highest HIV prevalence levels in the world (34% among females 15-49 and 15% among males 15-49), along with an HIV incidence of approximately 2% among 15-49-year-old females. Swaziland introduced small-scale pilot programs of oral pre-exposure prophylaxis (PrEP) for HIV prevention in 2017, and the Ministry of Health and PEPFAR sought guidance from modelers at Project SOAR (funded by PEPFAR through USAID) to inform the focus and scale of the national oral PrEP program based on impact and cost-effectiveness.

**Methods:** We estimated the HIV incidence by risk group and province and considered the impact of oral PrEP through 2030 in the context of the national HIV prevention program using the Incidence Patterns Model (IPM) and an adaptation of the Goals model that incorporated additional risk groups using adjustment factors based on incidence ratios derived from IPM. We developed an Excel-based tool, the oral PrEP workbook, to link these models, set scale-up targets, and summarize the cost and impact results.

**Results:** We estimated that targeting serodiscordant couples (SDC) and female sex workers (FSW) would be the most cost-effective approach to delivering oral PrEP, although the impact of providing oral PrEP to these populations would be relatively small. While less cost-effective than providing oral PrEP to SDC and FSW, providing oral PrEP to adolescent girls and young women ages 15-29 years and adult males ages 20-34 years could potentially have the largest overall impact in terms of HIV infections averted. Variables that would particularly affect the cost-effectiveness of PrEP include the estimated cost of PrEP services, correct and consistent use of the medication once dispensed, and the scale-up of other interventions (including voluntary medical male circumcision and HIV treatment programs).

**Conclusions:** We developed a modeling approach that provides policy makers with impact and cost-effectiveness data to guide decision-making on oral PrEP. Our modeling results provided the MOH with data to support providing oral PrEP to general population women and men in the highest incidence age groups. Because of its highly generalized HIV epidemic, Swaziland is considering offering oral PrEP to adult males, a population not prioritized in other countries.

**Modelling attempts to end HIV**

**TUPEC304**

Mobile multi-disease screening at scale: Modelling the effects in Kenya, Nigeria, and India

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**Background:** Mobile multi-disease screening is effective in increasing diagnosis and linkage to treatment for HIV and other health conditions, yet it has not been widely implemented. We modelled mobile multi-disease screening in countries with diverse HIV and NCD epidemics (Kenya, Nigeria, and India) to inform dissemination.

**Methods:** Using intervention and cost data from the SEARCH study and country-specific epidemiologic data, we use the Spectrum package and extra-model analyses to estimate the costs and effects of multi-
The role of social and sexual networks in the spread of HIV

TUPEC305
Evaluating the role of friendship networks and other factors upon participation in couples-based HIV testing and counselling (CHTC) in KwaZulu-Natal, South Africa

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Background: Participation in CHTC is low in SA. While friendship networks have the potential to facilitate the spread of health behaviours, they may influence couples positively or negatively depending upon coupled relationship characteristics and the quality and frequency of interactions within networks. This may have implications for couples-based HIV prevention interventions.

Methods: We used data from a randomised controlled trial of a behavioural couples-based intervention designed to increase CHTC uptake in rural SA. Partners individually completed a survey capturing sociodemographic information and measures of relationship characteristics and quality. Self-reported strength of agreement with statements ‘I have a supportive group of friends separate from my partner’ and ‘I have a close friend other than my partner’, were combined and taken together as indicating involvement in friendship networks (hereafter ‘social connectedness’). As exploratory analysis indicated that social connectedness did not change significantly during follow-up (9 months), we created baseline average and difference scores for enrolled couples (n=327), and used logistic regression to test for associations with participation in CHTC.

Results: Overall, 27% (n=88) of couples participated during follow-up. Uniquely, couples with higher average social connectedness scores were significantly less likely to participate (Table). However, after adjustment for other factors, including female religious affiliation (p=0.0361), study trial arm (aOR 1.9, p=0.002) and cohabitation (aOR 2.9, p=0.004), average social connectedness remained statistically significant, although association estimates remained similar to univariable estimates. Univariable insignificant factors (including age, partnership length and relationship quality measures) were not considered in model building, although the potential for average social connectedness score to mask partner differences motivated inclusion of each couple’s social connectedness difference score (p=0.678) as an adjustment variable.

Conclusions: Although partner cohabitation was more strongly associated with participation in CHTC, couple average social connectedness score may also have a role. No association was found for couple difference score. The suggestion that couples with higher average scores were less likely to participate may reflect greater exposure to stigmatising messages or normative behaviours and attitudes that may undermine HIV prevention activities. Future couples-based prevention interventions should consider the potential effect of social connectedness on participation and engagement.

TUPEC306
Hotspots by random chance: Small community size and isolation can explain “patchiness” in HIV epidemics

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Background: It has long been observed that HIV epidemics are “patchy,” exhibiting stable hotspots over spatial scales as small as a few kilometres. While there may be important unobserved covariates that drive HIV hotspots, we hypothesized that some hotspots may arise simply due to chance, because of the auto-correlated nature of HIV epidemic dynamics: areas that start out with more HIV cases by random chance often remain at higher prevalence over time.

Methods: A network model of HIV transmission in South Africa was used to examine the situations in which random chance could account for the “patchiness” of HIV under realistic assumptions about sexual mixing and relationship turnover. Communities with identical demographic, biological, and behavioral characteristics were simulated, with variations only due to stochastic perturbations of the model.

Results: Epidemic “patchiness” emerges in communities of < 20,000 adults when fully isolated in terms of sexual mixing -- a typical size for a community in highly endemic rural areas. However, the community
size threshold for “patchiness” becomes smaller with increasing sexual mixing between surrounding communities. At the limit of full mixing between communities, without sexual preference for one’s own community, hotspots cease to emerge by chance. Our findings also reveal one reason why HIV prevalence was especially “patchy” during the early epidemic, aside from differences in risk among populations. The rapid rate of growth in HIV prevalence accentuated random differences between communities at a fixed point in time, as the vertical distance between parallel lines grows with increasing slope. Simulating interventions such as test-and-treat, VMMC scale-up, and PrEP, we find that these interventions are more effective and cost-effective in hotspots, even when these hotspots came about due to random chance.

Conclusions: HIV hotspots may not always have underlying drivers, especially for smaller communities that are relatively isolated from sexual mixing with outside communities. Even if such communities are simply unlucky, they are nonetheless more effective places to target HIV interventions.

TUPEC307

Methods to study network subcomponents of uninfected people during an HIV outbreak among people who inject drugs (PWID): An example from Athens


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Background: What explains the existence of large pockets of uninfected people connected sexually and/or via injection to larger networks containing many infected people? Explanations include “firewall effects” (Friedman et al 2001; Dombrowski et al 2017) wherein the only HIV+ people they take risks with have low viral loads; the “bottleneck effect” wherein few network paths into the pocket of non-infection exist, low risk behaviors, and impending outbreak. We test each of these.

Methods: TRIP used enhanced risk network tracing methods and referrals to recruit 45 recently-infected, 105 long-term infected and 128 uninfected participants. The largest connected component had 92 members. Within this component there was a subcomponent of 29 connected uninfected PWID. We explored potential explanations for the existence of this large subnetwork of uninfected by considering each possible explanation in turn. Data on risk behaviors in the last 6 months were collected at the individual level. Recent infection was determined by LAg (Sedia® Biosciences Corporation), data on recent seronegative tests, and viral load. HIV-RNA was quantified using Artus HI Virus-1 RG RT-PCR (Qiagen).

Results: The Figure shows the 29 members (3 were women) of the connected subcomponent of uninfected participants and their risk ties to each other and to the 17 recently-infected and 24 long-term infected participants with whom they have direct risk-network connections. 21 (72%) of these uninfected were linked to recently-infected participants, and 16 (55%) to long-term infected participants. 19 of the 29 (66%) subcomponent members were “extremely high risk”: they self-reported syringe-sharing and had at least one link to someone who shares syringes and had a viral load > 100,000 copies/ml.

Conclusions: Neither “firewalls” nor “bottleneck” explanations at the network level, nor individual-level low risk behaviors, explains the existence of the large subcomponent of non-infection. Indeed, about two-thirds of subcomponent members were at extremely high risk. These data imply that the epidemic in Athens was not over, but could spread to such uninfected pockets if additional prevention efforts (such as expanded syringe or PrEP access) do not prevent this. The methods developed here provide practical tools to study “bottleneck” and “firewall” network hypotheses in practice.

TUPEC308

Inferring age-assortative mixing patterns by applying phylogenetic methods on the HIV transmission network of the Swiss HIV Cohort Study

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Background: Age-mixing patterns are of key importance for understanding the dynamics of HIV-epidemics and target public health interventions. We use the densely sampled Swiss HIV Cohort Study (SHCS) resistance database to study age-assortative mixing using phylogenetic methods. In addition, we investigate whether the mean age difference of pairs in the phylogenetic tree is influenced by sampling as well as by additional distance thresholds for including pairs.

Methods: HIV-1 pol-sequences of 11,922 SHCS patients and approximately 240,000 Los Alamos background sequences were used to build a phylogenetic tree. Using this tree, 100% down to 1% of the tips were sampled repeatedly to generate sub trees (N = 500 for each sample proportion), of which pairs of SHCS patients were extracted. The mean of

(Figure. Subnetwork of 29 uninfected participants and the recently- and long-term infected to whom they are linked. Long term positives are marked in yellow. Recently infected are in red. Uninfected are green.)
the absolute age differences of the pairs was analyzed with respect to this sample proportion and a distance criterion for inclusion of the pairs. In addition, the transmission groups men-having-sex-with-men (MSM), intravenous drug users (IDU) and heterosexuals (HET) were analyzed separately.

**Results:** Considering the tree with all 11,922 SHCS patients, 2,991 pairs could be extracted, with 954 (31.9%) MSM-pairs, 635 (21.2%) HET-pairs, 414 (13.8%) IDU-pairs and 352 (11.8%) HET/IDU-pairs. Age is significantly assortative for all risk groups considered (p < 0.001, compared to random pairs), meaning that patients of similar age are more likely to be pairs. The mean age difference in the phylogenetic HIV transmission tree: by distance threshold and sample proportion and distance criterion. The mean age difference decreases when using more conservative distance thresholds, implying that the pairwise analysis, using a fixed distance of 0.05, was 3.2, 2, 0.73 and 0.56 years for MSM-, HET-, HET/IDU- and IDU-pairs, respectively. Decreasing the coefficient of phenetic distance threshold from 0.05 to 0.01 significantly decreased the mean age difference (see Figure). Similarly, repeated sampling of 100% down to 1% of the tips revealed an increased age difference at lower sample proportions.

**Conclusions:** HIV-transmission is age-assortative, but the degree of assortative mixing detected by phylogenetic analyses depends on both sampling proportion and distance criterion. The mean age difference decreases when using more conservative distance thresholds, implying that an underestimation of age-assortativity when using liberal distance criteria. Similarly, overestimation of the mean age difference occurs for pairs from sparsely sampled trees, as it is often the case in sub-Saharan Africa.

**TUPEC310**

**Steady male sexual partner network correlates of forced sex among Black women at risk for HIV in Baltimore, MD, USA**

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**Background:** Forced sex, defined as unwanted sex through physical force or threats, is a risk factor for HIV acquisition. Forced sex has been linked to women’s reduced ability to use protection and higher risk behaviors among women and their male partners—some of whom are violent. Research has yet to examine how steady sexual partners’ attributes may differ for women who have and have not experienced forced sex. We examined the associations between network characteristics of steady sexual partners and forced sex history since the age of 18.

**Methods:** Between 2015 and 2018, Black women aged 18-44 years were recruited from STD clinics in Baltimore, Maryland. USA into a retrospective cohort study on sexual assault and HIV risk. Eligible women (n=183) were classified as exposed (n=68) or unexposed (n=115), based on whether or not they experienced forced sex after age 18. Using an audio computer-assisted interview, women were asked to report demographic and relationship-level questions on up to 5 male steady sexual partners within the past year. The 183 eligible women reported a total of 363 recent steady male partners. Log-binomial regressions with generalized estimating equations were utilized to compare the network characteristics of recent steady male partners of exposed women (n=137) to those of unexposed women (n=226).

**Results:** Controlling for women’s age, education, employment, and housing status, steady male partners of the women who experienced sexual violence were more likely to experience the following in the previous 6 months: a male sex partner (adjusted prevalence ratio [APR]=1.61; 95% CI: 1.00, 2.68), another female partner (APR=1.31; 95% CI: 1.12, 1.54), a sexually transmitted infection (APR=1.46; 95% CI: 1.11, 1.94), injected drugs (APR=2.58; 95% CI: 1.29, 5.14) or snorted, sniffed, or smoked illicit drugs (APR=3.03; 95% CI: 1.60, 5.74) compared to steady male partners of women who have not experienced sexual violence.

**Conclusions:** Study findings provide evidence that steady male partners of women with experiences of sexual violence engage in risky behaviors.
TUPEC311
Impact of personality disorders on leaving hospital against medical advice among people living with HIV in British Columbia, Canada

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Background: Leaving hospital against medical advice (AMA) is a significant source of morbidity, mortality, and a major burden to the healthcare system. Studies have indicated that marginalized populations, including people living with HIV (PLHIV) and those living with a personality disorder (PD), experience high hospitalization rates. Specifically, borderline PD has been shown to be characterized by emotional dysregulation often resulting in high impulsivity, recurrent self-harm and suicidal tendencies. We sought to identify whether being diagnosed with a PD was associated with leaving hospital AMA among PLHIV in British Columbia (BC), Canada.

Methods: Data were derived from the STOP HIV/AIDS in BC cohort, a provincial-level linkage of a series of surveillance, laboratory, and health administrative databases of all identified PLHIV in BC. Using multivariable generalized estimating equations (GEE), we examined the relationship between diagnoses of PD and leaving hospital prematurely among PLHIV who experienced at least one hospitalization during the study period.

Results: Among 8763 PLHIV included in the study sample, 1321 (15.07%) were diagnosed with a PD. The prevalence of leaving hospital AMA was 8.80%. In multivariable analyses, after adjusting for a range of demographic and clinical confounders, there remained a positive association between being diagnosed with a PD and leaving hospital prematurely (adjusted odds ratio [AOR] = 1.52; 95% confidence interval [CI]: 1.20 - 1.91).

Conclusions: Results showed a significant and independent association between diagnoses of PD and leaving hospital AMA among PLHIV. These findings underscore the importance of identifying specific PD related behaviours which are influencing the acceptance of treatment and addressing these barriers to HIV treatment including managing expectations, and supports to treat behavioural barriers by means of counseling/behavior support approach and medications to manage emotional crisis. Furthermore, these findings suggest a need to develop novel health system interventions to minimize AMA discharge among this population.

TUPEC312
Syndemic conditions of substance use, intimate partner violence (IPV) and incarceration and HIV risk among US-based young Black MSM (YBMSM): Implications for the global HIV epidemic among MSM

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Background: Syndemic conditions are psychosocial and structural factors that interact and amplify each other to produce excess burden of disease in a particular population. Quantitative studies internationally have found evidence that syndemics increase HIV vulnerability among MSM. In the U.S., HIV, particularly in the South, disproportionally affects YBMSM, but little is known about how psychosocial and structural factors relate to their HIV risk. In this longitudinal qualitative study, we describe the lived experiences of YBMSM in Dallas, Texas, in relationship to substance use, IPV, and a history of incarceration as syndemic conditions that affect their vulnerability for acquiring or transmitting HIV.

Methods: Guided by grounded theory, we conducted four in-depth interviews every six months in 2015-2017 with a diverse cohort of 30 YBMSM, age 19-29. Qualitative analysts coded the data and identified emergent themes.

Results: Many participants had few marketable skills, were marginalized, and faced challenging circumstances and familiar and social contexts. Six participants were living with HIV at their first interview, and eight other, denoting sexual risk, self-reported seroconversion in subsequent interviews. Most amphetamines used contributed to participatory unstable living situation, job loss, destructive relationships, and HIV risk. Approximately a third of participants, unable to navigate conflict and interpersonal dynamics, reported a history of physical IPV, sometimes related to substance use, in their romantic relationships. About half of the men had a history of incarceration resulting from IPV, substance use, and/or other illegal activities. Many reported that having a criminal record curbed opportunities for employment, housing, and financial stability. Consequently, some engaged in survival means involving HIV risk (sex work, organizing sex parties). For some participants, their socio-economic status fluctuated and did confer protection against HIV risk.

Conclusions: Substance use, IPV, and incarceration as syndemic conditions create vulnerability points related to YBMSM’s HIV risk. Using syndemic theory as a framework may elucidate the interaction of structural and individual-level factors that exacerbate HIV among YBMSM in the U.S. These dynamics may also apply to MSM globally, particularly in areas where they are marginalized and highly stigmatized, to inform the development of tailored HIV interventions.
heterosexual-5%. Of the 459 MSM, 89.9% completed pre- and post-inter-
vention assessments. After adjusting for sexual stigma and condom use self-efficacy, ANCOVA results showed a significant decrease in sexual risk (26% reduction in absolute risk score) among those in the interven-
tion group (F (4, 457)=19.80, p < .001, partial eta squared =.021).

Conclusions: This pilot quasi-experimental study among MSM has
demonstrated the feasibility and potential effectiveness of a syndemi-
cally-oriented brief intervention to reduce sexual risk. Screening for and
addressing syndemic conditions can be integrated into the existing con-
dom knowledge/promotion-based HIV prevention intervention to sub-
stantially reduce sexual risk.

TUPEC314
Transactional sex and poverty as syndemic conditions
for HIV risk among transgender women
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Background: Research has consistently shown a relationship between
syndemic factors and HIV transmission risk behavior among men who
have sex with men. Little research, however, has examined these syn-
demic factors among transgender women, nor to what degree different
factors are relevant for this population.

Methods: A sample of 215 transgender women, ages 18-65 (M=34.3)
were recruited. The majority (75.8%) were women of color. Participants
completed measures of HIV transmission risk behavior, four previously
established syndemic conditions (polydrug use, depression, childhood
sexual abuse, intimate partner violence), and two conditions hypoth-
thesized to be relevant for transwomen (transactional sex and poverty).

Results: Only one of the six associations between the four established
syndemics conditions (childhood sexual abuse and intimate part-
ner violence) was significant. Transactional sex was positively associ-
ated with polydrug use (OR=6.59, 95% CI=1.51, 28.75), childhood sexual
abuse (OR=2.80, 95% CI=1.49, 5.24), intimate partner violence (OR=2.14,
95% CI=1.18, 3.88), and poverty (OR=2.22, 95% CI=1.12, 3.97). Only transac-
tional sex was positively associated with HIV transmission risk behavior
(OR=2.24, 95% CI=1.16, 4.34). Multivariable logistic regression was used to
show the odds of HIV transmission risk behavior explained by all six syn-
demic conditions. The adjusted odds ratio of the summed six syndemic
conditions was strongly and positively associated with transactional sex
(OR=2.24, 95% CI=1.16, 4.34). Multivariable logistic regression was used to
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demic conditions. The adjusted odds ratio of the summed six syndemic
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(OR=2.24, 95% CI=1.16, 4.34). Multivariable logistic regression was used to
show the odds of HIV transmission risk behavior explained by all six syn-
demic conditions. The adjusted odds ratio of the summed six syndemic
conditions was strongly and positively associated with transactional sex

TUPEC315
Finding casual sex partners on the internet, and the
twin epidemics of methamphetamine use and incident
HIV infection in a cohort of MSM in Bangkok, Thailand
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W. Chomiwattana4, W. Wimonrats4, A. Varangrat3, T.H. Holtz5, K.E. Nelson5,
F. van Griensven5
1Pa Ramongkutthai College of Medicine, Bangkok, Thailand, 2Thailand
MoPH-US CDC Collaboration, Nonthaburi, Thailand, 3Thailand MoPH-
US CDC Collaboration, Bangkok, Thailand, 4US Centers for Disease
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Baltimore, United States, 6Thai Red Cross AIDS Research Center and
UCSF Department of Epidemiology and Biostatistics, Bangkok, Thailand

Background: Finding casual sex partners on the internet and metham-
phetamine use have been described as risk factors for HIV infection in
men who have sex with men (MSM). However, the interplay between
these factors has not been studied prospectively in one design.

Methods: Cohort study of 1,744 Bangkok MSM with follow-up visits ev-
ery four months from 2006 to 2014. Men were tested for HIV infection
at every study visit, and for sexually transmitted infections at baseline.
Demographics (at study entry) and HIV risk behavior information were
collected by audio computer-assisted self-interview (every visit). Cox
proportional hazard regression analysis was used to evaluate covariates
for incident methamphetamine use and HIV infection.

Results: Incidence of methamphetamine use was 3.8, and of HIV infec-
tion, 6.0 per 100-person years of follow-up (figure). Dual risk factors for
both incident methamphetamine use, and HIV infection were younger
age and finding casual sex partners online. Ever having received money
for sex was found predictive for incident methamphetamine use; living
alone, recent anal sex, and ulcerative sexually transmitted infections at
baseline were predictive for incident HIV infection.

Conclusions: Twin epidemics of methamphetamine use and HIV infec-
tion are occurring among MSM in Bangkok. Finding casual sex partners
on the internet, methamphetamine use, and sexually transmitted infec-
tions play important roles in sustaining the HIV epidemic in this popu-
lation. Virtual HIV prevention education, drug use harm reduction, and
biomedical HIV prevention methods, such as pre-exposure prophylaxis,
may help to reduce or revert the HIV epidemic among MSM in Bangkok.
TUPEC316  
Association of HIV infection with syndemics of psychosocial factors and condomless anal intercourse in MSM in Malaysia

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Background: Men who have sex with men (MSM) account for majority of newly diagnosed HIV infection in Malaysia. Sexual activities between men are forbidden by local civil and Shariah laws leading to cultural and social stigmatization and increased vulnerability to psychosocial factors, contributing to HIV infection in a synergistic way. This study aimed to assess the additive effects of multiple psychosocial factors (syndemics), condomless anal intercourse (CAI) and HIV infection among Malaysian MSM in order to inform the development of novel, comprehensive preventative HIV interventions.

Methods: Demographic data, psychosocial factors, CAI and HIV status were collected via an anonymous online survey through MSM social networking sites. Syndemic phenomenon is defined as presence of ≥2 psychosocial factors and HIV infection was assessed by self-report. Multivariate regression was used to investigate the independent association between the syndemic factors, CAI and HIV infection.

Results: A total of 483 MSM (whom had anal intercourse in past 12 months) with mean age of 28.7 (range: 18-55) years old completed the survey. Only 320 (66.3%) participants reported ever having taken an HIV test; among them, 88 (27.9%) were HIV positive. Self-reported sexual identity (homosexual versus non-homosexual) was associated with self-reported HIV status (odds ratio (OR) = 2.08, 95% confidence interval (CI) = 1.07-3.97). Prevalence of psychosocial factors were depressive symptoms (61.5%), suicidal ideation (23.6%), history of childhood sexual abuse (ICAII) (12.7%), “chemsex” (use of stimulant drugs before or during anal sex) (15.1%) and inter-partner violence (IPV) (9.3%). CAI in the past 3 months was reported by 55.7% of participants and 53.0% experienced syndemic phenomenon. Depressive symptoms (adjusted odds ratio (AOR)=2.9, 95% CI=1.24-6.85), “chemsex” (AOR=2.01, 95% CI=1.19-3.52) and history of CSA (AOR=2.18, 95% CI=1.11-4.57) were associated with self-reported HIV status. The number of psychosocial factors significantly increased the odds of CAI and HIV.

Conclusions: Syndemic phenomenon was present in this sample with large proportion of the participants manifesting significant psychiatric symptoms, experienced childhood sexual abuse and IPV. The results underscore the need for an urgent, comprehensive HIV prevention strategy including addressing mental illness and substance use amongst Malaysian MSM in order to effectively respond to the HIV epidemic.

<table>
<thead>
<tr>
<th>Syndemic Count</th>
<th>CAI last 3 months n=269</th>
<th>Self-reported HIV status n=48</th>
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</thead>
<tbody>
<tr>
<td>n (%)</td>
<td>n (%)</td>
<td>Odds Ratios (OR) (95% Confidence Intervals (CI)) (%)</td>
</tr>
<tr>
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<td>103 (21.3)</td>
<td>45 (16.7)</td>
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<td>2</td>
<td>199 (41.2)</td>
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<td>3</td>
<td>142 (29.4)</td>
<td>79 (29.4)</td>
</tr>
<tr>
<td>4 + 5</td>
<td>39 (8.1)</td>
<td>34 (26.2)</td>
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</tbody>
</table>

(Association between Syndemic Count, Condomless Anal Intercourse (CAI) and Self-reported HIV status among MSM in Malaysia)

TUPEC317  
Study of behavioral models of transgender people leading to high rates of HIV prevalence in Ukraine

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Background: In Ukraine’s current national HIV strategy, there is no targeted intervention or funding for work with transgender people. This is due to a lack of reliable epidemiological and behavioral data on the prevalence of HIV and risky practices among transgender people in Ukraine.

Methods: A quantitative study in 2017 using the RDS method. This is the largest of its kind in the ECECA countries: 438 transgender people were surveyed across Ukraine, including Crimea and the eastern regions of the country where military operations are taking place.

Results: 91% of transgender people in Ukraine did not use a condom during their most recent sexual intercourse. The main reasons for this was that sexual partners insisted on sex without condoms (58.3%) and the lack of condoms (27%).

91% of transgender people in Ukraine have at least once provided sexual services for money and/or other benefits. According to respondents’ own reports, HIV prevalence among transgender people could be as high as 21%. At the same time, HIV infection specialists and other doctors in AIDS centers in Ukraine do not receive special training to work with transgender people, and transgender people with HIV are registered in health facilities according to their biological gender.

Conclusions: Data obtained suggest that, as in other countries, the risk of HIV transmission among transgender people in Ukraine is 50 times higher than among the general population. Level of knowledge about HIV/AIDS and STI among transgender people needs to be raised, by means of targeted interventions, and access for transgender people to HIV services needs to improve. Including through awareness training for doctors. There is also a need for advocacy work to improve the meaningful participation of trans people and their organizations in national anti-epidemic action.

Next steps should aim to ensure that the state recognizes the vulnerability of transgender people and explicitly includes transgender people in list of groups with an increased risk of HIV infection. Transgender people should be included in national coordination mechanisms, in particular, the National Council for Countering Tuberculosis and HIV/AIDS.

| Transgender people and HIV in Ukraine | |

TUPEC318  
Are HIV variants from soviet soviet union countries spreading across the world?

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Background: While cases of new HIV infections among adults have declined globally in recent years, the annual number of new HIV infections in Eastern Europe and Central Asia increased by 60% with an estimated 150,000 new HIV infections in 2016. The number of people living with HIV in these countries reached 1.6 million by 2016. Following the collapse of Soviet Union in 1991, socioeconomic interactions among the former...
Soviet Union (FSU) countries facilitated cross-border mobility, leading to the transmission of certain infectious diseases within this region. Initially, HIV outbreaks in the FSU countries were characterized by repeated transmission of HIV variants A_{FSU} and B_{FSU}, which may now be used to track the origin and transmission routes of HIV within and outside the FSU countries. The present study was designed to find distinct signature patterns of HIV variants A_{FSU} and B_{FSU}, and using these signatures to track the transmission patterns of HIV subtype A and B in FSU countries and worldwide.

Methods: To this end, phylogenetic analysis of publicly available HIV-1 subtype A and subtype B pol and env full gene sequences from FSU countries was performed using MEGA 6.0. Each cluster from these trees was separately analyzed for A_{FSU} and B_{FSU} signatures using the software VESPA. The signature sequences were then used to screen all the subtype A and B sequences, including the ones FSU as well as non-FSU countries, in the HIV Los Alamos database.

Results: Our results revealed that transmission of FSU specific HIV-1 variants has now bridged outside the FSU region.

Conclusions: This analysis elucidates the origins and emerging patterns of HIV transmission within and outside the FSU countries.

TUPEC320
Estimating the potential impact of compulsory drug abstinence programs (CAP) on HIV incidence among people who inject drugs (PWID) in Tijuana, Mexico, using mathematical modeling

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Background: Exposure to CAP has been associated with HIV risk behaviors, HIV infection and fear of accessing HIV services in various settings, including China, Thailand and Malaysia. In Tijuana, Mexico, forceful police referrals to CAP and allocation of government funds for expansion of CAP increased in 2015 to deal with homelessness and drug use. An estimated 5,000-10,000 PWID live in Tijuana among whom HIV prevalence is 3.5% and incidence 1.1%/year. We found exposure to CAP was associated with overdose risk among this population. Here, we extend this work to investigate the potential impact of CAP scale-up, compared with that of opioid agonist therapy (OAT), on HIV incidence among PWID.

Methods: We analyzed data from a cohort of PWID in Tijuana (2021-2020) which bi-annually collects information on sexual and drug-using behaviors and on a range of exposures, including CAP, to inform the parameterization of a deterministic mathematical model of HIV transmission among this population. We investigated temporal trends in exposure to CAP and associations with syringe sharing, controlling for duration of injection, and represented these in the model. We estimated future impact from 2018-2030 of CAP or OAT scale-up on HIV incidence among PWID.

Results: Exposure to CAP in the past 6 months among PWID in Tijuana was low at baseline (1.4%) and fluctuated between 1.6 % and 5.0% in 2015-2016. Ever being exposed to CAP versus not was associated with an increased risk of receptive syringe sharing in the past 6 months (RR 1.14 (95%CI 1.00-1.30)). Modeling estimated that between 2018-2030 CAP could lead to a 9% (95% CI: 1%-20%) increase in new HIV infections, if peak admission rates were maintained. If OAT was provided instead, an 8% (95% CI: 4%-13%) reduction in new infections would be expected.

Conclusions: Exposure to CAP has been recurrent increases in recent years among PWID in Tijuana, likely as a result of current policies. Further scale-up could lead to a rise in HIV incidence among PWID. Instead, OAT scale up could substantially reduce it. A reappraisal of the response to the opioid epidemic in Tijuana, which considers the health and human rights of PWID, is needed.
of your race) and/or more subtle microaggressions (e.g., being looked at suspiciously because of your race) — on Black people’s substance use, with evidence of substance use as a coping mechanism. Furthermore, it is well-documented that substance use increases sexual HIV risk. Yet, research on racial discrimination and sexual HIV risk is rare. To address these gaps, we tested a conceptual model in which we hypothesized that racial discrimination would increase BHM’s substance use before or during sex and in turn, sexual HIV risk.

Methods: Participants were 722 self-identified BHM living in Washington, DC who reported having sex with women in the past 3 months and ranged in age from 18 to 44 (M=30.4). Field interviewers administered surveys using computer-assisted software within participants’ homes in 2015-2016. We used structural equation modeling via Mplus 7 to test the study’s mediation model.

Results: Participants reported experiencing microaggressions (M=2.03) more than twice as frequently as overt racial discrimination (M=0.73) (scale 0- Never to 6-Nearly every day). Neither overt racial discrimination nor racial microaggressions were directly associated with sexual HIV risk. Racial microaggressions, but not overt racial discrimination, however, were associated with increased substance use before or during sex, which was in turn associated with increased sexual HIV risk. Furthermore, racial microaggressions were indirectly positively associated with sexual HIV risk through their influence on substance use before or during sex (see Figure 1).

Conclusions: These results suggest that it is the subtle and mundane racial microaggressions, rather than the more overt but less frequent acts of discrimination, that increase BHM’s substance use before or during sex, and in turn their sexual HIV risk. These results highlight the need for individual-level culturally-specific interventions to help BHM positively cope with racial microaggressions as well as structural-level interventions to reduce the frequency of these microaggressions.

Understanding the spread of HIV through behavioural studies

TUPEC322

Coverage of modern contraceptive use and highly active anti-retroviral therapy among women of reproductive age living with HIV in Nigeria

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5AIDS Healthcare Foundation, Program Management, Kampala, Uganda

Background: Current levels of contraceptive use in all of sub-Saharan Africa are already preventing 173,000 HIV-positive births annually, even though contraception is not widely used in the region. The practices of contraception by HIV positive women might not be well understood or met. This study aims to assess the coverage of contraceptive use among women living with HIV at ART centres in Nigeria.

Methods: A retrospective cross-sectional study which consist of 746 HIV women, aged 15 to 49 years using systematic random sampling method at 56 facilities comprising both primary and secondary health care facilities. Data were retrieved from though Electronic Medical Record system between January 2014 and June 2017. The variables obtained included maternal age, number of living children, marital status, religion, the educational level, and the use of antiretroviral treatment (HAART), the knowledge, attitude and practice of contraception. Analyses were done using SPSS 20. Fisher exact test was used for comparison. The level of significance was P<0.05.

Results: Out of a total of 746 HIV positive women who participated in the study, 71% (520) were using modern contraceptive methods and 98% knew at least one method of modern contraception. Twenty-one per cent (156) had fallen pregnant whilst on HAART while 81 (65.9%) said that the pregnancy had been unplanned. Factors associated with contraceptive practice were knowledge of HIV status (68.5%) and health worker advice (69.2%). Women 128 years consider using contraceptive (OR 2.6, 95%CI 1.3-4.9), on HAART (OR 2.8, 95%CI 0.8-9.2), divorced (OR 1.7, 95%CI 0.8-3.7), had 11 living children (OR 12, 95%CI 0.6-2.4) and when the women were educated (OR 12, 95%CI 0.6-2.4). Condom use was among participants was 49.7%.

Conclusions: Contraceptive use is relatively low among participants in this study. Age and parity were found to be influence the uptake of contraception among these women. Information regarding contraceptive use should therefore be provided at all ART clinics. Integration of Family planning and HIV services should be implemented and more emphasis should be made on condom use even when using other contraceptive methods to ensure dual protection.

TUPEC323

Condomless anal intercourse by partner type among Chinese men who have sex with men in Tianjin

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2University of Pennsylvania, Philadelphia, United States
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6Tianjin Hongqiao District Center for Disease Control and Prevention, Tianjin, China

Background: HIV prevalence and incidence is high among men who have sex with men (MSM) in China, underscoring the need to support and optimize HIV risk reduction strategies for this population. We sought to estimate the prevalence of condomless anal sex among MSM living in Tianjin, China.

Methods: We recruited 595 HIV-negative MSM (Mean age=29.27 years; 76% gay identified) living in Tianjin to participate in a HIV study between 2013 and 2014. Data were collected after a voluntary counseling and testing session through a face-to-face survey. We used multivariable logistic regressions to examine the association between sociodemographic characteristics and HIV risk correlates (e.g., HIV knowledge, prior STIs and MSM’s likelihood of engaging in condomless anal intercourse (CAI) with main and casual partners in the prior six months.

Results: CAI was prevalent in the sample (N=321; 53.3%), with men reporting CAI with regular (N=233; 39.2%) or casual (N=189; 31.8%) partners. Identifying as gay was the only correlate of engaging in CAI with a regular partner (OR=1.69, 95% CI 1.09, 2.63). CAI with a casual partner was more likely among men who were older (OR=1.03, 95% CI 1.01, 1.05), identifying as gay (OR=1.73, 95% CI 1.08, 2.79), and aware of HIV treatment policies in China (OR=1.40, 95% CI 1.16, 1.69). MSM with more educational attainment (OR=6.95, 95% CI 5.00, 95) and greater HIV transmission knowledge (OR=8.5, 95% CI 7.3, 99) were less likely to report CAI with a casual partner.

Conclusions: HIV risk reduction efforts should be developed to be sensitive and responsive to the unique experiences of Chinese MSM. We discuss opportunities for future work, including the development of HIV risk reduction interventions.
Background: Slow reductions in HIV incidence have been observed in sub-Saharan African populations despite rapid increases in ART coverage. A contributing factor could be increases in high-risk sexual behaviour at the population level - particularly if concentrated in people living with HIV (PLHIV) not yet on treatment. We test this hypothesis by examining trends in high-risk sexual behaviour disaggregated by HIV infection, HIV diagnosis and ART status in a population in east Zimbabwe with continuing high HIV incidence (0.75%; 95%CI 0.60%-0.95%, 2009-2013).

Methods: Trends in multiple partners in the last year and condom use at last sex were measured using data on approximately 7000 sexually-active adults (15-54 years) in each of four rounds of a general-population open cohort spanning the scale-up of ART services in east Zimbabwe (2003-2013). Levels of sexual risk behaviour by infection, diagnosis and treatment status were compared using multivariable logistic regression adjusted for age and location.

Results: The proportion of adults reporting multiple sexual partners in the last year declined steadily over the first three rounds of the survey but increased in the post-ART period, 2009-2013, particularly in men (men: 14.4% to 21.4%, p<0.001; women: 17.3% to 21.3%, p<0.1); for whom increases were found in all HIV, HTC and ART sub-groups (Figure). Overall changes in condom use were small but an increase was observed in PLHIV who had been diagnosed or were on ART (44.1% to 59.4%, p=0.057). ART coverage was 36% and 43% in men and women in 2012-2013. PLHIV not yet on treatment were less likely to report 5 or more lifetime sexual partners than those on ART (AOR=0.34, p<0.001) but were equally likely not yet on treatment were less likely to report multiple sexual partners (p=0.9) and less likely to report condom use at last sex (AOR=0.34, p=0.001). Similar patterns were found for men and women.

Conclusions: Increases in high-risk sexual behaviour following the scale-up of ART - particularly in PLHIV not on treatment who may be recently infected and highly infectious - could have limited reductions in HIV incidence in east Zimbabwe. Early ART initiation and improved implementation of efficacious methods of primary prevention could accelerate declines in HIV incidence.

**TUPEC325**

**HIV testing among Black heterosexual men in the U.S. capital is linked with social-structural factors at the individual, but not the neighborhood, level**

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**Background:** Black men in the U.S. experience disproportionate poverty, unemployment and incarceration—of which have been linked to increased HIV rates. In Washington, D.C., Black men represent about half of the male population, yet they accounted for 89% of HIV cases due to heterosexual contact in 2016. Although awareness of HIV status is critical for reducing HIV/AIDS, Black heterosexual men (BHM) are rarely the focus of initiatives promoting HIV testing. Research with other populations (e.g., MSM) have found that social-structural factors both at the individual (e.g., incarceration, poverty) and the neighborhood (e.g., access to HIV-related services, poverty at the census-tract level) levels are significant predictors of HIV testing. We investigated how both individual and neighborhood-level characteristics were associated with being tested for HIV in the last 12 months among BHM in Washington D.C.

**Methods:** As part of a mixed-methods study examining neighborhood and individual contexts of sexual HIV risk among a predominantly BHM sample, we randomly sampled households from 28 neighborhood clusters in D.C. with >40% Black population. Participants were 810 self-identified BHM between 18 and 44 years old who responded to a computer-assisted survey. We utilized multilevel modeling analysis to assess how individual and neighborhood-level characteristics were associated with HIV testing in the last year.

**Results:** Most participants reported getting tested in the last year (n=456, 67%), and nearly all reported getting tested at least once in their lifetimes (n=377, 92%). At the individual level, incarceration history, income, health insurance and HIV concern significantly predicted testing in the last 12 months. Neighborhood-level characteristics, however, were not significantly associated with testing in the last year (Table 1).

<table>
<thead>
<tr>
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<td>Incarceration history</td>
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<td>Health insurance</td>
<td>.383</td>
</tr>
<tr>
<td>Concern about HIV</td>
<td>.103</td>
</tr>
<tr>
<td>Density of HIV clinics</td>
<td>-.085</td>
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<tr>
<td>HIV rate (per 100,000 inhabitants)</td>
<td>.001</td>
</tr>
<tr>
<td>Percentage of population under poverty line</td>
<td>-.046</td>
</tr>
</tbody>
</table>

**Conclusions:** HIV testing among BHM in D.C. is prevalent, independent of where in the city they live. Underscoring the importance of the social-structural context, having a history of incarceration, lower income and having health insurance increased the likelihood of being tested in the last year. Although measured at the individual-level, these factors reflect some of the key social-structural issues that Black men face in the U.S. Understanding how these factors facilitate testing is a critical step in framing HIV testing efforts for BHM.
TUPEC326

Intimate partner violence, depressive symptoms and sexual behaviour among gay, bisexual and other men who have sex with men in the PROUD PrEP trial

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Background: Intimate partner violence (IPV) has been found to be associated with depression and with sexual risk behaviour linked to STI/HIV transmission in U.S. studies of gay, bisexual and other men who have sex with men (GBMSM). There is a lack of data in the UK/Europe. This study investigates the prevalence of IPV, associated factors, and relationship with depression and sexual behaviour among GBMSM enrolled in the PROUD trial evaluating pre-exposure prophylaxis (PrEP).

Methods: PROUD was an open label randomised trial (enrolment 2012-2014) evaluating the benefit of PrEP for HIV-negative GBMSM in England who reported recent condomless sex (CLS) with an expectation of subsequent CLS. This analysis included 436 GBMSM with IPV data at the 12- and 24-month follow-up. IPV prevalence was assessed at each time-point, associated factors and cross-sectional associations with depressive symptoms (PHQ-9≥10) and measures of CLS and sexual-partner numbers were assessed using Poisson generalized estimating equations combining time-points, adjusted for: age; UK born; sexual identity; clinic site.

Results: The majority of men (57%) reported CLS with ≥2 partners in the past three months. At month-12 (N=410), 44% of men reported being a victim of IPV and 19.5% a perpetrator of IPV, in their lifetime. Corresponding percentages at month-24 (N=333) were 40.2% and 18.0%. Internalized homophobia and sexualized drug use were associated with IPV victimization (Table 1).

Younger age and sexualized drug use were associated with IPV perpetration. IPV was strongly associated with depressive symptoms (adjusted prevalence ratio [aPR] for IPV victimization 2.67 [95% CI 1.71, 3.86]; p<0.001). IPV was not consistently associated with measures of CLS/partner numbers. However, at month-12, IPV victimization was associated with receptive CLS with an HIV-positive partner not known to be on treatment (aPR 2.84 [95% CI 1.27, 6.35]; p<0.011) and IPV perpetration was associated with group sex (aPR 1.40 [95% CI 1.16, 1.69]; p<0.001).

Conclusions: GBMSM at high-risk of HIV who are seeking/taking PrEP may experience a high burden of IPV, which may be linked to depressive symptoms. It is recommended that training on awareness and selective enquiry for IPV among GBMSM in sexual health clinics, should be enhanced.

TUPEC327

Poor acceptance of HIV diagnosis is a primary barrier to successful engagement in HIV medical care among vulnerable, high-risk heterosexuals in the United States

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Background: Current World Health Organization (2015) guidelines recommend persons living with HIV/AIDS (PLHA) engage in medical care and initiate antiretroviral therapy (ART) immediately after diagnosis. However, after HIV diagnosis it is common in the United States for vulnerable (PLHA) to delay engagement in HIV medical care and ART initiation. Further, while past research has shown greater acceptance of one’s HIV diagnosis, in contrast to denial or avoidance, is associated with positive HIV health outcomes, little is known about the phenomenon of ‘acceptance’ of HIV among vulnerable PLHA and its relationship to engagement in medical care. The present study, guided by an ecological framework and Critical Race theory, uses an Interpretive Phenomenological Analysis (IPA) to address this gap.

Methods: High-risk heterosexual PLHA of color (N = 140) were recruited through peer referral in Brooklyn, NY in 2012-2015. A subset (N = 28) was purposively sampled for maximum variation for in-depth, semi-structured, qualitative interviews on psychological adaptation to HIV diagnosis and engagement in medical care. Data were analyzed using an Interpretive Phenomenological Analysis. Most participants were male (60.8%); Black (78.6%); aged ≥7-years (ISD 7.12 years) on average; unemployed (52.9%); lacked basic necessities in the past year (75.1%); had histories of homelessness (71.4%) and incarceration (85.7%); and met criteria for lifetime problematic substance use (78.6%).

Results: Analyses revealed that acceptance was a pre-requisite to successful engagement in medical care. However, acceptance was often a lengthy (≥3 years), complex and non-linear process, with many participants still struggling with acceptance of HIV status ≥10 years after diagnosis. We found six inter-related factors particularly impeded acceptance of HIV status: (1) problematic substance use; (2) past history of trauma; (3) the experience of HIV as abstract in the absence of physical symptoms; (4) social isolation, which amplified feelings of HIV-stigma; (5) receiving HIV testing in settings perceived as harsh and coercive such as prison or mandated treatment; and (6) distrust of the medical establishment.

Conclusions: In light of current HIV treatment guidelines, interventions that facilitate timely acceptance of HIV diagnosis, and consequent engagement in medical care and ART initiation for vulnerable PLHA are sorely needed.

TUPEC328

Disclosure of HIV diagnosis and its relationship to successful engagement in medical care and initiation of ART in the 21st century

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Background: To best prevent transmission of HIV and improve HIV health outcomes, it is recommended that persons living with HIV/AIDS (PLHA) both disclose their HIV status to sexual and drug-injection partners and initiate ART soon after diagnosis. However, after HIV diagnosis it is common in the United States for vulnerable PLHA to delay engagement in HIV medical care and ART initiation. Further, while past research has shown greater acceptance of one’s HIV diagnosis, in contrast to denial or avoidance, is associated with positive HIV health outcomes, little is known about the phenomenon of ‘acceptance’ of HIV among vulnerable PLHA and its relationship to engagement in medical care. The present study, guided by an ecological framework and Critical Race theory, uses an Interpretive Phenomenological Analysis (IPA) to address this gap.

Methods: High-risk heterosexual PLHA of color (N = 140) were recruited through peer referral in Brooklyn, NY in 2012-2015. A subset (N=28) were purposively sampled for maximum variation, for in-depth, semi-structured, qualitative interviews on disclosure of HIV status and en-
gagement in medical care. Data were analyzed using an Interpretive Phenomenological Analysis. Most participants were male (60.8%), Black (78.6%), aged 47-years (SD=7.12 years) on average; unemployed (92.9%); lacked basic necessities in the past year (75.0%); had histories of home-

lessness (71.4%); incarceration (85.7%); and met criteria for lifetime prob-

lematic substance use (78.6%).

Results: Analyses revealed that engagement in HIV medical care varied greatly depending on the tenor (positive or negative) of the disclosure experience. Negative disclosure experiences were common and imped-
ed engagement in medical care and ART initiation, mainly by leading to feelings of shame and alienation that exacerbated avoidance of HIV care. Disclosure to sexual partners emerged as particularly challenging over five years.

Disclosure of HIV status after diagnosis is challenging and can complicate successful engagement in medical care and ART initia-

tion. However, effective interventions that facilitate positive disclosure experiences: (1) engagement in substance use treatment; (2) engagement in mental health care; (3) social support from friends and family; (4) positive, long-term relationships with health-care providers; (5) positive experiences with ART (i.e. minimal side-effects and achieving HIV viral suppression); and (6) acceptance of HIV diagnosis, that is the acknowledgement to oneself that one is indeed infected with HIV, in contrast to denial and avoidance, often a lengthy and complex process.

Conclusions: Disclosure of HIV status after diagnosis is challenging and can complicate successful engagement in medical care and ART initia-

tion. However, effective interventions that facilitate positive disclosure experiences exist and should be implemented soon after diagnosis.

Modelling future healthcare needs

TUPEC329

Outcomes of South African mothers living with HIV (MLH) and their children compared to neighborhood peer mothers without HIV (MWOH) and their children over five years

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Background: Recent research examining the children of mothers living with HIV (CMLH) have had conflicting results. Many studies are limited to clinic-based samples in which about one quarter of CMLH are lost within a year. This study compares outcomes for CMLH and children of mothers with-

out HIV (CMWOH) in multiple domains - physical growth, behavioral ad-

justment, and cognition - over the first five years of life.

Methods: Almost all (98%) pregnant women in 12 Cape Town neighbor-

hoods (N=594) were recruited in pregnancy and reassessed five times over five years with high retention (83% - 92%). 205 were MLH and 389 were mothers without HIV (MWOH). Comprehensive evaluations of MLH and CMLH were compared over time to MWOH and CMWOH in the same neighborhoods, recruited concurrently. Growth was charted as the World Health Organization Z scores for weight and height. Behavior was assessed with the Achenbach Child Behavior Checklist and the Strengths and Difficulties Questionnaire at 36 and 60 months; cogni-
tion was assessed with the Bayley Scales at 18 months, Peabody Picture Vocabulary at 36 months, the Kaufman Scales of Mental Development at 60 months and Blair Measures of executive functioning at 36 and 60 months.

Results: CMLH were similar in height and stunting. Developmental milestones were similar, as was behavioral adjustment across CMLH and CMWOH.

Cognition was similar on the Bayley Scales, and the Peabody Picture Vocabulary Tests, but the Kaufman Scale was significantly lower by about 3 IQ points at five years (p<.05).

Conclusions: CMLH and CMWOH were similar on most outcomes. Children's lower weight and the cognitive scores at five years suggest there may be small cumulative deficits accruing over time. These differ-
ces are likely attributable to social factors related to HIV (maternal al-

cohol abuse or depression, less income, single parenthood), rather than HIV exposure in-utero.

TUPEC330

Integrating the impact of reduced investments in integrated HIV care delivery in Belgium

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Background: In Belgium, AIDS Reference Centers (ARC) deliver patient-centered, integrated HIV care, leveraging state of the art knowledge and expertise to provide multidisciplinary patient management. We de-

veloped an integrated value-centered framework to help drive value-
driven financing approaches. The quantification of ARC value drivers is a key framework component. The present study quantifies the impact of disinvestments in ARC.

Methods: We leveraged the published BELHIVPREV model to assess the health and budget impact and return on investment (ROI) in ARC for 5 key value drivers: (i) preventing new infections; (ii) reducing the number of undiagnosed patients; (iii) linkage to and (iv) retention in care and (v) achieving and maintaining virologic control. We simulated 4 scenarios for 2020, which were further extrapolated to 2030 (Table 1). The model scenarios were based on hypothetical, yet realistic, expert estimated pa-

rameter settings. Cumulative costs were generated from 2015 to 2030 and assumed an additional 3M€/year investment (+60% of total Belgian ARC costs) in the ‘additional effort’ scenario and a 2.2M€/year disinvest-

ment (-43% of total Belgian ARC costs) in the ‘reduced effort’ scenario. For the ‘additional’ and ‘reduced’ effort scenarios the ROI was calculated as the ratio of (cumulative budget impact - cumulative investment cost) over (cumulative investment cost).

Results: Table 1 summarizes estimated number of new diagnoses and total annual (pharmaceutical) budget for 2020 and 2030 for the 4 differ-

ent scenarios. ROI for the ‘additional’ and ‘reduced’ effort scenarios were 2.4 and -4.0, respectively; i.e. every € invested in ARC between 2015 and 2030 resulted in 2.4€ additionally saved by 2030, whereas every € disin-

vested resulted in an additional 4.0€ loss to society.

(Table 1)
TUPEC331
Estimating latent tuberculosis infection prevalence in the United States: Back-calculation from active TB cases

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1Institute of Global Health Sciences, University of California (UCSF), Epidemiology & Biostatistics, San Francisco, United States; 2Fellows Statistics, San Diego, United States; 3Philip R Lee Institute for Health Policy Studies, University of California (UCSF), San Francisco, United States; 4Division of Pulmonary and Critical Care, California Department of Public Health, Richmond, United States; 5Division of Tuberculosis Elimination, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, U.S. Centers for Disease Control and Prevention (CDC), Atlanta, United States; 6National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC, Atlanta, United States; 7Division of Pulmonary and Critical Care, UCSF and Zuckerberg San Francisco General Hospital, San Francisco, United States

Background: Identification and treatment of latent tuberculosis infection (LTBI) is a critical component of the United States national plan for tuberculosis disease (TB) elimination. However, estimating LTBI prevalence has been challenging. In this study, we present a back-calculation model based on reported active TB disease to estimate the prevalence of LTBI within the United States (U.S.), California, and five counties in California with the highest burden of TB.

Methods: Our model incorporates annual TB cases (1993 to 2016) reported to CDC and annual mortality-adjusted reactivation risks for 85 years following infection to “back-calculate” LTBI prevalence. We used Markov Chain Monte Carlo to calibrate an exponential decay curve fit to surveillance data to estimate reactivation risks, then adjusted the reactivation risks for all-cause mortality risks. Calculations were done using a back-calculation package in R software after accounting for the long lag between LTBI and active disease, and general all-cause mortality as a competing risk. We produced uncertainty limits (UL) using lower and upper bounds for reactivation risks and the LTBI prevalence.

Results: The mortality-adjusted reactivation risk in the first year following infection was 1.42% (UL 1.40 to 1.43), and the lifetime cumulative risk for 85 years was 71.2% (UL 4.70 to 95.4%). The back-calculation estimates suggest that 2.36% (UL 1.61 to 4.09) of U.S. population in 2016 were living with LTBI (corresponds to 7.76 million (UL 5.52 to 13.25)). Estimated LTBI prevalence in 2016 was 4.07% (UL 2.71 to 7.23) in California, 5.25% (UL 3.80 to 8.28) in Alameda County, 4.13% (UL 2.72 to 7.38) in Orange County, 4.79% (UL 3.22 to 8.28) in San Diego County, and 5.60% (UL 3.22 to 8.28) in Santa Clara County.

Conclusions: Our LTBI prevalence estimates are similar with previous estimates from the 2011-2012 National Health and Nutrition Examination Survey (NHANES) for the U.S. (2.1%) when TST & IGRA combined positivity was used to define the LTBI infection, and in range with NHANES estimates extrapolated to state and county demographics for California (4.99%), and the five counties (6.18%-8.20%). Our model can be used at national, state, and county levels to estimate LTBI.

TUPEC332
Epidemiological benefits of integrating services for the secondary prevention of cervical cancer into HIV care in Kenya: A mathematical modelling study

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Background: Practice guidelines in Kenya recommend secondary prevention of cervical cancer (CCI through a ‘screen-and-treat’ approach for pre-cancerous lesions of the cervix. The Ministry of Health recognises HIV care as one of the most effective platforms for integrating such services. However, CC screening coverage remains low, at an estimated 3.2% country-wide. We aim to quantify the impact of fully implementing guideline recommendations on CC incidence amongst HIV-positive women in care (HIV-WC).

Methods: We developed an individual-based multi-disease model of the HIV and HPV epidemics in Kenya. The model was parameterised with and fitted to national and regional surveillance and epidemiological data (Figure 1A). We compared projections of the status quo levels of HPV, screening to a scenario of 100% coverage of HIV-WC with visual inspection which acetic acid (VIA) and, if indicated, treatment of pre-cancerous lesions (cervical intraepithelial neoplasia 1 to 3) with cryotherapy (Cry). We assumed VIA sensitivity to range from 48% to 76% and Cry success rates of 87.5% based on literature. Screening intervals were 6-monthly, for the first year, followed by annual, as per national guidelines.

Results: Our model predicts a baseline of 18,600 CC cases (18,078-19,123) between 2018 and 2035 amongst HIV-WC, with an incidence of 215.35 (198.62-221.69) per 100,000 person-years (py). Integrating screen-and-treat services with VIA/Cry in this population could avert 72% to 74% of cases (13,480-13,700) and reduce CC incidence to 56 to 58 per 100,000py (48-69), depending on VIA sensitivity (Figure 1). Widespread availability of specialised services for the treatment of carcinoma in situ could further avert up to 20% of pre-invasive cancer cases, potentially driving CC incidence down to 38 per 100,000py.

Conclusions: In the absence of effective secondary prevention programs, HIV-WC are at an increased risk of CC than HIV-negative populations. Our modelled projections are in agreement with this. Despite variability in VIA performance, scaling-up VIA/Cry in HIV-WC in Kenya could forestall a large proportion of HPV-related mortality.

TUPEC333
Characterizing the need for integrated chronic disease healthcare for people living with HIV

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Background: Non-communicable diseases (NCDs) are a significant and growing source of morbidity and mortality among HIV positive people in sub-Saharan Africa. In Kenya, pilot integrated care programs providing services for both HIV and chronic NCDs such as hypertension and diabetes are emerging in some counties, but there is little information about the growth of overlapping conditions at the clinical and population level to provide a basis to assess healthcare needs. The research described within this abstract generates foundational knowledge of potential demand for integrated care in two ways; by assessing development of hypertension among a longitudinal clinical cohort of people living with HIV, and modeling the dual burden of NCD and HIV at the population level.
Methods: The clinical cohort is from longitudinal retrospective clinical data from the Academic Model of Providing Access to Healthcare (AMPATH). The AMPATH patient population included in the analysis was 92,588 HIV-positive adults enrolled in care from 2005-2011. We used multilevel modeling to analyze the change in prevalence of hypertension in the HIV-positive clinical population. To model the spread and control of HIV, we adapted an established microsimulation, STDSIM, to include the disease progression for hypertension, and project trends in HIV and hypertension at the population level in Kenya from 2004 to 2020. The calibration samples for the model are from nationally-representative surveillance surveys and reports of HIV and of NCDs in Kenya of ages 18-70.

Results: The hypertension prevalence of the AMPATH HIV positive clinical population grew from 6.5% in 2005 to 10.7% in 2011. When adjusting for age, clinic, WHO stage, and antiretroviral therapy, there is an 3% annual increase in the prevalence of hypertension from 2005 to 2011. The nationally representative model was calibrated to fit Kenya’s national estimates of 31% prevalence of hypertension, and 6.2% HIV in 2015. Our model estimated national prevalence of both comorbidities at 2.2% for adults over age 18.

Conclusions: The dual burden of hypertension and HIV is a significant source of morbidity in Kenya. Both HIV positive clinical populations data and the national modeling show an increase in HIV and hypertension as comorbidities as hypertension prevalence increases.

Identifying optimal service models

TUPEC334
Prevalence and predictors of viral suppression among people living with HIV in British Columbia, Canada: Findings from the SHAPE study

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Background: The STOP HIV/AIDS Program aims to improve treatment success among people living with HIV (PLWH) in British Columbia (BC), Canada by expanding access to HIV testing, antiretroviral therapy, and supportive HIV care. The STOP HIV/AIDS Evaluation (SHAPE) study was developed to assess the program’s impact, highlight health disparities, and identify barriers to HIV care that disproportionately affect marginalized populations. This analysis documents the prevalence and examines predictors of viral load suppression (VLS), the final clinical marker of the HIV cascade of care and an important indicator of treatment success.

Methods: The SHAPE study is a longitudinal cohort of PLWH ≥ 19 years of age in BC, initiated in 2016, with clinical follow-up ongoing. Recruitment targets for particular socio-demographic and clinical characteristics were established with the aim of building a cohort that is representative of PLWH in BC. For this analysis, bivariant and multivariable logistic regression models were used to identify predictors of VLS (defined as viral load < 50 copies/mL for ≥ 3 months in the year prior to interview).

Results: Of the 503 participants who completed a baseline survey, 477 met the inclusion criteria (≥ 3 months of VL data available) and 406 (85.5%) achieved VLS. In multivariable analyses, being older (≥39 years) was positively associated with achieving VLS (ages 40-49: adjusted odds ratio [OR]: 2.11; 95% CI: 1.03, 4.30; ages ≥50: aOR:2.45; 95%CI: 1.17, 4.72). Those who were currently homeless (aOR: 0.21; 95%CI: 0.07, 0.62) or homeless within the last 12 months (aOR: 0.65; 95%CI: 0.30, 1.30) were less likely to achieve VLS. PLWH self-reporting injection drug use (IDU) (aOR: 0.24; 95%CI: 0.12, 0.47), men who have sex with men (MSM) reporting IDU (aOR: 0.24; 95%CI: 0.09, 0.62) and other HIV transmission groups (aOR: 0.49; 95%CI: 0.23, 1.02) were less likely to achieve VLS compared to MSM only.

Conclusions: Strategies for supporting individuals in HIV care must account for intersecting facets of marginalization that influence progression through the cascade of care. Targeted supports may help reduce health inequities experienced by individuals with a history of IDU, younger adults, and those facing housing instability.

TUPEC335
Simplifying switch to second line ART: Predicted effect of a policy of defining 1st line failure of efavirenz-based regimens by a single VL > 1000 in sub-Saharan Africa

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Background: Many individuals failing first line Anti-retroviral Therapy (ART) never receive second line ART, or do so after long delays. For people on ART with a viral load (VL) > 1000 copies/mL WHO recommends VL measurement 3 months after enhanced adherence support, with switch to a 2nd line regimen occurring if VL elevation persists. The need for a confirmatory VL prior to switching to a 2nd line regimen may delay or prevent switching. Here we use an established individual-based model of HIV transmission, progression and the effect of ART which incorporates drug resistance in order to consider this question.

Methods: Using this mathematical model, we compare the effect of a policy requiring one VL > 1000 copies/mL for people failing efavirenz-based regimens to be switched to second line, with one requiring two consecutive values > 1000 copies/mL. We simulated a range of setting-scenarios reflecting the breadth of the epidemic seen in sub-Saharan Africa; taking into account potential delays in defining failure and switching to 2nd line regimens.

Results: The generated setting scenarios had in 2018 19% (13% - 33%) of people on ART with an NNRTI mutation and 88% (77% - 93%) with virological failure defined as VL > 1000 copies/mL. Among those having experienced a VL > 1000 copies/mL on ART, using a single VL > 1000 to define failure of efavirenz-based 1st line regimens would lead to a higher proportion of people with NNRTI resistance having been switched to a second line regimen (62% vs 43%; difference 19% (16% - 22%); resulting in a median lower setting scenarios 20% reduction in the rate of AIDS death (90% range 2% - 32%; from a median of 3.2 to 2.7 per 100 person years) over 3 years from 2018.

Conclusions: Relaxation of the requirement for two consecutive VL values > 1000 to define 1st line failure of efavirenz-based regimens should be considered.

(Figure 1: AIDS death rate in people with previous or current VL > 1000 while on ART according to criteria to define failure of first line ART.)
TUPEC336
HIV disclosure to partners among pregnant women receiving HIV care in Kenya

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Background: HIV status disclosure by pregnant women to their sexual partner enables partner testing and linkage to care, and can facilitate maternal ART adherence and prevention of mother-to-child HIV transmission. Understanding factors associated with disclosure to partners is critical for developing interventions to expand HIV testing and linkage to care.

Methods: This analysis utilized enrollment data from an ongoing trial evaluating mHealth strategies to improve ART adherence among women living with HIV in Nyanza Region and Nairobi, Kenya (Mobile WACHOX, NCT0240067). Women were eligible to participate if they were pregnant, HIV-infected, and had daily access to a mobile phone. A structured questionnaire evaluated disclosure to partner, sociodemographic characteristics, self-reported ART adherence information—motivation—behavior-skills (modified Lifewindows IMB, 75 point score), depression (PHQ9) and social support (MOS, 72 point score). Plasma samples were collected for viral load (VL) measurement. Univariate logistic regression was used to evaluate associations with partner disclosure.

Results: Among 825 participants enrolled, 768 (93%) reported current sexual partners and 570 (74%) of these had disclosed their HIV status to their partner. Participants had a median age 27 years (IQR 23-31) and 84% (693) were cohabiting/married. Median social support score was 63 (IQR 50-72). Median ART adherence IMB score was 58 (IQR 55-62). HIV status disclosure was associated with older participant age (OR 1.06 per year, 95% CI 1.03-1.09), facility delivery (OR 1.52, 95% CI 1.01-2.27), duration of current relationship (OR 1.15 per year increase, 95% CI 1.10-1.20) and cohabitation with partner (OR 4.43, 95% CI 2.89-6.80). Disclosure was also positively associated with social support score (OR 1.01 per point, 95% CI 1.00-1.02), IMB score (OR 1.05 per point, 95% CI 1.00-1.08), and negatively associated with stigma (OR 0.90, 95% CI 0.83-0.99).

Conclusions: Disclosure among pregnant women on lifelong ART was associated with a number of positive outcomes such as information, motivation and behavioral skills for ART adherence, social support and lower stigma. Relationships between these factors are complex. Women who do not or cannot disclose likely require enhanced support for ART adherence.

TUPEC337
Nigeria needs to prioritize cost effective HIV Testing Services (HTS) strategy and approach to achieve the UNAIDS 90:90:90 targets

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Background: It is estimated that over 3 million Nigerians are living with HIV. However, only 98,980 are currently on treatment with the implementation of the treat and test strategy. This represents a 65% gap in treatment. The National Agency for the Control of AIDS (NACA) in its coordination role provides policy direction in the design and implementation of all HIV activities in Nigeria. After the adoption of UNAIDS targets by the Federal Government, NACA commissioned and monitored the implantation of five (5) HTS approaches. The aim was to present a policy direction regarding HTS strategy and approach that is evidence-based, cost effective, with local content that would fast track the achievement of the set targets.

Description: NGOs provided HTS at 34 locations across Nigeria. The five approaches include: door-to-door; Multi-disease Campaign; Key Population focused; Junction town; In-school. Rapid test kits were used in all the approaches. The different sites were selected based on pre-determined criteria in a developed framework. The project was completed within 4 months. The programmatic data collected from different approaches were validated by the national monitoring and evaluation systems and is reported as part of the national dataset for 2015/16. The amount disbursed for implementation was collected from the accounts department of NACA.

Lessons learned: Females constituted 55% of 204,169 clients reached. The door-to-door, Junction town and in school interventions reached more males. The incidence ranged from 3% to 18% with clear evidence of more female (0.75%) infection (F: 1,529 M: 494). The costs per client reached were door-to-door $ 3.88, Multi-disease Campaign $ 19.98, key population focused $76.16. Junction town $1752. In school $ 3.60. Although the focused approach identified more HIV positives, coverage is low. To achieve the set targets, mapping and remodel of approach to reach more people who are living with HIV at less cost is required. Strategic change in strategy to ensure availability of test kits and mitigation of stigma is required.

Conclusions: Next steps: Rebasining of Nigerian HIV prevalence through population survey is required (programmatic results 0.98%, current 3%). Review of HTS algorithm, framework and test run blend of strategy/ies that will improve yield and coverage is essential.

TUPEC338
Identifying components of service delivery and HIV care cascade outcomes: A systematic review of Methadone Maintenance Treatment (MMT)

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Background: The link between methadone maintenance therapy (MMT) and HIV treatment-related outcomes has been extensively described. Nevertheless, HIV-positive people who use illicit drugs (PWUD) continue to demonstrate poor HIV care cascade outcomes, posing a serious challenge to achieving the UNAIDS 90-90-90 goals. In this review, we aim to assess components of service delivery in optimizing the use of MMT that lead to improvements in the three main stages of the HIV care cascade.

Methods: We searched multiple database platforms for studies that described components of service delivery in conjunction with the provision of methadone in the last 10 years. Outcomes of interest were improved uptake of HIV testing, exposure to ART including initiation and adherence, as well as viral load suppression. Records were screened by title and abstracts independently by two reviewers.

Results: We identified 2,086 records after removing duplicates. Title and abstract screening has yielded 438 records which were retrieved as full texts. From this, 18 studies were eligible for this systematic review. Components of service delivery that accommodate MMT provision that improve HIV care cascade outcomes include:

1) routine practices adopted by service providers (admission procedures, physical examinations, co-morbidity screening, referrals to HIV care),
2) strategies to mitigate the impact of stigma associated with HIV testing (voluntary rather than mandatory, self-testing),
3) medication dispensing strategies (directly administered antiretroviral therapy),
4) medication-related factors (simple regimen tablet, adequate methadone doses),
5) clinical management of co-morbidities (HIV care, mental health, hepatitis C and tuberculosis),
6) incorporation of needle and syringe exchange program and
7) social support (case management, counselling sessions to address social issues, counselling on ART and MMT and contingency management).

Conclusions: Evidence in this review has largely pointed out the evidence of a multidisciplinary team to manage comorbidities and strategies to effectively deliver medication to PWUD. There has been an in-
crease in global interest to provide patient-centered services, such that care and treatment would address a wide range of issues affecting this population. However, more work needs to be done to increase the effectiveness of MMT in enhancing HIV-related outcomes among PWU/D, especially in determining which areas of social support require further attention.

TUPEC339
The second cascade in the management of adult patients after first line ART failure in public HIV clinics in Durban, South Africa
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Background: The identification of patients experiencing first-line ART failure has increased rapidly and will continue to grow as access to viral load (VL) testing improves. At detection of virology failure (VF), most national treatment programs recommend a 3-6 month monitoring period for multiple adherence counseling visits, repeat VL testing, test result dissemination, assessment of comorbidities and regimen decision making. These recommendations create complexities in scheduling and patient follow-up putting those failing therapy at risk for persistent failure and transmission of potentially resistant virus. We sought to evaluate the cascade of care after first-line ART failure in three public clinics in Durban, South Africa.

Description: We conducted a retrospective chart review of patients who had a VL >1000 copies/mL between 01 March and 30 June 2016 and abstracted clinical data from three public clinics. We estimated the proportion of patients failing first-line ART who completed each stage of the cascade cascade including:
1) completion of at least one adherence counseling visit;
2) repeat viral load testing; and
3) return for results with appropriate maintenance on first-line ART or changes to regimen (COR) for second-line ART.

Results: Of those with a repeat VL, 39% (80/206) re-suppressed at least one adherence counseling visit, and 46% (206/452) received a repeat VL test. Of those with a repeat VL, 39% (80/206) re-suppressed their virus to <1000 and remained on first-line therapy, and of the remaining 126 patients, 50% (63/126) were appropriately switched to a second line regimen. In total, only 32% (43/142) of patients in the sample completed the cascade of VF care; and only 27% (117/452) and 8% (35/452) did so within 180 and 90-days, respectively. (Figure 1)

Conclusions: Among adults experiencing VF on first-line ART in South Africa. As access to VL monitoring improves, efforts to strengthen care for this patient population must be prioritized to maintain individual and population-level treatment and prevention goals.

TUPE340
Alcohol community’s intervention for prevention of HIV risk amongst youth in Pretoria
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Background: This study was a randomised, controlled trial to assess the efficacy of a Social Cognitive Theory-based intervention in reducing alcohol-related sexual behaviour among young adults in Mamelodi, Pretoria.

Methods: The individual level randomization was carried out. Simple randomization was applied to the participants into the intervention or control arm. The duration of the study was 12 months with data collected at recruitment, screening, baseline, 3 months and 6 months follow-up.

Results: There was a significant reduction in engagement with multiple sexual partners in intervention group with only 2% reporting having multiple sexual partners, compared with 31% in control group, at month 6 follow-up. On condom use, there was a significant reduction in proportion of the participants in the intervention group (2%) who never used a condom, as against in the control group (43%), at the month 6 follow-up. There was a statistically significant decrease on the proportions of unprotected sex in exchange for money or material things in both the intervention group (from a 12% baseline; 12% month 3, to 8% month 6 follow-up) and the control group (from an 18% baseline; 40% month 3, to 10% month 6 follow-up). The results showed that there was a reduction in alcohol consumption from the baseline through to the month 6 follow-up. However, the difference in alcohol reduction was not statistically significant between the intervention and control groups. Interestingly, a high proportion of the participants moved from gross alcohol consumption to moderate drinking (0 - 21 Units), sensible drinking (08 - 14 Units) and infrequent drinking (0 - 7 Units).

Conclusions: The study findings conclude that Social Cognitive Theory through CLEAR intervention increases the propensity of young adults to reduce alcohol-related HIV-risk behaviour especially in relation to reducing multiple sexual partnerships, transactional sex, and increasing condom use. This propensity is attributable to the application of CLEAR led to the reduction of risk behaviours.
**TUPED341**

Mediation analysis among peer norms, self-efficacy, and condom use among Chinese men who have sex with men: A parallel process latent growth curve modeling

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**Background:** Although norm and self-efficacy are two important constructs in health behavior theories, critical thinking and empirical examinations about the relationship among these two variables are still limited in the literature. The constructs of norm and self-efficacy that apply in one context may not necessarily be applicable in another. This study aims to examine direct and indirect relationships among peer norms, self-efficacy, and condom use among Chinese men who have sex with men (MSM).

**Methods:** A condom use video promotion campaign with a longitudinal research design, including a baseline survey and two follow-ups, were conducted among online MSM in China in 2015. Given the fact that the content of the video were about sexual activities and condom promotion between men, 804 Chinese MSM who reported having sex with men in the last three months were recruited. Parallel process latent growth curve modeling and mediation analysis were conducted using Mplus 7.4.

**Results:** Among the 804 MSM, the mean age was 24.9 ± 5.5; 58.3% were ≥ 24 years of age; 10.8% were currently married to a woman or engaged; 67.8% had a college diploma or higher level of education; 82% had an annual income less than 67,876 USD ($60,000 RMB). The proposed mediation relationship was examined by correlation analysis and parallel process latent growth curve modeling with a good fit index: RMSEA = 0.043, 90% CI (0.010, 0.045), CFI = 0.968, TLI = 0.968. The initial factor of peer norms was indirectly associated with the initial factor of condom use via the initial factor of self-efficacy; 10.0, p < 0.001. Also, the growth factor of peer norms was indirectly associated with the growth factor of condom use via the growth factor of self-efficacy; 0.331, p < 0.001. The model explained 76.7%, 69.7%, and 62.1% of the variances in condom use at the three time points respectively.

**Conclusions:** Self-efficacy mediated the association between peer norms and condom use. The study has moved the theories forward, indicating a strong potential of casual relationship between norms and self-efficacy among Chinese MSM, thereby justifying the equal importance of enhancing norms and self-efficacy in health behavior promotion in a Chinese cultural context.

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**TUPED342**

Developing a typology of HIV/STI testing patterns and associated motivators: A framework to guide interventions among men who have sex with men

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**Background:** Men who have sex with men (MSM) in Singapore are disproportionately represented in prevalent HIV infections, relative to the general population. Notably, voluntary HIV/STI testing rates have remained suboptimal among MSM. While existing research has sought to identify the factors associated with testing behaviors among MSM, few studies have attempted to delineate the mechanisms that underlie different patterns of HIV/STI testing. This study proposes a typology of HIV/STI testing patterns and their associated motivators among MSM.

**Methods:** We conducted 21 semi-structured in-depth interviews with a purposively recruited sample of self-identified MSM in Singapore. Maximum variation sampling was employed to ensure a diversity of responses from MSM of varying age, socioeconomic status, ethnicity, and HIV/STI status. Topics explored included formative sexual experiences, relationships with other men, experiences of HIV/STI testing, and lived experiences of HIV/STI diagnosis and acquisition. Interviews were audio-recorded, transcribed, coded, and analyzed through an inductive analytical approach.

**Results:** A typology comprising four distinct HIV/STI testing patterns emerged from the data: Testing patterns are categorized based on the regularity of testing, relative to intrinsic or extrinsic factors that motivate testing behaviors. These include:

1. Triggered episodic testing, where testing is triggered by a psychological response to HIV/STI symptoms, or as a means to assuage one’s own paranoia, fear or other negative emotions that arise from discrete HIV/STI risk events.
2. Cued episodic testing, where testing is episodic and influenced by the presence of prompts and cues from friends, community organizations, or sexual health promotion messaging.
3. Mandated regular testing, where testing is mandated or directed by healthcare institutions or by employer or government-mandated health screening.
4. Value-based regular testing, where testing is motivated by the value placed by participants on the importance of regular testing, typically driven by engaging in peer support groups, volunteering, or working in the context of sexual health-seeking and promotion.

**Conclusions:** Participants illustrate the ability to switch between types of testing patterns based on their existing psychosocial and contextual resources. The proposed typology provides policymakers a framework to guide sexual health promotion and behavioural interventions that seek to influence testing patterns among MSM.

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**TUPED343**

HIV microaggressions: A novel area of stigma research among people living with HIV

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**Background:** Since the beginning of the HIV epidemic stigma has stymied HIV prevention and treatment efforts. Stigma is multi-faceted and directed from many sources, and therefore, remains a challenging social factor to overcome. HIV microaggressions are subtle, negative messages that denigrate people living with HIV (PLWH). Although microaggressions have been researched extensively in other areas (e.g., race), there are currently no available quantitative assessments of HIV microaggressions.

**Methods:** We developed an HIV microaggressions scale based on prior microaggressions work and stakeholder/community feedback. We enrolled 106 PLWH living in Atlanta, GA, USA to participate in an assessment of experiences of HIV microaggressions. HIV diagnosis was confirmed for all participants. A principle components factor analysis with varimax rotation was conducted on all 14 items and scale reliability analyses were completed.

**Results:** Results demonstrated a five factor solution with 65% of the variance explained, and Cronbach’s > 80. Analyses identified the following subscales of our microaggressions scale: negative assumptions about...
PLWH (example item “people living with HIV shouldn’t have sex”), negative portrayals (example item “you heard about someone being outed about their HIV positive status”), HIV messaging avoidance (example item, “you avoided reading comments section of article on HIV”), subtle mistreatment (example item, “you saw an HIV positive person being portrayed negatively in media”), and negative intrapersonal messaging (example item, “In an online dating profile, someone wrote ‘drug/disease free, Utz’ or ‘neg for neg only’”). All participants reported experiencing at least some instances of HIV microaggressions in the prior month, with variability being observed across the number of instances. The most frequently reported items included “you heard someone say, I’m HIV negative, I’m clean” (N=96, 91.6%) and “you heard someone say, but he/she doesn’t look HIV positive” (N=99, 93.4%). Further, microaggressions were found to be associated with recent health care access.

Conclusions: Microaggressions are known to impact health outcomes, yet little is understood about microaggressions among PLWH. In the current study, we identified HIV microaggressions as being frequently reported among PLWH. Further research is needed to assess the impact of microaggressions on HIV related health outcomes including health care engagement and markers of disease progression.

TUPED344
From knowledge to empowerment: A holistic approach to decrease the incidence of HIV among young people globally
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Background: To tackle the slow decline in new HIV infections among young people (especially girls), it is necessary to step out of the realm of traditional, knowledge transfer approaches. Instead, empowerment approaches built around the principles of Positive Youth Development (PYD) provide new solutions to existing problems. Based on the insights from over a decade of programming, Dance4Life presents an innovative Empowerment model to tackle the sexual and reproductive health risks of young people globally.

Description: Too often, sexuality education is treated as a scientific topic, resulting in disengagement from information that does not resonate with the daily lives of young people. Dance4Life presents a holistic peer-to-peer PYD approach that helps young people build social emotional learning (SEL) competencies that serve as mediating factors for positive behaviour change, social change and taking responsible decisions about their life through increased self-efficacy towards sexual and reproductive health (SRH) issues, robust gender equal attitudes, and awareness of social norms and willingness to change harmful ones.

Lessons learned: The Dance4Life Empowerment model is a contextualized, peer-to-peer approach that enables facilitators to connect to young people and create a safe space where participants feel free to speak out, share and address sensitive issues. UNESCO’s key elements for CSE are integrated in the curriculum, while focus shifts from transferring knowledge to experiential learning through creative facilitation of activity-based sessions. Peers refer youth to rights-based sources of information and health services they themselves perceive as youth-friendly. The model ensures that the internal incentive to change is supported by an enabling environment, where quality SRH services are available and accessible, and community support is created through advocacy.

Conclusions/Next steps: Tackling the slow decline in new HIV infections and other SRH challenges can only be accelerated when young people are provided with a positive approach, relevant to their personal lives. The Dance4Life Empowerment model serves as a powerful incentive, and provides a scalable and sustainable intervention for improving the sexual and reproductive health of young people globally.

TUPED345
Using social science methods to understand pathways to impact: A national HIV self-testing intervention targeting men who have sex with men and trans people in England and Wales
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Background: Increasing HIV testing among at-risk populations is a global HIV prevention goal. HIV self-testing (HIVST) could expand testing to new populations. SELPHI is an online randomised controlled trial evaluating whether HIVST increases rates and timeliness of HIV diagnoses among MSM and trans people. SELPHI target sample is 10,000, and initial randomisation is to HIVST or standard care.

SELPHI has used the COM-B behaviour change model in intervention development. COM-B theorises alterations in capability, opportunity and motivation as key to successful behavioural interventions. The aim of this study is to articulate potential pathways to impact in a national HIVST intervention using COM-B.

Methods: Three formative studies investigating attitudes towards HIVST contributed to the logic model. A systematic literature map, six focus groups discussions (FGDs) (July to Nov 2015) with 47 MSM in three cities and 17 key informant interviews (IDIs) (May to Dec 2016) across England. FGDs and IDIs were transcribed and analysed thematically. Themes were extracted from qualitative data and relevant literature, then mapped onto a thematic framework informed by COM-B. The logic model was developed by transposing framework components to contextual factors, intervention processes, intermediate and trial outcomes.

[Figure 1: SELPHI logic model]

Results: As shown in figure 1, contextual factors included a strong norm for regular testing supporting implementation. Perceived capability concerns low self-efficacy and lack of support were barriers. The logic model suggests intervention processes facilitate behaviour change by increasing motivation and opportunity. Three intervention processes enhance motivation: i) collection of behavioural information at registration increases risk perception; ii) a free kit offer enhances the desire to establish HIV status; and iii) follow-up contact increases engagement with testing.
One process increases opportunity by providing an additional, convenient modality, reducing the burden of time associated with testing while increasing privacy.

In order to address capability issues, advertising should enhance motivation by highlighting facilitators while addressing and minimizing capability concerns.

Conclusions: The logic model describes the potential of SELPHI to affect behaviour change. By heightening risk perception and providing HIVSTs and follow-up support, SELPHI increases opportunity and motivation to test. Using COM-B allows us to better understand intervention processes and likely outcomes.

**TUPED346**

**Developing and validating a Safer Sex Empowerment Scale (SSES) for young Black men who have sex with men**

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Background: Young Black Men who have Sex with Men (YBMSM) experience profound levels of stigma and marginalization which has been shown influence engagement in risky sexual behaviors. Increasing empowerment to engage in safer sex among marginalized groups, in spite of discrimination and stigma, could help reduce rates of HIV infection. Safer sex empowerment is defined by social action that involves participation of individuals, communities, and societies to increase safer sex behaviors. There is currently no published instrument designed to measure levels of safer sex empowerment, thus we developed and validated a Safer Sex Empowerment scale (SSES).

Methods: This study used baseline survey data from 474 YBMSM enrolled in healthMpowerment.org, a mobile-phone-optimized, Internet-based intervention designed to reduce sexual risk behaviors among YBMSM. Based on literature review, common constructs of empowerment included self-efficacy, self-esteem, emotional support and sense of community. At the beginning, 35 items related to these constructs were included in the analysis. Principal components analysis was used to identify an empirically derived set of sub-constructs. Pearson’s correlation coefficients were used to examine the validity.

Results: Mean age was 24.3 (SD 3.2), 24% had at least a college degree, and 42% were HIV-positive. The finalized SSES included 29 items with five factors: (1) emotional support: support showing love, empathy, or affection, (2) self-efficacy for condom use: ability to use condoms, (3) negative self-esteem: critical of self-worth, (4) positive self-esteem: appreciating their own merits, and (5) self-efficacy to refuse sexual behavior: ability to refuse sexual behavior. The SSES showed good reliability (Cronbach alpha=0.90) and construct validity was established by examining correlation coefficients for anxiety (r=0.29, p<0.0001), depression (r=0.53, p<0.0001) and safer sex intentions (r=0.29, p<0.0001).

Conclusions: Findings support a SSES that includes five sub-constructs: emotional support, self-efficacy for condom use: negative and positive self-esteem, and self-efficacy to refuse sexual behavior. The SSES can be a helpful tool to further quantify the role of empowerment in impacting safer sex behaviors among YBMSM. Measuring these relationships and developing and evaluating interventions based on these relationships could pave the way for empowering YBMSM toward safer sex thereby impacting disparate HIV rates among YBMSM.

**TUPED347**

**Motivation matters! Using qualitative research to develop an mHealth intervention to support antiretroviral adherence among HIV-positive female sex workers in Mombasa, Kenya**

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Background: While mHealth interventions have been identified as innovative approaches to addressing antiretroviral (ART) adherence challenges, theory-driven interventions remain limited. We conducted focus group discussions (FGDs) grounded in Information, Motivation and Behaviour (IMB) theory to design a personalised, interactive, text-based intervention to support ART adherence among HIV-positive female sex workers (FSWs) in Mombasa, Kenya.

Methods: Qualitative FGDs with 23-positive FSWs were used to iteratively develop an SMS-based intervention (Motivation Matters!). FSW were purposively sampled across two stages of treatment: ART-naïve (one group) and ART-initiated (two groups). Two rounds of FGDs were conducted with each group, for a total of six FGDs. The first round of FGDs was used to identify culturally appropriate treatment content grounded in IMB theory (e.g., identifying information and misconceptions influencing decisions, eliciting sources and types of motivation, and identifying cues promoting ART adherence). A second round of FGDs was then used to determine intervention format and structure. All FGDs were recorded, transcribed and translated, and analysed according to the IMB model. From these broad IMB themes, grounded theory approach was used to identify sub-themes and key content areas used to develop text messages.

Results: Text messages were developed based on IMB themes generated by FGDs. Based on FGDs, information-oriented texts addressed women’s concerns about responding to missed doses, taking ART while drinking alcohol, and the influence of religion on adherence. Motivation-oriented texts reflected the women’s desire to feel healthy enough to engage in everyday activities and provide family support. Based on FGDs’ feedback, behaviour-oriented texts suggested strategies to remember taking ART, especially if there was a disruption in schedule. In addition, messages were personalized based on religion, language, and the time of day sent. Women appreciated the proposed interactive texting and requested more frequent messages shortly after ART initiation.

Conclusions: The theory-driven approach described above has the potential to inform development of culturally-tailored interventions to support ART adherence among key populations. This study begins to explore the extent to which application of theory and feedback from target populations during intervention development provides more efficacious interventions. The developed intervention is now being tested with a cohort of FSWs newly initiating ART.
The roles of behavioral and social sciences research in the fight against HIV/AIDS: A functional framework

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Background: Though there have been significant biomedical advances in HIV/AIDS prevention and treatment, the public health crisis of HIV/AIDS persists. This persistence has led researchers to more closely examine the inter-related roles of behavioral and socio-structural factors that impinge, improve, and/or otherwise impact HIV/AIDS prevention, treatment, and care at both the individual and population levels.

Methods: To support the future application of behavioral and social sciences research (BSSR), authors Gaist and Stirratt created a functional framework for HIV/AIDS-related BSSR. The framework consists of 4 primary domains: (1) Basic BSSR to understand vulnerable populations and the context of risk; (2) Elemental BSSR to improve behavioral and social approaches to risk reduction, prevention, and care; (3) Supportive BSSR for strengthening the design and outcomes of biomedically focused research in HIV/AIDS treatment and prevention; and (4) Integrative BSSR to attend to effective implementation of HIV/AIDS interventions in real-world settings.

Results: Basic, Elemental, Supportive, and Integrative BSSR culminate to create a figurative table of HIV prevention, care, and cure research and practice. As shown in the figure below, Basic BSSR provides a sturdy foundation for the other 3 domains and guides future efforts to improve HIV-related health outcomes. Each of the components are integral to fully understanding behavioral and social aspects acting as barriers or facilitators to HIV prevention and treatment.

Conclusions: These 4 domains illustrate the important role of BSSR in current and future efforts to address HIV/AIDS on a global scale. The successful development and delivery of effective, evidence-based HIV prevention and treatment requires BSSR in each of the domains. All 4 domains benefit by research to further identify structural determinants of HIV, help individuals/communities navigate the expanding and changing HIV prevention and treatment landscape, and scale intervention endeavors. Significant progress has been made in identifying and addressing behavioral and social aspects that impact HIV prevention, care, and treatment interventions. However, future application of BSSR within and across these domains is necessary to ultimately end the HIV/AIDS epidemic. This functional framework provides a useful perspective and approach to assist researchers, program implementers, policy-makers, and other HIV/AIDS-focused communities.

Strengthening social and behavioural data collection and analysis

TUPED349

Novel measures of personal and cultural themes likely to affect HIV risk when large-scale economic or sociopolitical change occurs

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Background: Social and cultural groups differ cross-sectionally and over time in the extent to which people make decisions based on altruism, solidarity and the necessities of daily survival. We developed measures of these cultural themes as part of ongoing research on how large scale sociopolitical and economic change affects HIV epidemics. We have previously published these measures’ reliability and validity for people who inject drugs in New York City. Here, we study their reliability and validity among high-risk heterosexuals (HRH) and men who have sex with men (MSM).

Methods: 298 HRH and 256 MSM, recruited by referral from an RDS study and by chain recruitment by study participants, were interviewed in New York City in 2013 - 2015. All were 18 years old or older and provided informed consent. Questions and scales on cultural themes and related behaviors were based on two years of qualitative research. Scale reliability is assessed with Cronbach’s alpha and construct validity assessed by Pearson’s r with selected criterion variables.

Results: Within the HRH sample, 45% were women. Cronbach’s alpha for the cultural orientations were 0.86 for altruism, 0.70 for solidarity and 0.86 for survival orientation. Validation: Altruistic orientation correlated 0.45 with frequency of helping others; solidarity 0.52 with competitiveness (which included items for group solidarity to increase group competitiveness) but only 0.05 with helping others; survival cultural orientation -0.57 with traditional values.

Within the MSM sample, Cronbach’s alpha for the cultural orientations were 0.77 for altruism, 0.80 for solidarity and 0.89 for survival orientation. Validation: Altruistic orientation correlated 0.42 with frequency of helping others; solidarity 0.49 with competitiveness and 0.33 with helping others, but survival cultural orientation was not correlated with traditional values.

Conclusions: In New York, the measures of altruistic cultural orientation, and probably of solidarity orientation, seem reliable and valid for both HRH and MSM, and survival orientation for HRH. Future research should determine psychometric properties of these measures in other locations and, particularly, should study their role in mediating between large-scale sociopolitical and economic change and changes in HIV risk behaviors, risk networks, and HIV incidence.
Mixed methods, integrated approaches and synergies in HIV research and intervention

**TUPED350 Effecting change in research and policy for women living with and vulnerable to HIV through the women’s research initiative on HIV/AIDS (WRI)**

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**Background:** The WRI was founded by The Well Project in 2003 in response to the historic exclusion of HIV-positive women from clinical trials and the overall lack of focus on women in HIV prevention and treatment research. Since its inception, the WRI has employed a unique model of stakeholder engagement to elevate, enhance, and expedite research on women and HIV.

**Description:** The WRI hosts a small (~40) annual meeting on a salient topic (e.g., HIV cure, U-U-tan HIV care continuum) focused on women. By bringing together key stakeholders from clinical care, research, advocacy, policy, government, and the pharmaceutical industry, as well as women living with HIV, the WRI comprehensively identifies research and policy gaps in treatment and prevention for women. Invited presentations and moderated discussions yield a series of action items that WRI members commit to undertake in their respective sectors. A summary report from the WRI deliberations is disseminated through The Well Project’s website and by WRI members to their networks.

**Lessons learned:** The WRI has been instrumental in effecting change in research for women and HIV. Efforts include the development and successful implementation of the GRACE Study and the Women Living Positively Survey, the FDA meta-analysis of HIV clinical trials funded by the Office of Women’s Health, and input by WRI members in the annual development of the NIH Plan for Women and Girls. Additionally, WRI members have formed collaborations, implemented fellowships, developed protocols to address novel basic science questions, created multidisciplinary teams for enhanced study hypotheses and design, mentored young investigators, and worked with policymakers to ensure that the needs of women living with HIV are consistently addressed.

**Conclusions/Next steps:** The WRI has created a uniquely multidisciplinary model of engagement for work in HIV among women. This model has successfully built relationships, influenced research, policy and advocacy efforts, and affected the direction of HIV treatment, prevention and care research. The WRI model has the potential to be replicated across diseases and demonstrates the value of bringing diverse voices and perspectives together to address complex issues.

**TUPED351 Qualitative and ethnographic methods in HIV research**

**TUPED351 Trade and health. Emergence of local drug markets, HIV and injected drugs in Hermosillo, Sonora Mexico. Results from a mixed study**

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**Background:** Hermosillo, a middle-sized city in Northern Mexico has become an important site for drug-trafficking (DT) in the last decade. Official data show unprecedented expansion of heroin and methamphetamine use and HIV among people-who-injected-drugs (PWID) in this city. We aim to identify characteristics of local drug market that could explain the emergence of injected drugs (ID) and HIV in Hermosillo.

**Methods:** This is a mixed study design. We analyzed quantitative data from a survey conducted in 2012 in sites where PWID gathered in Hermosillo. We described patterns and contexts of drug use and risk behaviors. To understand the emergence of ID and HIV among PWID, we conducted ethnographic work in 2014 and collected 13 biographies of drug use among PWID from three different generations (1960, 1980, 1990). We trace generational changes in patterns, dynamics and context of drug use and trafficking in this city.

**Results:** 392 PWID were recruited. Their HIV prevalence was 5.2%. Most participants were polydrug users. 53.42% of participants declared using methamphetamine and cocaine and 40% declared using China-white heroin. Patterns of drug use reveal faster transition to injected drug use (5 years since the onset of drug use) but a relatively lower prevalence of sharing (10%). Ethnographic findings revealed limited harm reduction programs and the arrival of criminal groups who boosts local drug market by promoting methamphetamine and china-white heroin use. Controlling drug use dynamics and using violence in the neighborhoods. Younger drug users initiated with more addictive drugs (heroin and meth) and showed more compulsive patterns of drug use. PWID are encouraged to work for criminal groups to pay debts which enhance risky practices for HIV.

**Conclusions:** Emergence of drug injection and HIV among PWID is contingent with the arrival of criminal groups to Hermosillo. Mixed research design, combining quantitative data, ethnographic data and documentary research, allowed us to understand how changes in drug trafficking dynamics, along with an insufficient institutional increase HIV risks and injected drug use. Relationship between local drug markets and drug injection practices need to be contextually understood and has to be addressed in the debate of drug policy reform.

**TUPED352 Mapping the intersections of space, place, and health: Geo-narratives of living with HIV in San Francisco, California**

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**Background:** The use of geographic information systems (GIS) to visualize the HIV/AIDS epidemic have produced maps and statistics that inform programmatic and policy efforts to reduce the burden of new infections in both resource limited and resource rich settings. Integrating GIS into qualitative methods opens up new possibilities for interpreting and understanding the treatment and care experiences of people living with HIV. This study seeks to advance qualitative GIS methodologies and contribute geo-narratives of managing treatment and accessing health care among persons living with HIV (PLWH) in San Francisco, California. We purposively recruited participants from clinics and hospitals between 2015 and 2017 by targeting neighborhoods with lower rates of viral suppression in San Francisco. We used the HIV continuum stages of care to structure our interview guide and elicit geographic data on the experiences of managing treatment and accessing care. After interviews were transcribed and integrated into GIS software, narrative analysis was used to produce geo-narratives of being HIV positive in San Francisco and managing treatment.

**Results:** PLWH in our sample were 75% men, 20% women, and 5% transgender. Three-quarters of the sample reported being LGBTQ and one-half identified as LGBTQ. After interviews were transcribed and integrated into GIS software, narrative analysis was used to produce geo-narratives of being HIV positive in San Francisco and managing treatment.

**Methods:** We conducted 30 qualitative interviews with PLWH who lived in San Francisco, California. We purposively recruited participants from clinics and hospitals between 2015 and 2017 by targeting neighborhoods with lower rates of viral suppression in San Francisco. We used the HIV continuum stages of care to structure our interview guide and elicit geographic data on the experiences of managing treatment and accessing care. After interviews were transcribed and integrated into GIS software, narrative analysis was used to produce geo-narratives of being HIV positive in San Francisco and managing treatment.

**Results:** PLWH in our sample were 75% men, 20% women, and 5% transgender. Three-quarters of the sample reported being LGBTQ and one-half identified as LGBTQ. After interviews were transcribed and integrated into GIS software, narrative analysis was used to produce geo-narratives of being HIV positive in San Francisco and managing treatment.

Housing emerged as a theme that adversely impacted engagement in care, especially for those who lived in neighborhoods perceived as chaotic sites of violence, drug use, heightened police activity, and lack
of empathy for those living with HIV. Participants also highlighted a perceived reduction in availability of non-HIV related goods and services essential to overall well-being.

Conclusions: Integrating GIS into qualitative research is useful for illuminating how our PLWH participants’ experiences of particular spaces and places impact their engagement in HIV care. San Francisco is a health resource-rich city in which participants reported receiving excellent care for their HIV, yet struggled to remain engaged in care due to changes in the availability of housing, food, and community in a wealthy city with shrinking spaces for those on the social and economic margins.

TUPED353
Critical reflections on the use of repeated collages to understand the experiences of young women living with HIV in urban Zambia

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Background: Participatory and art-based research methods, including collages, can be an effective tool to involve young people living with HIV (LWH) in generating data. However, critical reflections on using arts-based methods with young people are lacking.

Methods: 24 young women LWH aged 15-19 years were recruited from two health facilities in Lusaka, and participated in two workshops in January 2015. Another participatory workshop was held in November 2017 with 7 participants purposively sampled from the original group.

In each workshop, participants were given A3 card, magazines, pens, scissors and glue to create a collage telling a story about themselves (n=12). Participants described their collages in participatory workshops (n=3), and subsequent in-depth interviews (n=17) and participant observations (n=46). The collages were analysed visually, alongside inductive analysis of transcripts from the IDIs and observation notes.

Results: Participants enjoyed the opportunity to physically construct their stories, recognising that collages “held meaning”. Collages captured expressions of optimism and ambition, regardless of their HIV status, such as: “HIV will not stop me from achieving my dreams”. This contrasted with in-depth interviews that typically captured stories of adversity. Collages allowed visual representation of participants’ lives, including demonstrating the importance of family and beauty. However, this was limited by the magazines provided, on fashion, travel, food and home. Participants noted that “more material on aspirations for career and for the future” would have enabled them to better express their aspirations. Comparing collages with the same participants at two time points presented a progression from the central importance of school to college and careers, reflecting participants transitioning life stages. Some participants made direct before-after comparisons. One participant expressed: “I now have so much confidence in myself”, which helped with disclosure.

Conclusions: Collages provide a feasible, engaging and effective method to involve young people in the production of data to understand their experiences LWH. They allowed participants to express more optimism, and, for repeated collages, transitions over time. Collages need to be used reflectively, including understanding how materials provided influence the representations presented. Collages can be an important tool, for research and beyond, in engaging young people LWH to visually tell their stories.

TUPED354
Online focus group discussions with transgender women in the Eastern and Southern United States: An emerging qualitative method for HIV research

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Background: Technology-based methods are increasingly common in survey research. Qualitative research, however, has been slower to embrace technology frequently used by its target populations. The LITE American Cohort is a multi-site cohort examining HIV outcomes among transgender women in the eastern and southern United States. We examined the utility of using computer-mediated technology for formative, qualitative research i.e. “online focus groups” to inform recruitment, marketing, and survey development for the cohort.

Methods: Seven online focus group discussions (“online FGDs”: 5 English, 2 Spanish) were conducted between August 2017 and January 2018 using a secure web-conferencing platform (Zoomb). Participants joined via landline, mobile phone, mobile application, or web browser and were given the option of using a pseudonym and to turn on/off video conferencing. Electronic gift cards were emailed to participants at the conclusion of each online FGD.

Results: Overall, 70 adult transgender women were eligible and scheduled for an online FGD, 41 attended (see Table 1). The most common reason for non-attendance was forgetting or having a scheduling conflict. Online FGDs facilitated geographic diversity, perceptions of anonymity, and flexibility in scheduling by eliminating challenges related to traveling to a data collection site. Several issues with traditional in-person FGDs remained with online FGDs such as overlapping conversations, variable audio quality, and prior connections between participants. Online FGDs raised additional considerations of technological literacy, acceptability of non-cash incentives, feasibility of distributing incentives, and imperceptibility of non-verbal communication. Participants with limited technological literacy, inconsistent access to a phone and/or cellular data/service, and circumstances necessitating immediate cash incentives may require additional support and accommodation.

### Table 1: Eligible Participant Demographics

<table>
<thead>
<tr>
<th>Attendees (n=41)</th>
<th>Non-Attendees (n=29)</th>
<th>Total Eligible (n=70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>34%</td>
<td>10%</td>
</tr>
<tr>
<td>Black</td>
<td>34%</td>
<td>57%</td>
</tr>
<tr>
<td>Asian</td>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td>More than one race or other</td>
<td>27%</td>
<td>39%</td>
</tr>
<tr>
<td>Hispanic/Latina</td>
<td>29%</td>
<td>36%</td>
</tr>
<tr>
<td>City</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlanta</td>
<td>17%</td>
<td>11%</td>
</tr>
<tr>
<td>Baltimore</td>
<td>22%</td>
<td>11%</td>
</tr>
<tr>
<td>Boston</td>
<td>10%</td>
<td>1%</td>
</tr>
<tr>
<td>New York City</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Miami</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>27%</td>
<td>30%</td>
</tr>
<tr>
<td>Reasons for not attending</td>
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<td></td>
</tr>
<tr>
<td>Personal scheduling conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological Challenge</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Unknown</td>
<td>3%</td>
<td>3%</td>
</tr>
</tbody>
</table>

(For Table 1, see full text for details)
Conclusions: This study highlights several considerations for technology-enhanced qualitative research. Online FGDs with multiple secure phone or internet access options have the potential to improve the feasibility of conducting research with hard-to-reach populations and to meet participants “where they are” in terms of their use of technology without significantly affecting data quality. In the context of HIV research, it is important to continue to find ways to ensure that individuals with inconsistent cellphone access, inability to utilize electronic gift cards and varying levels of technological literacy are included in research.

TUPED355
Construction of HIV-infected Lithuanian female drug users’ identity in biographical narratives

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Background: Most of PLHIV in Lithuania are injecting drug users suffering from psychosocial stress, stigma and discrimination. People with HIV infection, often experience multiple stigmatization because they use drugs, provide sexual services, have criminal record (Čaplinskas, 2010). Due to dominant Catholic faith in Lithuania the most stigmatized are drug-dependent women living with HIV. Assistance for PLHIV in Lithuania is medicalized, there are no dedicated psychosocial programmes guaranteed by the state (Sultan, 2013). To improve the state programme for psychosocial work with women it is necessary to understand how drug-dependent HIV-infected women construct identity in the past, present and future.

Methods: The objective is to disclose how HIV-infected female drug users construct personal identity in biographical narratives. The study is based on constructivist, existential and critical feminist theories and on interpreted constructive-ontology and subjectively-interpreted epistemology. 16 drug-dependent HIV-infected Lithuanian women between the age of 28 and 52 were interviewed in the format of biographic narrative and “life line” visualization. Data analysis was carried out using Creswell (2007) analysis.

Results: Construction of identity among survey participants unravelled as reconstruction of past events and social bonding reflecting the present and projecting the future with moments of impact throughout the entire “life line.” As children women suffered distress due to unformed safe sense of attachment and trying to avoid suffering and loneliness started using drugs. This led to personality destruction subsequently leading to “breakdown in the biography” at the time of hearing the HIV diagnosis. This crisis has become the starting point for positively-oriented recovery of identity. Women not using drugs anymore and those still using drugs project the present and the past differently. Abstinence is a vital factor allowing women to create more close social relationships, who are highly significant for all survey participants. Psychosocial assistance at the time of hearing the HIV diagnosis was very helpful.

Conclusions: Reconstruction of life has vital positive impact on reconstruction of identity. HIV treatment and consumption/non-consumption of drugs. This method can be used in social work with drug-dependent, HIV-infected women and has already been proposed by the author to the Ministry of Health for the Programme to work with PLHIV.

TUPED356
A qualitative analysis of sexual communication and uncertainty management among participants in Taiwan CDC PrEP demonstration project

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Background: In 2017, the Taiwanese CDC recruited 321 individuals in a national PrEP demonstration project to assess key populations’ acceptance. However, little is known about how PrEP users – predominately men who have sex with men (MSM) – incorporate PrEP in communicating with their sexual partners. This paper reports the result of the interviews with participants enrolling in the demonstration project.

Methods: Based on the framework of Dale Brashers’s Uncertainty Management Theories, this research aims to determine whether being “On-PrEP” decreases MSM’s perceived uncertainty in communicating with their sexual partners. Through online flyers and snowball sampling methods, we conducted in-depth, semi-structural interviews with 40 MSM. We assessed their motivations of taking PrEP, perceived barriers of maintaining in PrEP regime, inclinations of specifying “on PrEP” on their online profiles, and strategies for applying PrEP into their communicative sexual partners.

Results: Among the interviewees who are currently on PrEP, only less than 20% reported being willing to reveal their On-PrEP status either to their sexual partners or on smartphone apps. Reasons of not-disclosing On-PrEP status include “protecting one’s privacy” and “avoiding awkwardness,” suggesting that social stigma around AIDS remains the biggest barriers for PrEP’s rollout. While the interviewees had better health awareness, having more prevention tools paradoxically increased their perceived uncertainty. We have categorized four types of uncertainty regarding their biomed matching and strategies for safe sex.

1. Uncertainty about one’s literacy in interpreting scientific data and jargons;
2. Uncertainty about one’s skills in negotiating condoms use with sexual partners;
3. Uncertainty about sexual partners’ awareness, attitudes, and acceptances about PrEP;
4. Uncertainty about the cultural gap and language barrier, such that how the idea of prophylaxis should be properly represented in the local context.

Conclusions: PrEP is an effective prevention tool for HIV infection. However, during its initial rollout in Taiwan, MSM reported increasing perceived uncertainty regarding their literacy, skills of negotiating condom use, sexual partners’ awareness, attitudes, and acceptance, as well as the cultural and language barrier regarding translation. To facilitate its implementation, we suggest policy makers, PrEP providers, potential PrEP users, and AID advocates focusing on above uncertainties and tailoring messages in the future campaigns.
**TUPED357**

**Psychosocial barriers to HIV care in Uganda**

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**Background:** Despite success of HIV treatment roll out in sub-Saharan Africa, 20-25% of patients still present with advanced HIV disease. These late presenters experience higher morbidity and mortality. To better understand the reasons for late presentation, we conducted a qualitative study in Kampala, Uganda.

**Methods:** People living with HIV (PLWH) who had newly presented to HIV clinic within the last 3 months and healthcare workers (HCW) from the study in Kampala, Uganda. TuPeD358

**Late presenters experience higher morbidity and mortality. To better understand the reasons for late presentation, we conducted a qualitative study in Kampala, Uganda.**

**Results:** Between May and August 2017, 58 PLWH and 21 HCW were interviewed at 5 HIV clinics. HCWs reported stigma as the primary barrier for HIV testing and care. Denial of diagnosis, time-consuming clinic appointments, or lack of transport funds were other barriers. The HCWs noted alcohol abuse contributed to men not engaging in care. HCWs noted fear of abandonment or domestic abuse contributed in women. Barriers around clinics being inefficient and lacking privacy were also themes.

**Conclusions:** Our findings suggest interventions to reduce stigma, educate the community, and reduce alcohol abuse would reduce late presentation. Efforts to do contact tracing and partner disclosure would be of value. Improving clinic efficiency and privacy would be useful. Finally encouraging healthy individuals to have periodic HIV tests would likely help reduce late presentation of HIV.

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**TUPED358**

**AIDS in action. Resarching a new movement led by Canadians living with HIV**

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**Background:** Utilizing an anti-oppressive and intersectional approach to qualitative research, a co-founder of the Canadian Positive People Network (CPPN), a new network formed by Canadians living with HIV and HIV co-infections, conducted a GIPA-centered graduate level social work study aimed at exploring

1) the challenges and opportunities faced by this peer-led group as they reassess PLHIV back to the forefront of the Canadian national HIV response; and
2) establishing key factors to inform the strengthening the young network.

**Methods:** The study developed an original theoretical framework, the “Positive People Centred Perspective,” by combining GIPA with theories on anti-oppressive social work practice, citizenship and rights, and social movement to comprehensively ground the HIV response. To ensure the views and needs of key populations are not left behind, the study utilized purposive sampling and conducted qualitative one-on-one “activist dialogue” interviews with 9 key Canadian activists living with HIV representing an intersection of MSM, sex worker, drug user, migrant, transgender people, incarcerated people, and Indigenous people. Interviews were audio-recorded and transcribed. Thematic analysis was performed with N-Vivo. Results were member-checked with interviewees for accuracy.

**Results:** Challenges and barriers facing the Canadian PLHIV movement include the shifting of the epidemic to marginalized key populations and the professionalization of the sector. Key themes include the importance of the network to champion the right agenda that is informed by all affected communities, and to proactively challenge and resist structural violence and oppression, colonialism, racism, whiteness, and neo-liberalism to create transformative change. Institutional considerations include making a proactive commitment and create policies on equity, inclusion, anti-oppression, and non-discrimination. For marginalized groups, true equity means working in culturally-safe ways and supporting their specific goals and objectives within the network’s broader agenda.

**Conclusions:** An anti-oppressive, positive people centered, intersectional approach to research has informed a nascent Canadian PLHIV network the importance to break systemic and structural barriers for PLHIV and key populations and proactively build bridges to support the changing needs of PLHIV. The sector, including PLHIV networks and organizations serving PLHIV, must proactively commit to equity, inclusion, anti-oppression, non-discrimination, cultural-safety, decolonization, and resist neo-liberalization to end the epidemic for all.

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**TUPED359**

‘Being healthy’ as a factor for both accepting and refusing to initiate ART: A cross-sectional qualitative study in the era of Test and Treat in Mozambique

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**Background:** In mid-2016, Mozambique began phased implementation of the “Test-and-Treat” (T&T) approach, which enrolls HIV positive clients into antiretroviral treatment (ART) immediately, regardless of clinical stage. The aim of this study was to describe perceived barriers and facilitators to the implementation and uptake of T&T. We examined the relationship between the lived experience of patients initiating ART in the context of T&T and how ‘good health’ influences their perception of care.

**Methods:** A cross-sectional qualitative study was conducted across 10 health facilities in 4 provinces in Mozambique that initiated the implementation of T&T. Data were collected through in-depth interviews with HIV+ clients (n=50 initiated/20 did not initiate ART within T&T) and 9 focus group discussions with healthcare workers (n=93). The analysis used a deductive and inductive approach to develop analytic categories and transcripts were coded using NVIVO-11.

**Results:** Feeling ‘healthy’ functions both as a barrier as well as a facilitator for ART initiation. Clients in ‘good health’ found it hard to believe a positive HIV diagnosis and, if they believed in the validity of the test, did not understand why they were asked to start ART right away. Patients also reported concerns about ART side effects, fear of inadvertent HIV disclosure, as well as discrimination, limited privacy at health facilities, and long waiting times as barriers. In contrast, being in ‘good health’ was also a key motivator for clients to remain healthy, maintaining responsibilities and caring for their families, and avoiding unwanted disclosure. Other facilitators included being well enough to take care of dependents as well as the positive perception of the quality of ART services.
TUPED360

Understanding motives for initiating PrEP amongst adolescents and young women (AGYW) in South Africa and Tanzania

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Background: Very few studies have been conducted with AGYW in Tanzania and South Africa on motives for initiating PrEP. We conducted a qualitative sub-study as part of the EMPOWER study, which evaluates the feasibility and acceptability of offering oral PrEP alongside an HIV and violence prevention package for AGYW in South Africa and Tanzania.

Methods: In-depth interviews were conducted with participants 3 months after accepting PrEP in Johannesburg (n=25) and Mwanza (n=14). Data were transcribed and translated into English and coded in QSR. Nvivo taking an inductive thematic approach. Key themes relating to participants’ motives for PrEP-use were elicited.

Results: In Mwanza, participants were working in bars or as local food vendors where sexual transactions are common. They acknowledged the higher HIV risk of their work environment but also were concerned about regular partners’ infidelity. Initial concerns about PrEP safety were assuaged following receipt of product information from study staff. Motives also focused on “being safe”, and that using PrEP would offer them reliable HIV protection in contrast to condoms. Participants in Johannesburg were students in the inner-city, a social context where multiple concurrent partnerships are the norm. Virtually none trusted their partners, who were considered promiscuous and at high HIV-risk. Most participants recognised their risk was heightened by low condom use and cited fear of sexual assault. In both sites, experiences of family living with HIV and dying of AIDS also motivated women to use PrEP.

Conclusions: In both sites, motives for initiating PrEP reflected a desire to protect their health and future. In Mwanza, the main narrative was one of “safety”. PrEP was considered a safe drug with high efficacy, reflecting trust in the research study context and confidence that HIV could be conquered. In Johannesburg, PrEP aligned with the ‘independent, urban woman’, an aspiring image in this setting; participants understood PrEP as a way to protect their health and future. In Mwanza, the main narrative was one of “safety”; PrEP was considered a safe drug with high efficacy, reflecting trust in the research study context and confidence that HIV could be conquered. In Johannesburg, PrEP aligned with the ‘independent, urban woman’, an aspiring image in this setting; participants understood PrEP as a way to protect their health and future.

TUPED361

Person-focus analyses of resilience among newly diagnosed HIV positive men who have sex with men: Results from an ethnographic study in China

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Background: Limited studies have examined the dynamic interplays of risk and resilience in the context of HIV-infected men who have sex with men (MSM). And few very studies have examined this issue within a Chinese cultural context using a longitudinal research design. This study aims to explore resilience-related experiences among newly diagnosed HIV positive MSM in a Chinese cultural context.

Conclusions: Our study provides an in-depth understanding of the complexity and dynamics of the perception of ‘health’ among newly diagnosed HIV positive clients and how individual perceptions of ‘being healthy’ may influence ART initiation in T&T. Engaging with the priorities and experiences of individuals in relation to the notions of health and illness are key to improving future HIV interventions especially in the era of T&T.

Methods: Longitudinal in-depth interviews at two time points in a 3 months interval were conducted within a lager ethnographic study in Shenzhen, China. Purposive sampling was used to recruited 31 participants with diverse social economic status. Inclusion criteria were 18 years of age or older, received a diagnosis of HIV infection within the last 6 months, identified as a MSM. A person-focus approach and cross-case analysis were adopted in data analysis.

Results: At time point one, most participants (29/31) reported symptoms of depression and/or anxiety when they were diagnosed HIV positive. At time point two, most participants (17/31) expressed resilience, while eleven participants being back to normal functioning and six participants even experiencing growth. This group of participants integrated negative experiences and recovered in both cognitive and activity levels, using resources such as social support and酒精 consumption. Three participants (3/31) still reported severe symptoms of suicidal ideation, major depression, and anxiety. Other participants (11/31) reported being resilient to some degree while encountering such problems as not accepting their diagnosis, rejecting available healthcare services, and practicing unsafe sex. These were seen to be related to their original psycho-social wellbeing further deteriorating with an HIV diagnosis, such as being put into the centre of gossips and threatening, lack of hope for the future, perceiving increased living pressure, in conflict with CDC/hospital, etc.

Conclusions: Resilience was seen to be created from positive person-situation interaction. Resilience and setbacks concurred in tandem, switching back and forth, and only participants who continued to make an effort to deal with their setbacks could grow continuously. In order to facilitate the development of resilience and personal growth among these HIV positive MSM, community developments, including increased social support, routine mental health services, stigma reduction and intentional activity campaigns, are needed.

TUPED362

HIV: Once a crisis, now undetectable? An ethnographic study of ageing gay men’s long-term experience of HIV

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Background: The psycho-social wellbeing of men-who-have-sex-with-men (MSM) is increasingly recognized as vital to public-health interventions, however little research has been conducted on how aging gay men’s views on current HIV-interventions are shaped by history and memory. This qualitative study examines how memories of the AIDS-crisis, i.e. the era before HAART (highly active antiretroviral therapy), shape the contemporary emotional states of self-identifying gay men in New York City and questions what the consequences might be for public health interventions.

Methods: Data was gathered in New York City between August and December 2017 through ethnographic research methods with 43 respondents born between 1945 and 1965. Methods included participant-observation, focus-groups, interviews and walk-along-discussions focusing on the urban landscape and HIV/AIDS related memories and memoirs. Additionally, a discourse-analysis of contemporary HIV prevention campaigns was completed, focusing on the NYC Health Department’s conceptualization of HIV, both as a pathogen and a historical event of crisis.

Results: The findings from the ethnographic methods show that memories about the AIDS crisis become present in informants’ relations with their urban surroundings: As bearers of personal memory, buildings of friends lost to AIDS and commemoration sites evoke melancholia and thereby influence people’s present-day emotional states. The discourse-analysis focused on the public health department’s strategy “EIE” (Ending-the-Epidemic) with interventions such as PrEP (Pre-Exposure-Prophylaxis) or U-U (Undetectable-Untransmitable). These interventions render HIV invisible, both as a biological presence and as a historical event of crisis. Informants’ experiences and ongoing relation
Knowledge translation and dissemination of research and programme outcomes

TUPED363
The Dance4Life youth empowerment model: A catalyst to foster the role of young people in promoting sexual lives and relationships

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Background: Nepal has been able to make some substantial progress in HIV and AIDS response from the period 1988, when the first case of HIV infection was identified. In line with the SDGs, Nepal Government has set a national target of reducing HIV prevalence among men and women aged 15-24 years to 0.01 (by 2030) from 0.03 (2015). Government of Nepal has also acknowledged the role of civil society organizations in this substantial decrement of HIV prevalence in the country. Being one and only international NGO working in Nepal, Restless Development has focused its activities for harnessing the leadership of young people and to engage them as ‘Young Leader’ to change their community by giving right information at right time, by providing counseling and psychosocial support and to guide the young people for positive transformation of society.

Methods: As a partner of Dance4Life, Restless Development works in Nepal to capacitate young people as leaders and develop platforms to engage them to empower community. It pilots the ‘Youth Empowerment Model’ among the young people since November 2017. In this course, Restless Development has been piloting the ‘Journey4Life’ (18 sessions curricular) to impart socio emotional competencies, SRH Knowledge, gender equal attitudes, awareness and willingness to change harmful norms to foster behavior change among young people. The curriculum is delivered by ‘champions4life’ (peer leaders) among 500 young people. Rigorous monitoring and evaluation has been in-built during this process to capture the learning and best practices so as to build the model to empower millions of young people.

Results: Empowerment model, builds with the critiques that knowledge only is not sufficient to change the behavior and scientific SRHR education is not enough to challenge the deep rooted SRHR taboos and increase confidence. gender equality and desire to challenge harmful norms. Hence, empowered young people lead the journey that starts from the self ‘me’ (building confidence, pass through the ‘me & you’ (relationships) and goes to ‘me & society’ (challenging norms).

Conclusions: Empowerment model has been effectively working to change young people for having healthy sexual lives and relationship.
to HIV, violence and stigma into messages of hope and increased agency on the part of affected persons. Participants also reflect on how the evolution of global health approaches can be seen through both successes and failures of interventions and health programs.

Conclusions/Next steps: We hope future trainees and workers in SRHR will incorporate successful past approaches into their programs, giving space to the perspectives of people affected. A new grant will develop training materials, such as a graphic novel, based on archival material showing how the treatment of women living with HIV has changed over the past three decades and how women have confronted HIV transmission in different parts of the world.

TUPED365
Listen to the experts; how policymakers and influencers like to receive evidence

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Background: Evidence points towards the importance of strategic approaches to communication for research uptake in policy, moving beyond simple “dissemination” models towards facilitating joint interpretation and dialogue. This abstract provides key insights into how policymakers like to receive evidence related to HIV prevention for key populations and vulnerable groups in eastern and southern Africa.

Methods: The study triangulated three sources of evidence: a knowledge synthesis of 63 published papers and 14 case studies on the role of evidence in health policymaking in the ESA region; survey responses policymakers (N=19), and interviews with key HIV policymakers (N=9).

Results:
- Policymakers prefer receiving evidence in face-to-face meetings, encouraging two-way engagement that allows for joint interpretation of results and identifying implications.
- Policymakers prefer a series of engagements and dialogues rather than a one-off event.
- Policymakers appreciate evidence briefs/policy briefs and PowerPoint presentations. These should be clear, brief, jargon-free, and provided as part of face-to-face interactions.
- The “message” matters: policymakers showed sensitivity to the approach of individuals who present research results.
- Messaging around HIV prevention for key populations is particularly challenging and sensitive.
- There are risks involved in communicating evidence. These include misinterpretation of results and negative perceptions among policymakers about researchers’ motivations.
- Mass media are influential in debates about HIV prevention for key and vulnerable populations. National TV, print and radio were the most popular sources of media. Misinterpretations by the media are a concern and need to be addressed.

Conclusions:
- To have maximum impact, messages around HIV prevention for key populations should be practical and consider a health rather than a rights-based approach.
- Effective communication is about relationships. Start early and engage continuously and responsibly throughout the research continuum. Effective engagement is a series of dialogues in which policymakers and researchers work together.
- Poorly managed relationships with policymakers can not only damage research uptake from a specific programme, but also affect other researchers.

TUPED366
Setting the global research agenda on faith sector engagement for HIV service delivery and HIV prevention services

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Background: The faith sector is expected to play a crucial role organizing community based services and achieving the UN Fast Track goals to ending AIDS. While numerous reports and some empirical studies are available, robust primary research is needed to find the most effective and efficient strategies through which the faith sector can contribute in achieving these goals. The aim of this study was to set an inclusive global research agenda reflecting priority research questions from key international and national organizations and stakeholders at the intersection of HIV healthcare and religion.

Methods: To develop a socially robust research agenda, we combined the Delphi method and CHNRI methodology. Between March 2016 and January 2018, we interviewed 58 purposively selected key-informants, including leading policy makers, health care providers, faith leaders, academics, HIV activists and NGO and NGO representatives. Based upon these interviews a first list of main themes and priority questions was developed. This list was distributed as part of an online questionnaire to a large internationally representative group of 110 key stakeholders. In addition, focus group discussions (21) served to prioritize emerging questions and themes and identify data gaps. Field notes and interviews were transcribed verbatim.

Results: Respondents to the questionnaire worked in 54 different countries, were mostly male (95%), had research experience (82%) and identified themselves as religious (79%). Nine research themes were filtered from the interviews: agenda setting, funding, evaluation of faith health collaborations, stigma, advantage of faith initiatives, gender roles, specific populations, combined prevention, and counselling/disclosure. Improving engagement of faith communities in tackling stigma and addressing combined prevention (including sexuality) were prioritized for future research by most respondents. The prioritization of research aims and questions was related to stakeholder’s professional experience, background, years of experience and work region.

Conclusions: A wide range of respondents participated in developing a research agenda, which represents a variety of international, national and local stakeholders. It is now important to implement this agenda together with researchers, funders and other key stakeholders. In order to align new research to the most urgent needs, enhance coordination, reduce research waste and increase the likelihood that results are being used.

Community engagement in research and research dissemination

TUPED367
“Im doing something that matters, that might change the world we live in”: Community perspectives on advancing the HIV cure research agenda

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Background: Developing a cure for HIV requires a combination of innovative techniques and interventions, as well as the collaboration of multiple sectors and key stakeholders. It is imperative to gather input from
key populations living with HIV to advance a cure agenda. Early engagement of stakeholders is critical to navigating complex ethical issues, including risks and benefits, and ensuring proposed cure approaches are acceptable to target communities to promote future participation in cure research and therapies.

**Methods:** A series of focus groups were conducted with key stakeholders living with HIV in the United States to explore barriers and facilitators to participation in HIV cure research. Focus groups were conducted using a semi-structured script and were audio recorded, transcribed and coded using a directed approach to content analysis.

**Results:** A total of 18 people participated in 4 focus groups, all were living with HIV and represented diverse stakeholder groups: young men who have sex with men, men who have sex with men of color, trans and cis gender identities, community advisory boards, and populations. Participants reported the need for concrete information about risks and benefits to participation in HIV cure trials as well as the need to have someone reliable to discuss options with (peer navigator, doctor). Facilitators included incentives helping others, and the possibility of being cured. Barriers to participation included: health concerns, fear of disclosure, stigma and distrust of researchers/doctors. All participants expressed concern with experimental treatment and its impact on their current health and treatment options. Additionally, those who had been living with HIV for >10 years discussed feeling like cure research was not for them.

**Conclusions:** Community perspectives should inform the advancement of an HIV cure research agenda. Our findings highlight areas of opportunity—particularly in addressing barriers to participation, as well as illuminate attitudes towards and interest in cure research from a community perspective. Increasing communication, transparency and collaboration between communities living with HIV and cure scientists is essential for the future of cure research and implementation.

**TUPED368**

Improving HIV cure clinical research engagement: Voices from stakeholders

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**Background:** Clinical trials towards an HIV cure have begun in multiple sites around the world. Stakeholder engagement is essential for the ethical conduct of clinical trials. We define stakeholders as potential participants, medical professionals, community advisory boards, and researchers. Given that many cure studies have high individual risks and no individual benefits, this also presents a compelling rationale for strong community stakeholder engagement related to HIV cure research. This project identified stakeholders’ priorities to improve HIV cure research engagement using a series of workshops.

**Description:** A collaboration of North Carolina researchers, community advisory board members, and a research engagement office members developed and conducted three stakeholder workshops (September to November 2017) lasting 4 to 6 hours each. A lead facilitator and two note-takers moderated workshop activities and reconciled detailed notes to identify overarching discussion themes. Workshops featured creative activities, didactic sessions explaining clinical research, invited speakers, small group brainstorming sessions, and larger group discussions. The overall purpose of the workshops was to improve informed consent processes for vulnerable populations, address stigma, and identify HIV cure communication strategies. Larger group discussions produced a consensus list of priorities for HIV cure research engagement.

**Lessons learned:** Thirty-seven stakeholders attended the workshop series, including community members (n=9), HIV cure community advisory board members (n=3), clinical trial participants (n=2), people living with HIV (n=10), healthcare providers (n=3), and researchers/university representatives (n=10). Participants prioritized ways to improve HIV cure research engagement:
1. use accessible language describing participant eligibility, study procedures, and risks/benefits
2. improve compensation mechanisms,
3. provide expanded mechanisms to file confidential complaints, and
4. provide access to wrap-around services for participants.

Many stakeholders noted a need for improved HIV cure literacy among people living with HIV and potential trial participants.

**Conclusion:** Future steps: Stakeholder workshops focused on HIV cure research are useful in understanding local concerns about clinical trial participation and setting priorities for improving engagement. Future work should focus on developing accessible materials that foster cure literacy among people living with HIV. Further stakeholder engagement is needed related to ongoing and planned HIV clinical trials towards a cure.

**TUPED369**


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**Background:** The new WHO Guideline on the Sexual and Reproductive Health and Rights (SRHR) of women living with HIV (Section 6.5.2) calls for women living with HIV as equal partners in research. We sought to review data from AIDS2016 in this light.

**Methods:** The AIDS2016 Abstract Book was searched, containing keywords “Women living with HIV,” “WLHIV,” “WLWH.” We discarded abstracts presented by academics and others only, and counted those co-authored by a representative of an organization of people/women living with HIV. We also read all abstracts accepted for oral presentation sessions, to ensure inclusion of those co-authored by an organizational representative of people (including women) living with HIV and relevant to women living with HIV, even if they did not contain our keywords.

We triangulated this with International AIDS Society (IAS) data on AIDS2016 abstracts by women living with HIV.

**Results:** 43 abstracts contained our keywords, and of these the following were co-authored by a representative of an organization of people living with HIV: Poster Exhibition, 8 Poster Discussion, 2 Oral Abstract 1.

Further review of all oral abstracts revealed 4 additional abstracts co-authored by an organizational representative of people (including women) living with HIV. None of these was explicitly gendered or women-focused.

IAS data showed that 2% of 1048 women presenters at the conference self-identified as HIV-positive. 142 self-identified HIV positive women submitted abstracts. Of these 21 (15%) abstracts were selected, 120 (85%) were rejected, 1 (< 1%) accepted but withdrawn. Abstracts from all self-identified positive trans people were rejected (100%).

Of 137 invited women speakers, 16 (11%) identified as HIV positive.

**Conclusions:** Our review of all abstract co-authors mirrors the IAS data, which shows a marked scarcity of abstract presenters who self-identify as living with HIV.

Further, women living with HIV are almost completely absent from presenting research beyond a Poster Exhibition. We will compare these findings with representation of all women living with HIV, including trans women, at AIDS2018. This will support the future improved involvement of women living with HIV in abstract-driven sessions presented at AIDS2020 and beyond. To uphold the recommendation in the new WHO Guideline.
Background: In order to consent to participate in long-term research about their perinatal exposure to HIV and antiretrovirals, and to discuss these topics within their own healthcare, perinatally HIV-exposed but uninfected (PHEU) young adults (YAs) must be aware of their mother’s HIV diagnosis. Understanding factors contributing to successful maternal disclosure is critical for this process. In the U.S.-based Surveillance Monitoring for ART Toxicities (SMARTT) protocol of PHACS, which studies long-term safety of in utero antiretroviral exposure, many PHEU participants are approaching adulthood, yet only 30% of participants 112 know their mother’s HIV status. To identify and address families’ needs around disclosure, we investigated caregiver and YA experiences of maternal HIV disclosure through qualitative and community-guided approaches.

Methods: In 2013-2014, at 8 PHACS clinical sites, we conducted in-depth interviews with 7 PHEU YAs who were 18-24 years old and aware of their mother’s status (71% female, 97% Black) and 13 caregivers (75% female, 83% >40 yo, 50% Black) about their perceptions/experiences regarding participation and communication preferences in HIV research. Thematic analysis of coded transcripts using Atlas.ti revealed maternal disclosure to be a salient topic for both caregivers and YAs. Additionally, we engaged YA and Adult Community Advisory Board (CAB) members and PHACS clinical staff in facilitated interviews, story circles, and focus groups.

Results: Caregivers, CAB members, and clinical staff shared key factors regarding disclosure decisions, including HIV stigma as a primary barrier, disclosure as a process over time, the impact of disclosure on family units, and choosing age-appropriate information for children. They identified education, peer support, and culturally relevant resources as important tools for making informed disclosure decisions. PHEU YAs described varied responses to learning of their mother’s diagnosis and attitudes towards connecting with peers affected by HIV. Disclosure comics to facilitate family discussions and staff guidelines were developed and have been positively received: https://phacstudy.org/Education-Hub/HIV-Disclosure-Comics.

Conclusions: Results from qualitative and community-guided approaches to maternal disclosure can guide researchers and practitioners in supporting caregivers to make informed disclosure decisions. These approaches could positively impact research acceptance and conclusions:

HIV-Disclosure-Comics. These approaches could positively impact research acceptance and conclusions:

HIV-Disclosure-Comics.
TUPED372
Community and provider attitudes towards treatment interruptions in HIV cure trials

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Background: Analytical treatment interruption (ATI) is being used increasingly to assess effects of interventions aimed at curing HIV or achieving antiretroviral therapy (ART)-free HIV remission. While a critical outcome in cure trials, ATI poses potential risks. Understanding of ATI acceptability and how ATI should be conducted amongst people living with HIV (PLHIV) and their healthcare providers (HHP) is limited.

Methods: Two online surveys for PLHIV and HHP assessed understanding and acceptability of different monitoring strategies during ATI (frequency of CD4, viral load (VL) and clinical assessment), potential risks of ATI and the prospect for HIV cure. The PLHIV survey also assessed motivation for enrolling in cure trials and the HHP survey assessed support for ATI trials in PLHIV in their care. Responses were collected from July 2017-January 2018. Survey results were compared using t test between PLHIV and HHP for ATI monitoring strategies and perceptions of cure research.

Results: 442 PLHIV completed the survey; 21% female, 81% ≤ 50 years old, 24% identified as heterosexual, 95% on ART and 83% reported sustained viraemia. Clear education messages in relation to ATIs should be developed for both PLHIV and HHP.

Conclusions: PLHIV were more optimistic about the potential for HIV cure than HHP, but were less aware of ATI or willing to have periods of sustained viraemia. Clear education messages in relation to ATIs should be developed for both PLHIV and HHP.

TUPED373
The InvestiGAYtors program: Developing research capacity among young gay, bi and other men who have sex with men

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Background: The epidemiological monitoring of the sexual health of gay, bi, and other men who have sex with men (GBMSM) is often developed and implemented in a top-down manner, and results can be communicated in stigmatizing ways. Modelled after a program developed by the Community-Based Research Centre for Gay Men’s Health in Vancouver, a diverse volunteer group of GBMSM youth (ages 18 to 29) were mentored in Toronto, Canada to do the formative work toward proposing a sustainable, community-led periodic sexual health monitoring survey for GBMSM.

Description: The InvestiGAYtors met weekly, and they received over 114 hours of instruction by a volunteer faculty of academics and community leaders. Curriculum included basics of HIV epidemiology, research methodology, qualitative interviewing, and presentation skills. They also learned about the history of GBMSM health research in Canada and basics of knowledge transfer and exchange (KTE). To apply research skills they learned, the InvestiGAYtors conducted 10 interviews with well-established GBMSM researchers around the world who are conducting major monitoring surveys of GBMSM, and analyzed the data to identify best practices to implement a periodic sexual health monitoring survey for GBMSM in Ontario.

Lessons learned: Seven InvestiGAYtors completed the program. Their learning and progress in acquiring knowledge and skills were measured at pre and post-training points using one self-reported instrument (ranging from “novice” to “experts”) and one civic leadership skills measure. Two focus groups were also conducted to assess key features of the program. Most InvestiGAYtors reported an increase in knowledge, skills and experiential areas (e.g., meeting diverse queues), an enhanced team spirit and increased engagement with the GBMSM communities. By learning about key aspects of research such as sampling, survey design, community input, the InvestiGAYtors reported having developed a critical lens towards GBMSM health research.

Conclusions/Next steps: Our program successfully engaged GBMSM youth in the fundamentals of sexual health surveys for GBMSM. The process of engaging communities affected by HIV became opportunities for community capacity building and development. Our graduates became enthusiastic proponents of queer sexual health and health research in their communities. Following the success of the pilot cohort, a new cohort of thirteen InvestiGAYtors has started in 2017.
Methods: We engaged two groups of young women (rural n=7, urban n=8) aged 17-24 from Western Tanzania in a Photovoice project in October 2017. Across four sessions participants used photography to document the role, aspirations and challenges of young women in their community, and the impact of having resources. Based on the discussions that followed the photo elicitation young women described key factors that affect their vulnerability to HIV, as well as their ideas for how to combat HIV. Following the fourth session, rural and urban participants met to share findings and develop an agenda and an invitation list for a community forum to discuss their findings with community stakeholders. The young women invited local and regional government officials, NGO and development workers, community leaders, role models, and medical personnel.

Results: Young women identified the following structural factors driving HIV risk for women in their communities: limited access to education which increases dependence, cultural norms that minimize options for earning or borrowing capital, and laws that disproportionately punish girls for adolescent pregnancy. Community forum breakout sessions highlighted these key drivers of HIV risk. Key recommendations from participants included involvement of men in sexual health programming and addressing gender norms that lead to adolescent pregnancy and cause young women to feel responsible.

Conclusions: Photovoice empowered young women to explore structural factors that put them at risk for HIV acquisition, and to discuss these factors with decision makers in the community. These young women highlighted the role of gender inequality and lack of access to professional development in increasing their HIV risk.

Data difficulties encountered in crowdsourcing information on legal & regulatory barriers to accessing HIV services (testing and care) for key populations across Europe


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Background: Crowdsourcing information about service conditions can be a useful tool for both information gathering and community engagement. It is important to be aware of its uses and limitations.

Methods: Between 2015–2017 OptTEST researchers compiled a European country survey of legal and regulatory barriers to HIV services, in English and Russian. They solicited activist/NGO responses alongside governmental/legal ones through mailing lists and listservs. Responses were checked for internal consistency and against each other and external verified data sources where these existed. Most responses came from NGO and PLHIV organisations and a few individual activists. The website was published in 2017 and continues to be updated on an iterative basis.

Results: Initial responses were received from 32 countries. 18 had single respondents and others between 2 and 8. While all the responses were helpful and most were rigorous, 11/32 had identifiably inaccurate or contradictory responses e.g. 5 stated that treatment was free to all but subsequently reported not to some or all migrants. One country had 7 respondents, none of whom fully agreed with any other. As a result, all responses were subsequently checked by further research. Laws relating to migrants and sex workers had the least accurate responses, while regulations about who could test for HIV and access to HCV testing were frequently disputed between different respondents from the same country. Causes of variations included: federal systems with devolved healthcare and laws; disparities between national regulations and local practices; lack of familiarity with laws affecting some key populations.

Conclusions: While crowdsourcing data has many benefits, its drawbacks must be managed. Respondents should be encouraged not to offer helpful guesses and desk research should be used to cross check reliability. NGOs and community organisations aiming to help all PLHIV and other affected populations should be supported to increase their understanding and knowledge of laws which may impede access for some key populations to be able to act on it at the appropriate level.

Role of social and behavioural science in biomedical responses

TUPED376

Level of knowledge and attitude of medical students to the problem of TB and HIV

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Background: Tuberculosis and HIV infection affect the most active, young part of the population, contributing to the creation of a serious threat to the demographic situation in Ukraine. The purpose of our study was to determine the degree of awareness students of Dnipropetrovsk Medical Academy in various issues on HIV/AIDS and tuberculosis.

Methods: 388 students of IV and VI courses aged from 20 to 30 of medical faculties in the Academy took part in our study. All respondents filled out a questionnaire, which included questions for assessing students’ awareness about diagnosis, prevention, relevance of the problem of HIV/AIDS and tuberculosis.

Results: Most students (89.7%) consider the problem of TB and HIV infection very relevant. The most of the fourth and sixth year students were correctly oriented in relation to the risk factors for HIV infection, clinical manifestations of the disease. At the same time, students were not sufficiently knowledgeable about HIV, believing that the main mode of transmission is currently injecting (91.8% of fourth-year students and 96.3% of sixth-year students). About a quarter of respondents underestimated the likelihood of the spread of HIV infection during manipulations with the use of manicure, dental instruments. The overwhelming majority of students in courses 4 and 6 (92.7% and 87.1%, respectively) do not trust the means of mechanical contraception, as reliable, at sexual contacts. Students are also not sufficiently informed about the treatment of tuberculosis and HIV infection. More than a third of the students surveyed (38.5%) believe that tuberculosis can not be cured. Negative attitude to antiretroviral therapy was expressed by 89 (22.9%) respondents, considering it ineffective and dangerous due to adverse reactions.

Conclusions: Despite the fact that students note the relevance of TB and HIV infection to society, medicine, they are not sufficiently informed in the modern mechanisms of the spread of diseases, individual remedies, prevention and treatment of diseases.
Research data disaggregation by factors such as sex, age, race/ethnicity, sexual orientation, etc.

TUPED377
Gender based differences in clinical characteristics and social barriers to HIV care among HIV-infected participants in four African countries


Background: Gender-based differences in social barriers and clinical outcomes that affect HIV care can be attributed to strong cultural gender norms in Africa. We assessed gender-based differences in social barriers to HIV care among HIV-infected adults in Uganda, Tanzania, Kenya and Nigeria to identify and target gender-specific interventions.

Methods: AFRICOS is an ongoing cohort that enrolls adults at 12 PEPFAR-supported HIV care facilities. Clinical evaluations were conducted and socio-demographic data was collected using questionnaires at enrollment to evaluate social barriers for HIV-infected participants. Participants were asked to report any history of HIV-related stigma, HIV-related stigma disrupting HIV care, sexual assault, physical assault, and displacement due to violence in the home. Socio-demographic and clinical characteristics were compared across gender using Chi-squared and Kruskal-Wallis tests. Binomial logistic regression was used to estimate adjusted odds ratios (AOR) and 95% confidence intervals (CI) for each social barrier comparing men and women at enrollment, controlling for age and facility.

Results: Between January 2013 and September 2017, 2,683 HIV-infected participants were enrolled, including 1,579 (59%) women. The median age at enrollment for women was significantly younger than men (35.8 vs. 41.8 years of age). Women had a younger median age of HIV diagnosis, higher median enrollment CD4 counts, and lower frequency of advanced HIV disease (CD4 < 200 or WHO stage 3 or 4) (Table 1). Women were more likely to have experienced HIV-related stigma (AOR 1.34, 95% CI 1.04-1.73), sexual assault (AOR 3.91, 95% CI 1.13-11.50) and physical assault (AOR 1.81, 95% CI 1.37-2.42) (Figure 1). The odds of stigma interfering with HIV care and displacement due to violence was not significantly different between men and women.

Conclusions: Both men and women are underserved in different aspects of HIV care. Despite experiencing more social barriers, women are diagnosed and engaged in care earlier in their disease process, which may be due to availability of women-centric services such as prenatal care. Improvement of targeted support services will be key in mitigating social barriers that may adversely impact clinical outcomes despite engagement in care. Targeted interventions to engage in HIV care earlier are also needed.

<table>
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<tr>
<th>Variable</th>
<th>Male (N=1104)</th>
<th>Female (N=1579)</th>
<th>Total (N=2683)</th>
<th>P-value</th>
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<td>Median Age (IQR)</td>
<td>38.1 (31.8-45.1)</td>
<td>36.8 (30.2-43.8)</td>
<td>37.8 (31.8-46.3)</td>
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<tr>
<td>Median Age at Diagnosis (IQR)</td>
<td>32.7 (27.2-39.9)</td>
<td>35.0 (28.8-42.3)</td>
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<td>Median Viral Load, copies/mL</td>
<td>49.0 (TND=28679.0)</td>
<td>64.5 (TND=19131.0)</td>
<td>56.0 (TND=21977.0)</td>
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<tr>
<td>Median CD4, cells/mm³ (IQR)</td>
<td>536.0 (209.0-846.3)</td>
<td>434.0 (272.0-919.0)</td>
<td>488.0 (236.0-970.0)</td>
<td>&lt;0.001</td>
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(Tables 1 Demographic and Clinical Characteristics of HIV Positive Participants at Enrollment *Target Not Detected)

Positive health, dignity, psychological well-being, and mental health

TUPED378
Trajectories of HIV-related internalized stigma and disclosure concerns among ART initiators and non-initiators in South Africa

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Background: HIV-related stigma among people living with HIV (PLHIV) is associated with poor mental health and reduced adherence to antiretroviral therapy (ART). Engagement in HIV care and ART initiation may attenuate stigma through ART-related counseling and improvements in health that restore economic viability and social connectedness. Most of the data supporting this hypothesis have been derived from qualitative studies. We used longitudinal data from a clinic-based sample of black South Africans to assess changes in stigma among PLHIV after engagement in care and whether ART initiation is associated with stigma reduction.

Methods: We administered the Internalized AIDS-Related Stigma Scale (IARSS, a six-item dichotomous scale questionnaire) at baseline, 3 months, and 6 months to newly diagnosed ART-eligible participants between 2014-2015. A confirmatory factor analysis indicated that the IARSS contained a four-item internalized stigma factor (IAR) and a two-item disclosure concerns factor (I-D). Thus, we examined the relationship between ART initiation and internalized stigma/disclosure concerns while adjusting for sociodemographic characteristics, using generalized estimating equations (GEE) to estimate model parameters.

Results: Of the 500 participants (187 men and 313 women) who were enrolled, 308 (62%) initiated ART. Internalized stigma declined over 6 months among both ART non-initiators (mean score 4.1 to 0.8, p<0.01) and ART initiators (1.0 to 0.7, p<0.01). However, disclosure concerns did not decrease over the study period, either among ART non-initiators (percentage endorsing either disclosure concern item, 76% to 71%, p=0.34) or ART initiators (75% to 86%, p=0.01). Using GEE regression models, we estimated a statistically significant positive association between ART initiation and disclosure concerns (b=0.13, 95% Confidence Interval CI 0.04-0.21) but not between ART initiation and internalized stigma (b=0.14, 95% CI -0.02 to 0.31)
Conclusions: Among black South African PLHIV engaged in HIV care, internalized stigma modestly declined over time among both ART non-initiators and initiators. However, disclosure concerns persisted, with ART initiators more likely to have persistent disclosure concerns over time compared with non-initiators. Policymakers should consider interventions to create environments in which PLHIV, especially ART initiators, can safely disclose and obtain social support.

TUPED379

Health-related quality of life of people living with HIV in Spain

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Background: Improving the health-related quality of life (HRQoL) of people living with HIV (PLHIV) has been proposed as an additional goal (the fourth goal), together with testing and treatment targets (90-90-90). This study aimed to examine how is HRQoL in PLHIV in Spain, describe which facets are more impaired, and identify those PLHIV with the most vulnerable profiles. Besides, associations between HRQoL with health-related questions were examined.

Methods: A total of 1462 PLHIV participated in an observational cross-sectional study conducted between October 2016 and April 2017. Data were collected through 33 Spanish HIV centers (clinics and NGOs) through an online self-administered survey. HRQoL (WHOQOL-HIV-BREF), treatment adherence (CEAT-VIH), psychological well-being (GHQ-12), self-esteem and self-efficacy were measured. Pearson's correlation, T-test, and one-way variance analyses were used to examine HRQoL differences and associations.

Results: Most participants were men (79.3%), and 52.5% were heterosexual. Most participants were educated (79.3%), and 52.5% were homosexual. Mean age was 45.0±12.0. The HRQol facets showing lower scores were emotional resources, relationships, physical health, and the Level of Independence showed the higher scores while the Spiritual domain presented the lowest score. To be a woman (p<0.001), being of heterosexual (p<0.001), to have a low socio-economic (p<0.001) and educational status (p<0.001), having acquired HIV through injection route (p<0.001) and being living with HIV for a longer time (p>0.05) were all related with poorer HRQoL. PLHIV older than 50 presented lower scores in several HRQol facets (displayed in the figure), but the higher size differences were found in emotional satisfaction and work capacity (Cohen’s d = 0.47 and 0.37 respectively). Those with higher CD4+ T cell counts showed significantly higher HRQol scores in eight facets (p>0.05). Positive correlations were found between all the HRQol dimensions and treatment adherence (p<0.05) and psychological well-being (p<0.05).

Conclusions: This study presents the more recent data on HRQoL in PLHIV living in Spain. Long-term survivors, older adults, and women are key populations to pay more attention in research and interventions.

TUPE380

Factors influencing quality of life of persons living with human immunodeficiency virus (HIV) infection in Almaty, Kazakhstan


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Background: Health-related Quality of life (HRQoL) is recognized as a significant medical outcome measure for people living with HIV (PLWH) infection. Identification of potentially modifiable determinants of HRQoL could help target people in need of additional health care and social services in order to improve their HRQoL. The objective of this study was to determine the factors with the strongest impact on HRQoL in PLWH.

Methods: A cross-sectional study among adult PLWH registered at the Almaty City AIDS Center was conducted in 2013. HRQoL data were collected using the World Health Organization’s Quality of Life HIV brief (WHOQOL-HIV-Bref) questionnaire. Depression data were obtained using the Patient Health Questionnaire-9. Socio-demographic data were collected with self-administered questionnaire. Clinical data were retrieved from medical records. Multivariate logistic regression and Tobit censored regression were used to examine the relationship of socio-demographic, behavioral and clinical factors with overall quality of life and WHOQOL-HIV Bref domain scores.

Results: A total of 531 people participated, of whom 55.4% were male, 87% were with high school or lower education. 66.6% were unemployed. 48% had a history of injection drug use (IDU). 57.8% had CD4+ count < 350

[Figure. Differences in WHOQOL-HIV-BREF facets scores according to age. Note: (rev): reverse item. All differences were significant at p<0.05 except (ns): no significant difference.]
TUPED381
Voluntary drug addiction treatment at community level in Viet Nam

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Background: Center for Supporting Community Development Initiatives (SCDI) contributed to a national Programme on reviewing addition treatment through focusing on transferring drug addiction treatment since 2014. This is a completely new approach on drug addiction treatment in Viet Nam that drug users will voluntarily go to the treatment settings and will not be discriminated and continue to receive services if they relapse.

Description: The pilot model has been implemented in 22 treatment settings in 22 districts of 5 provinces through two main interventions: capacity development for staff working in treatment settings and policy advocacy on voluntary treatment for drug users at community level with the operation budget allocated fully from the state budget at the district and provincial levels.

Lessons learned: After four years, SCDI strengthened the capacity of 200 staff working in the treatment settings (80% are female) through providing knowledge on addiction mechanism, detoxification period, basic mental health treatment, motivation interviewing, cognitive behavioral treatment, behavioral management... One advantage of this new model is the active participation of CBOs’ drug users in providing treatment services. As a result, more than 2,000 clients have received services at community level and they reduced using drug and have better jobs. The evaluation showed that the drug users have better family and social relationship, reduce number of violation cases related to drug addiction. The staff working in the treatment settings have more interest in their work because their contribution have changed lives of drug users and reduce the community’s discriminatory attitude toward drug users. SCDI advocated successfully for related drug addiction policy to ensure the stability of this SDCI model at community. As result of SCDI efforts, these 22 SDCI settings in 22 districts of 5 provinces have become a model to be further replicated in other regions of Viet Nam.

Conclusions: If this is accepted, the model will be implemented in the whole country of Viet Nam and it is estimated that at least 50,000 drug addicts will benefit from this initiative and save at least 80% of expenditure for the drug addicts compared with the compulsory treatment.

TUPED382
Effect of psychosocial group intervention on social support among depressed HIV infected perinatal women in Dar es Salaam, Tanzania: A cluster randomized controlled trial

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Background: The prevalence of depression among HIV infected pregnant women in sub-Saharan Africa is estimated to be 40%; much higher than in men living with HIV and in the general population. Low social support is among the major contributing factors.

Psychosocial support group interventions have been widely reported to increase social support and facilitate elimination of depressive symptoms. We explore the effect of such an intervention on perceived social support among HIV infected depressed women.

Methods: A total of 16 public health facilities providing PMTCT services were randomly assigned to intervention and control groups in 2015 to 2016. A total of 742 HIV-infected depressed pregnant women were recruited using locally validated cut point of PHQ-9 tool to measure depression. Women were placed in structured psychosocial groups with problem solving (n=7 sessions pre-delivery), cognitive behavioral (n=8 sessions post-delivery) components, facilitated by lay providers. Enhanced Standard of Care (ESC) was offered to providers at all study sites. Data was collected at baseline, six weeks and nine months post-delivery. Social support was assessed using ten-item scale ranging 1-4; a score of “1” indicating receiving support “as much as I would like” and “4” “never receiving support”. We compare average scores on social support in intervention and control groups using a linear regression model with robust standard errors to account for clustering.

Results: Among 742 women who participated in the study the average age was 29.6, ranging from 18-43 years. At baseline (t3%) had less than basic education, 73% were married or living with sexual partners and 54% were employed. Average social support score at baseline was 2.9 (standard deviation (sd) 0.7) and increased to 3.63 (sd.0.5) and 3.63 (sd.0.4) at six weeks and 9 months post-delivery respectively; but there was no significant effect of the intervention on social support (P=0.27 and P=0.17) respectively.

Conclusions: The intervention did not have a direct association with social support among depressed HIV infected pregnant women. Although this could be in part related to the potential effect of ESC, which improves access to mental health care. More studies using other approaches of increasing social support in this key group should be considered.
TUPED383

Does stigma really impact health and well-being in persons living with HIV (PLHIV)?

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Background: HIV-related stigma is a phenomenon where PLHIV are viewed or view themselves as tainted by being HIV-infected. The Health Stigma Framework (HSF) posits that there are distinct HIV-related stigma mechanisms by which PLHIV experience and respond to stigma namely: internalized, enacted, and/or anticipated stigma. Although, there is evidence that HIV-related stigma has a negative effect on the health and well-being of PLHIV, less is known about how different stigma mechanisms affect specific health and well-being outcomes. We investigated whether internalized, enacted, and/or anticipated stigma are associated with distinct physical (physical function, fatigue, pain), mental (anxiety and depression), and social (social health) indicators of health and well-being in PLHIV.

Methods: We recruited PLHIV (N=702) from seven geographically diverse sites in the United States and Thailand for a cross-sectional study on physical activity in PLHIV. Participants completed validated measures of physical, mental, and social health-related domains (PROMIS-29) and stigma (HIV Stigma Mechanism Scale). We used descriptive statistics to calculate mean PROMIS-29-t-scores (higher scores indicate greater levels of specific constructs, e.g. greater anxiety, depression, social health), and univariate analyses and linear regression models to examine factors associated with HIV-related stigma.

Results: The majority of participants resided in the US (54%) and Thailand (46%). Fifty-five percent identified as male (40% female and 4.5% transgender). All stigma mechanisms and health indicators were significantly associated. Specifically, internalized (r=447, p<0.000) and anticipated stigmas (r=371, p<0.000) were most closely associated with depression. Enacted stigma was most closely associated with pain (r=-293, p<0.001). Regressions analyses revealed that for PLHIV, internalized stigma was the most significant predictor and accounted for the most variance in all physical, mental, and social health indicators of health and well-being with the exception of pain.

Conclusions: Different stigma mechanisms are associated with distinct health outcomes in the study sample. Distinguishing between different stigma mechanisms and their impact on health outcomes is particularly important to informing the design and development of interventions that have potential for the effective mitigation of stigma and its effects on health outcomes.

TUPED384

Burden of HIV-related stigma and associated factors among prenatal women living with depression accessing PMTCT services in Dar es Salaam, Tanzania

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Background: In Tanzania and similar resource-limited settings, the burden of HIV-related stigma is high and can have a significant impact on well-being and quality of life. The social isolation experienced with stigma can increase the risk of depression, which can also have a negative effect on survival and prognosis of HIV disease. The aim of this study is to assess the level of HIV-related stigma among women living with HIV and depression accessing PMTCT services and examine factors associated with stigma in this context.

Methods: We administered a questionnaire for prenatal women with depression accessing PMTCT services in Dar es Salaam that included measures of HIV-related stigma, depression, social support, and related factors. Women’s exposure to stigma was assessed using a questionnaire with a five-point Likert scale ranging from one to five. One indicating no stigma and five representing a high level of stigma. We conducted univariate analyses and linear regression models to examine factors associated with HIV-related stigma.

Results: A total of 742 women were enrolled in the study with an average age of 26.9 years old (range 18-43). Over one-third of the women indicated having problems with food security in the past six months (33.2%) and 27.3% reported owing money at shops where they buy food. The average value on the HIV stigma scale was 2.07. HIV-related stigma was significantly associated with HIV-related stigma. Women’s exposure to stigma was assessed using a questionnaire with a five-point Likert scale ranging from one to five. One indicating no stigma and five representing a high level of stigma. We conducted univariate analyses and linear regression models to examine factors associated with HIV-related stigma.

Conclusions: Our study demonstrated a significant level of stigma among perinatal women living with HIV and depression. Socioeconomic factors, such as food insecurity, increased the risk of HIV-related stigma, whereas hope demonstrated a protective effect. This suggests a need to account for economic stressors when addressing HIV-related stigma among high-risk groups such as perinatal women living with depression and HIV in resource-limited settings. A more holistic approach addressing psychological, such as hope, as well as economic characteristics should be considered when developing interventions to enhance well-being in this vulnerable population.

TUPED385

Determinants of mental health problems among children living with HIV in Malawi: A cross-sectional study

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Background: Approximately 10% of people living with HIV in Malawi are children under the age of 15 years. Although the survival rate of children living with HIV in Malawi has increased due to the increased availability of antiretroviral medications, these children continue to experience numerous challenges negatively impacting on their physical and mental health. These challenges include: high levels of poverty, stigma, discrimination, bullying, and the loss of one or both parents. This study was conducted to investigate the prevalence and determinants of mental health problems in children aged between 6 and 12 years living with HIV in Malawi.

Methods: A random sample of 429 primary caregivers of children living with HIV drawn from the three main administrative regions of Malawi was recruited in a cross-sectional study. Reliable instruments translated
TUPED386

Working together to promote the physical and psychosocial wellbeing of children living with HIV through the safe and effective disclosure of HIV status: A qualitative study

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Background: Approximately one tenth of people living with HIV in Malawi are children under the age of 15 years. While the World Health Organisation recommends that healthcare workers, teachers and community leaders should work with primary caregivers to disclose HIV status to children living with HIV. Research assessing the involvement of these adults in the disclosure process in Malawi is limited. This study was conducted to assess the involvement, practice, challenges, and support needed by primary caregivers, healthcare workers, teachers and community leaders to disclose HIV status to children aged between 6 and 12 years living with HIV in Malawi.

Methods: Focus group discussions and one-on-one interviews were used to collect data from primary caregivers, healthcare workers, teachers and community leaders across all three administrative regions of Malawi. Information regarding involvement, practice, challenges, and support needed to disclose of HIV status to children was collected. Data were analysed using thematic analysis.

Results: Twelve focus group discussions and 19 one-on-one interviews involving a total of 106 participants were completed. Three main themes namely talking about HIV disclosure, open communication, and shared responsibility were identified. The first theme ‘talking about HIV disclosure’ was identified through participants’ expression of the need for all stakeholders to talk about HIV disclosure despite being constrained by the complexity and potentially negative consequences of the disclosure process. The second theme ‘open communication’ emerged after many participants emphasized the need for stakeholders to have an open communication regarding disclosure of HIV status to the child. Hierarchical relationships and misunderstandings were reported as barriers to open communication. The last theme ‘shared responsibility’ emerged after most participants expressed that each stakeholder had a role to play in the disclosure process. Nonetheless, many participants reported that there was little attempt to share responsibility for care. The three themes had a common concept of ‘working together as most participants emphasized the need for them to work together to break down the barriers to effective disclosure.

Conclusions: Disclosure of HIV status to children is a complex issue that require all stakeholders to work together to meet the health, psychosocial and academic needs of children living with HIV.

TUPED387

We are much more than our HIV status: Uniting HIV+ women in Kyiv to address HIV-related stigma using immediate intervention model

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Background: HIV-related stigma and lack of social support are crucial factors that undermine ART adherence among HIV-positive women in Ukraine. Self-help group proved to be a good method of overcoming stigma and improving the quality of life. Empowerment given in such groups increase the self-esteem and self-efficacy of its participants helping them to (re)build meaningful relationships in their life and better cope with the on-going life challenges. Using Immediate Intervention Model in 2014 several HIV-positive women created unique self-support and empowerment group for HIV-positive women in Kyiv now nationally well-known as ‘Kyianka’.

Description: Immediate Intervention Model used by ‘Kyianka’ is based on the principles of meaningful involvement of people living with HIV/ AIDS and implies immediate support of women who have just discovered their HIV-positive status and those who struggle to accept their status by creation of small peer support networks. The key components of this model:

- Phone hotline.
- Monthly meetings of self-help groups.
- Online counseling and peer support via facebook secret group ‘Kyianka’.
- Monthly Joint events, such as master classes, trainings and leisure activities.
- Skill trainings and professional education with further assistance in employment.
- Informal meetings with doctors.
- Joint creative arts activities.

Lessons learned: The self-help group had an immediate positive effect on women’s health. During 2014-2017 ‘Kyianka’ provided support to 158 HIV+ women in Kyiv. The number of women who started ART treatment during this period has significantly increased by 62% - 82 out of 131 participants on ART started treatment empowered by peers in ‘Kyianka’.

There were additional 12 cases of those who re-started to take ART. 10 of patients on ART during this period has significantly increased by 62% - 82 out of 131 participated on ART started treatment empowered by peers in ‘Kyianka’.

TUPED388

The impact of social support on HIV care adherence and ART adherence in PLH social networks in St. Petersburg, Russia

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Background: A wide body of research shows that social support is strongly associated with HIV care engagement indicators including medical care enrolment, adherence, and retention. In Russia—where ART uptake remains very low—there is a need to identify specific contextual issues related to ways in which social support impacts HIV care.

Methods: Seven ego-centric social networks of PLH (n=42) were recruited in St. Petersburg Russia. Interested PLH responded announcements placed online and in service venues. PLH not treatment adherent
A dyadic investigation of relationship dynamics and depression in HIV-positive couples from Malawi

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Background: Among HIV-infected individuals, depression is associated with suboptimal adherence to antiretroviral therapy (ART), worsening disease progression, lower CD4 counts, increased risk of comorbidities, and decreased quality of life. Primary partnerships such as marriage could be protective against depression through partner social support. Most studies have examined depression on the individual level, which ignores interpersonal dynamics such as interdependence between partners. In this study, we used a dyadic perspective to examine whether relationship dynamics (e.g., trust, unity, communication, social support) are associated with couple-level depression among HIV-infected married couples in Malawi.

Methods: Couples were eligible if they were in a non-polygamous relationship for at least six months, age 18 or older, and had at least one partner on ART for at least two months who had disclosed HIV status to their primary partner. Using validated scales, both partners were asked about relationship dynamics and symptoms of depression (CES-D). We computed couple-level means for all variables and constructed a dyadic model with one row per couple. We then fit linear regression models predicting couple-level depressive symptoms, controlling for relationship length, alcohol use, shared children, health status, couple HIV status (discordant or concordant positive), and other demographic covariates.

Results: All participants (211 couples) were married and most had a primary school education or less (81%). Approximately one-third were sero-discordant. Over one-quarter of participants (26%) had a CES-D score of 16 or higher, indicating probable depression. The mean CES-D score at the couple-level was 11 (range: 0-48). The adjusted models showed that couples with higher levels of intimacy, trust, equality, satisfaction, unity, and commitment had lower levels of depressive symptoms. In contrast, couples with higher levels of maladaptive communication had higher levels of depressive symptoms.

Measure of relationship quality (couple-level) | Unadjusted Coef. | Adjusted Coef.
--- | --- | ---
Intimacy | -1.81 (-3.28, -0.33)** | -2.01 (-3.60, -0.44)**
Trust | -0.20 (-0.37, 0.03)* | -0.24 (-0.44, -0.04)**
Equality | -0.31 (-0.54, -0.07)** | -0.42 (-0.62, -0.22)**
Relationship satisfaction | -1.95 (-3.55, -0.34)* | -2.31 (-4.02, -0.61)**
Unity (“We-ness”) | -1.72 (-2.61, 0.82)** | -1.87 (-2.83, -0.92)**
Relationship commitment | -1.19 (-4.08, 0.09) | -2.65 (-4.86, -0.45)**
Maladaptive communication (avoidant) | 1.52 (0.48, 2.56)** | 1.68 (0.60, 2.77)**
Adaptive communication (constructive) | -1.27 (3.01, 0.46) | -1.83 (3.70, 0.02)
Partner social support | -0.08 (-0.20, 0.04) | -0.12 (-0.24, 0.01)

(Tabular data for coefficients and 95% confidence intervals)

Conclusions: High levels of depressive symptoms were reported by married couples with HIV, which has the potential to hinder optimal HIV clinical outcomes. Couples-based interventions that encourage positive relationship dynamics and couple communication could be key in the prevention and treatment of depression, particularly in settings with low access to anti-depression medications and mental health services. This may result in enhanced HIV treatment outcomes.
TUPED391
Psychosocial support for people living with HIV in Burkina Faso through SMS
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Background: As part of a larger nation-wide study about the impact of SMS reminders on the ARV adherence by people living with HIV in Burkina Faso, a qualitative assessment of the impact of the SMS messages on beneficiaries was undertaken to complement the mostly quantitative data collected through questionnaires. The aim of the assessment was to better understand how the beneficiaries perceived the SMS reminders.

Methods: The qualitative inquiry was done through semi-structured interviews and focus groups with beneficiaries and researchers taking part in the SMS reminder intervention in both 2016 and 2017 (a total of 37 interviews and 13 focus groups with 76 beneficiaries and 24 surveyors) across 10 different places across Burkina Faso about their experiences with the SMS reminders.

Results: The qualitative inquiry revealed some evidence that the SMS reminders are indeed leading to better ARV adherence, particularly when people are away from their homes and get reminded. However, more importantly the assessment provided strong evidence that the SMS messages were perceived as an important psychosocial support, even if beneficiaries couldn’t read or understand them. Simply the fact that someone was thinking about them and making the effort to send a reminder, made people feel that there is someone caring about them, and therefore that their life matters.

Conclusions: Typically interventions that use SMS messages for people living with HIV have a functional nature, such as to remind patients of appointments, taking medication or for communication. This qualitative study in Burkina Faso demonstrated that SMS messages can also play an important role in providing psychosocial support to patients, particularly in countries where people living with HIV still face stigmatization and isolation. Such psychosocial support can potentially have an indirect positive impact on health behaviour and ARV adherence, because patients feel more worthy and appreciated.

TUPED392
What do we know about reducing self-stigma among people living with HIV (PLHIV) and key populations affected by HIV? A systematic review of interventions from low and middle-income countries (LMIC)
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Background: Self-stigma is a major impediment to the UNAIDS 90-90-90 targets. Self-stigma can hamper HIV testing, treatment and prevention by compromising people’s quality of life, mental health, healthcare use and adherence to anti-retroviral treatment (ART). We synthesized existing evidence of interventions aiming to reduce self-stigma experienced by PLHIV and key populations in LMIC.

Methods: Studies were identified through bibliographic databases, grey literature sites, study registries, back referencing, and contacts with researchers, following PRISMA and Cochrane guidelines. Two independent investigators screened abstracts according to inclusion criteria pre-specified in the study protocol https://www.cr4york.ac.uk/prospero/display_record.php?RecordID=83972. The data extraction form was adapted from Cochrane Collaboration guidelines and forms used in previous relevant reviews.

Results: Of 1580 potentially relevant titles, 15 studies were included in the review. Represented in these studies were 7,131 people (67% women) from Ethiopia, India, Kenya, Lesotho, Malawi, Nepal, South Africa, Swaziland, Tanzania, Thailand, Uganda, and Vietnam. The vast majority (13/15) of interventions targeted adults living with HIV with four being evaluated in women only. Only two interventions specifically targeted key populations: young men who have sex with men (YMSM) in Thailand and female sex workers (FSW) in India. Approaches to self-stigma reduction included group and individual psycho-educational sessions (sometimes combined with poverty alleviation components). ART initiation with counseling or food assistance. ART adherence counseling (either through peers or community health workers) and food assistance. 11 interventions resulted in reductions in self-stigma. ART initiation and psycho-educational sessions with economic strengthening components consistently resulted in reduced self-stigma, but psycho-educational approaches that did not include economic strengthening had mixed effects.

Conclusions: Structural interventions such as scale-up of ART, prevention of medication stock outs and economic strengthening may help substantially reduce self-stigma among PLHIV, potentially by improving physical and mental health outcomes. It should be noted that only two tested interventions for key populations were identified, of which the one for YMSM did not appear to be effective in reducing self-stigma. More research is urgently needed to understand how to reduce self-stigma among young people and key populations particularly in contexts where they are heavily discriminated and/or criminalized.

TUPED393
The young people living with HIV stigma survey UK: Self-image related to an HIV diagnosis
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Background: HIV-related stigma affects self-esteem and quality of life among people living with HIV. We report on HIV-related self-image among young people (YP) aged 15-24 living with HIV in the UK.

Methods: The Young People Living with HIV Stigma Survey UK was co-produced by a diverse range of young people living with diagnosed HIV (YPLWH), clinicians and researchers. A cross-sectional study was conducted, exploring stigma and discrimination experienced by YPLWH in the UK. Participants were recruited through cross-sector organisations supporting PLWH and HIV clinics. Descriptive and multivariate analyses are presented on positive and negative feelings over the past 12 months.

Results: Data from 300 YP was analysed; median age 20 years (IQR 17,22) with 47% aged 15-19 and 53% aged 20-24. 53% identified as male (including trans men) and 39% of sexually active participants were men who have sex with men (MSM). 76% of YP identified as Black, Asian or Minority Ethnic. 65% of YP acquired HIV at birth and 29% were infected sexually. 92% of participants were currently on ART, 70% self-reported an ART & undetectable VL currently, 65% reported a functional ART, made people feel that there is someone caring about them, and therefore their life matters.

Conclusions: Typically interventions that use SMS messages for people living with HIV have a functional nature, such as to remind patients of appointments, taking medication or for communication. This qualitative study in Burkina Faso demonstrated that SMS messages can also play an important role in providing psychosocial support to patients, particularly in countries where people living with HIV still face stigmatization and isolation. Such psychosocial support can potentially have an indirect positive impact on health behaviour and ARV adherence, because patients feel more worthy and appreciated.

(Feelings and positive self-image score)
Influence of harmful alcohol drinking on anti-retroviral therapy adherence and health-related quality of life in HIV-positive people in Nepal: A community-based cross-sectional study

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Background: HIV-positive people often endure alcohol use disorders resulting in their poor health and treatment outcomes. Little is known about the association of harmful alcohol drinking with their adherence to anti-retroviral therapy (ART) and health related quality of life (QOL) in low-resource settings. Additionally, such evidence is not available about the association of harmful alcohol drinking with their adherence to ART and health-related QOL of HIV-positive people stratified by gender in Nepal.

Methods: A cross-sectional study was conducted among HIV-positive people on ART in Nepal from March to April 2015. Harmful alcohol drinking was measured using a validated AUDIT scale. Non-adherence to ART was measured using AIDS Clinical Trial Group questionnaires. We also measured their health-related QOL using WHOQOL-HIV BREF scale. The association of harmful alcohol drinking with non-adherence to ART was examined using multiple logistic regressions. Additionally, multiple linear regressions examined the association between harmful alcohol drinking and QOL.

Results: Harmful alcohol drinking was associated with non-adherence to ART among men (OR: 2.48, 95% CI: 1.50 - 4.01, p < 0.001) and women (AOR: 2.52, 95% CI: 1.32 - 4.80, p = 0.005). Men were more likely to have lower score for psychological domain (β = -0.65, p = 0.021) and level of independence (β = -0.68, p < 0.01) domains when they had harmful alcohol drinking. Moreover, women were more likely to have lower scores for physical (β = -1.01, p = 0.019), social relation (β = -0.82, p = 0.03), environmental (β = -0.88, p = 0.011), and spiritual (β = -1.30, p = 0.005) domains of QOL when they had harmful alcohol drinking.

Conclusions: Harmful alcohol drinking was an overlooked threat to ART adherence and QOL of both HIV-positive men and women in Nepal. Screening for alcohol use disorders and community-based counseling services should be provided while delivering ART services to improve treatment adherence and QOL. Additional studies are warranted to explore the co-morbid effect of mental health and alcohol use disorders on treatment adherence.

Emotional wellbeing, drug and alcohol use, and their relationship with adherence to anti-retroviral therapy among MSM living with HIV in Guatemala

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Background: Emotional wellbeing and substance use can influence adherence to ART (ART) and little is known about these relationships in Guatemala. We assessed the association between emotional wellbeing, substance use, and ART adherence among men who have sex with men (MSM) living with HIV.

Methods: From January to May 2017, 397 MSM living with HIV participated in a socio-behavioral survey for the baseline assessment of a multi-level intervention in Guatemala City. Eligibility criteria included ≥21 years old, male, ever had sex with men, diagnosed with HIV, enrolled in HIV care, and spoke Spanish. We used the AIDS Clinical Trials Group measures of adherence and DSM-5 for alcohol use disorder. We also measured prevalence of illicit drug use and emotional wellbeing (anxiety, worry, depression). We used descriptive statistics and bivariate analysis to contrast groups and estimate odd ratios.

Results: Among participants who had started ART (88% 350/397), 93% reported being adherent, defined as not having missed a dose in the last 4 days. However, only 53% reported always taking their medication as prescribed. Most reported anxiety (62%), worry (64%), and depression (62%) two weeks prior to the survey, though these symptoms were not significantly associated with adherence. Twenty-eight percent of participants met the criteria for alcohol use disorder, these participants were half as likely to be adherent to ART compared to those who did not (OR 0.42; 95% CI: 0.18-0.99). Twenty-nine percent reported having ever used drugs, of these, 23% had used drugs in the last 30 days most frequently marijuana and cocaine. Those who used drugs in the last 30 days were approximately a quarter as likely as those who were adherent to treatment than those who did not (OR 0.21; 95% CI: 0.04-1.02).

Conclusions: While overall adherence was high among participants in this study, there is a need to reinforce taking ART as prescribed. The negative association between substance use and adherence highlights the need to integrate referral and support services into HIV care to improve and sustain treatment outcomes and wellbeing within this vulnerable population. Future research should continue to explore the pathways between emotional wellbeing, substance use, and ART adherence.
TUPED397

Invisible no longer: Exploring the experiences of women living with and at risk of HIV in the UK through two national surveys and six workshops

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Background: Around a third of people living with HIV in the UK are women and every year 25% of new diagnoses are in women. Yet women living with and affected by HIV have been mainly invisible in the narrative and response to HIV in the UK.

Methods: Two online surveys were used, one for women living with HIV, and one for women interested in HIV prevention. Both were open to any women (including trans women) living in the UK aged 18 and over. Six participatory workshops were also held, five attended by women living with HIV and one for women who do not identify as heterosexual.

Results: Data from 308 surveys and the output of six workshops attended by 32 women were taken forward for analysis.

1 in 6 never or rarely had enough money for basic needs. 17 felt their immigration status had affected their ability to manage HIV. Over 40 felt HIV had affected their choice to have children. Living with HIV and one for women resident in the UK through two national surveys and six workshops.

Conclusions: There remains a lack of understanding of who women at risk of HIV are and what factors put women at risk of HIV. More research about HIV prevention at their last HIV test. Women who do not identify as heterosexual felt HIV and sexual health services did not meet their needs.

TUPED398

‘I know where my tribe is’: An online social network for people living with HIV

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Background: Accessing peer and social support is a key stage in the process of coming to terms with a HIV diagnosis for most people living with HIV (PLHIV). Traditionally, peer support has been delivered via facilitated groups meeting in physical space, however there is increasing interest in the use of digital technology to deliver social support programs.

Description: The Institute of Many (TIM) is a peer-run platform for HIV-positive people and their allies, founded in 2012. With a membership over 1200, TIM is the largest digital gathering space for PLHIV in Australia.

The organisation focuses on social support for PLHIV, primarily through a Facebook group and social networking events in major Australian cities, as well as delivering innovative health promotion programs. Over a 3.5 month period, TIM averaged 6.6 posts, 38 comments, and 116 reactions per day. Its membership is diverse but, in line with other online services, tends to have greater uptake among younger people, newly diagnosed PLHIV, those disconnected from traditional services, and digital natives.

Lessons learned: In 2017, living with HIV online could be seen as just one aspect of what for many people is an increasingly online/digitised life. For digital-native PLHIV, accessing support via online fora comes as one aspect of what for many people is an increasingly online/digitised life. For digital-native PLHIV, accessing support via online fora comes as one aspect of what for many people is an increasingly online/digitised life.
TUPED400
Relationship between perceived stress, depression and self-efficacy among female sex workers in Southern India
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Background: Female sex workers (FSWs) in many countries are at elevated risk of reproductive and mental health problems. HIV/AIDS, and have low self-esteem due to the stigma and discrimination they experience. Further, psychological health issues have been a largely neglected issue among FSWs and have not been given proper attention, particularly in developing nations. This study examines the prevalence of perceived stress and investigates its relationship with self-efficacy for health service utilization and condom use, and mental health status among FSWs in southern India.

Methods: Data were drawn from the needs assessment study under Avahan-III program, conducted among FSWs (N=694) during May-June 2017 in Karnataka, a southern state of India. The survey collected information on the FSWs reproductive health needs, self-efficacy for service utilization and condom use, validated self-perceived stress scale, and depression (assessed using CES-D-R10 scale). Descriptive statistics, frequency, bivariate and multivariate logistic regression techniques were used for analysis.

Results: About one-half of FSWs (55%) were found to have high perceived stress, while 67% were found to have at least one depressive symptom. About half (46%) scored high for self-efficacy of condom use and 26% scored high for self-efficacy for service utilization from a health facility. FSWs age, educational attainment, typology, living status and experience of sexual violence were associated with high perceived stress. FSWs who had high levels of perceived stress were eight times more likely to report any depressive symptoms (86% vs. 43%), AOR: 8.0, 95% CI: 5.4-12.0) than their counterparts. FSWs, who had high levels of perceived stress were less likely to have high self-efficacy for condom use (42% vs. 53%, AOR: 0.6, 95% CI: 0.5-0.9) as compared to others.

Conclusions: The study highlighted that greater stress is associated with lower general self-efficacy and lower mental health status among FSWs. The current HIV prevention activities in India require an integrated program approach to focus on addressing the psycho-social issues as well. To support this, mental health intervention programs and research-based evidence will be highly needed to ensure that mental health issues are properly addressed among high-risk groups.

TUPED401
The prevalence and correlates of depression in a cohort of HIV-Infected pregnant women in Kenya
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Background: Depression is the leading cause of disability globally and is associated with poor HIV clinical outcomes. Risk of depression is higher in HIV-infected individuals and in peripartum women, but few studies have characterized depression in pregnant HIV-infected women in sub-Saharan Africa. This study evaluates the prevalence and correlates of depression in pregnant HIV-infected women in Kenya.

Methods: We conducted a cross-sectional analysis of enrolment data from participants in a trial evaluating mHealth strategies to improve ART adherence (Mobile WAChX, NCT02400671). Participants were age 18+, HIV-infected, pregnant, and had daily access to mobile phone. Participants were recruited from 6 public MCH clinics in Nairobi and Nyanza region. Self-report questionnaires were administered, including assessment of depression (by PHQ9) and social support (by MOS). Correlates of depression were assessed by b test, univariable and multivariable logistic regression with standard errors clustered by clinic.

Results: Among 825 women enrolled, median age was 27 (IQR 23-31), median gestational age was 24 weeks (18-30), median time since HIV diagnosis was 2 years (IQR 0.08-5.00), and 452 (55%) had an intended pregnancy. Overall, 244 (29.6%) reported at least mild depression (PHQ9 score ≥ 10) and 71 (8.6%) reported at least moderate depression (PHQ9 score ≥ 20). Prevalence of mild depression varied significantly by clinic site (range 7%–36.5%, p < 0.001). Compared to women without depression, women with mild depression had lower income, education, and were less likely to have had an intended pregnancy (p<0.05 for each). In addition, women with mild depression had a more recent HIV diagnosis (median 1 vs. 2 years, p=0.006). more enacted stigma (21.5% vs. 9.3%, p=0.002). IPV (20.5 vs. 7.3%, p=0.002) and less social support (8% vs. 66%, p=0.001). In adjusted analysis, depression remained associated with poor social support (aOR=0.67, 0.57-0.99), unplanned pregnancy (aOR=1.25, 1.07-1.71), less than primary education (aOR=1.45, 1.03-2.04), and IPV in the last 12 months (aOR=2.8, 2.45-3.40).

Conclusions: Prevalence of depression in HIV-infected pregnant women in Kenya was substantial, and was associated with pregnancy intention, IPV, education level and social support. The findings highlight the need for improved depression screening and treatment for pregnant HIV-infected women.
TUPED403
Psychological and socio-cultural effects of forced and coerced sterilisation on women living with HIV (WLHIV) in Namibia

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Background: The forced and coerced sterilisation of women living with HIV (WLHIV) is one of the most serious forms of fundamental human rights violations. While, the litigation of Namibia’s forced and coerced sterilisation cases has been successful for the women involved; aspects of their well-being have not been fully addressed. The aims of the study were to explore the negative psychological symptoms resulting from forced and coerced sterilisation, to describe the socio-cultural effects of forced and coerced sterilisation as well as to investigate the meanings that individuals attach to the circumstance of being forced and coerced into sterilization and how these influence coping.

Methods: This study was conducted in Windhoek, Namibia in 2017 using a qualitative research methodology. The target population for this study was the 40 WLHIV who were victims of forced sterilisation in Namibia. Convenience sampling was used to select a sample of seven research participants. The researcher made use of semi-structured interview schedules and content analysis was used to interpret meanings and derive themes.

Results: Results indicated negative psychological and socio-cultural effects on the lives of research participants succeeding forced sterilisation. The findings indicated negative psychological symptoms, particularly those associated with anxiety and depression. These symptoms include withdrawal, overthinking or rumination, fear, sleep disturbance, change in weight, loss of interest, self-blame, shame, feelings of helplessness, hopelessness, worthlessness, sadness and anger. Additionally, themes of negative health effects, poor state health care services, gender based violence, discrimination, victimisation and unemployment emerged. It was noted that, cultural principles and values regarding reproduction, marriage and decision making also contribute to negative socio-cultural and psychological effects. Another finding was that coping has been difficult, with some psychological and socio-cultural challenges still significantly affecting the women’s lives.

Conclusions: The findings of this research point to the need for a strong and sustained HIV support program for WLHIV, especially where human rights violations have occurred: in this particular case. WLHIV who were forced or coerced into sterilisation. It reveals that while financial compensation and policy reform may be the immediate goals of advocacy efforts, the psychological, social, physical and financial well-being should be prioritised.

TUPED404
Hope in HIV infected depressed perinatal women participants of a psycho social group intervention in urban Tanzania

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Background: Facilitating hope may be important in the provision of comprehensive care for persons living with HIV (PLHA): yet little is known about levels of hope in this population. The purpose of this paper is to describe levels of hope in perinatal women accessing PMTCT-plus services and identify factors associated with hope.

Methods: Acluster randomized trial was conducted in 16 PMTCT-plus providing facilities in urban Dar es Salaam, which recruited perinatal depressed women using a locally validate cut point of the PHQ-9. A total of 742 women with HIV and comorbid depression were enrolled at baseline and 87.5% (n=649) and 86.6% (n=643) followed up at 6 weeks and nine months post-partum respectively. A composite indicator of hope was developed as the average of responses for 20 locally derived idioms of hope from narratives with PLHA in Dar es Salaam from a previous study. Each item had a 4-point response scale from “definitely false” to “definitely true” with lower scores indicating less hope and higher scores more hope. We assessed the level of hope at each survey time point. We used linear models with standard errors clustered at the facility level to assess the association between hope and correlates of interest at baseline.

Results: Women had mean age of 29.6 years (sd 5.2), and most (65.2%) had completed primary education. The average score at baseline on the hope scale was 3.51 (range 1.55-4.00) compared to 3.78 (range 2.05-4.00) at follow-up 1, and 3.78 (range 2.05-4.00) at follow-up 2. This increase in hope over time being statistically significant (p< 0.001). At baseline, older women were more hopeful than younger women (>0.01, 95% CI: 0.00, 0.01). Women with high scores on a general self-efficacy measure also showed higher scores on the hope scale (>0.25, 95% CI: 0.16, 0.33).

Conclusions: Using locally derived idioms signifying hope, perinatal women had above average scores for hope at baseline, that significantly increased with follow-up. The positive correlation with self-efficacy suggests the utility of the hope measure in future analysis.

TUPED405
Risk factors for relapse of depressive symptoms after a psychosocial group intervention for depressed perinatal women attending PMTCT-plus services in Dar es Salaam, Tanzania: A cluster randomized controlled trial

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Background: Depression is common in women living with HIV/AIDS attending antenatal care-based services for preventing mother-to-child transmission of HIV (PMTCT-plus). While relapse of depressive symptoms after treatment may occur, few interventions have identified risk factors for relapse in a low-income country context.

Methods: A cluster-randomized controlled trial compared a psychosocial group intervention utilizing problem solving (PS) and cognitive behavioural (CB) components facilitated by lay community-based health-

References:


care workers to standard of care among women with elevated PHQ-9 depressive symptom scores comparable with major depressive disorder.

In addition to baseline, follow-up assessment was at six weeks (T1) and nine months (T2) post-delivery. Relapse of depression was defined as a woman who was not depressed at first follow-up and depressed at second follow-up as determined by a PHQ-9 score of nine or above. We first conducted univariate analysis of depression at each time point, then assessed potential predictors of relapse using generalized estimating equations with a log link and standard errors adjusted for clustering at the facility level.

### Results:

We enrolled 742 women at baseline, interviewed 649 (87.5%) at T1 and 643 (86.7%) at T2. At baseline women were on average 29.6 years old (range 18-43) and 72.5% were married or living with their partner. At T1, 25.2% of women were depressed, compared to 10.2% at T2. Of the 429 who were not depressed at T1, 72.5% relapsed and had an elevated depression score at T2. Women who were younger or single were more likely to relapse; however, higher levels of hope at baseline reduced the risk of relapse by 57% (RR=0.43; 95%CI: 0.23-0.79). Intimate partner violence and HIV-related stigma increased the risk of relapse. In particular, women who reported food insecurity were 3 times more likely to relapse compared to those who did not report this risk factor (RR=3.29; 95%CI:1.62-6.69).

### Conclusions:

Psycho social support groups utilizing PS and CT components have proven effective in treating depression however, a number of factors can increase the risk of recurrence. In order to sustain the reduced risk of depression related to treatment, contextual factors such as intimate partner violence and food insecurity need to be addressed.

### TUPED406

The Young People Living with HIV Stigma Survey UK: An intergenerational comparison of self-image related to an HIV diagnosis

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### Background:

HIV-related stigma affects self-esteem and quality of life among people living with HIV. We report on the intergenerational differences in HIV-related self-image among adults and young people (YP) living with HIV in the UK.

### Methods:

The People Living with HIV Stigma Surveys UK were co-produced by a range of people living with diagnosed HIV (PLWH), clinicians and researchers. Two cross-sectional studies (adults [6] and YP [19-24]) were conducted, exploring stigma and discrimination experienced by PLWH in the UK. Participants were recruited through cross-sector organisations supporting PLWH and HIV clinics. A composite binary self-image score was created from responses to key questions on positive (P) and negative (N) feelings in the past 12 months. Descriptive and multivariate analyses are presented.

### Results:

Data from 1,450 adults and 300 YP was analysed; median ages 45.8 (SD=9.8) more than half of the participants had primary education 207 (57.1%) and a majority reported clinical attendance for the past five years (71.8%). Of 359 participants, 9 (2.5%) were classified as having depression (PHQ-9 score>=10). Rates of depression were similar comparing males (2/782, 2.4%) and females (7/277, 2.5%), chi-square=0.96, 38/359 (10%) and 18/359 (5%) reported to ever use tobacco products and current tobacco use, respectively. As for alcohol use, 217/359 (60.5%) and 70/359 (19.5%) reported to ever drank alcohol and having drank alcohol in the past 12 months, respectively. Men were found more likely to have ever used tobacco (OR=1.74, 95% CI: 2.5-4.3, p<0.001) and alcohol (OR=2.6, 95% CI: 1.5-4.7). Alcohol use was also associated with receiving no family support related to HIV (OR=2.1, 95% CI: 1.0-4.2, p=0.05).

### Conclusions:

Alcohol and tobacco use are common among PLWH and despite the reported low prevalence of depression, it is imperative to screen for common mental health problems at CTC to be able to intervene and reduce comorbidities as well as improve QOL for PLWH.

### Table 1. Prevalence of depression and risk factors, stratified by sex

<table>
<thead>
<tr>
<th></th>
<th>Overall (n=38)</th>
<th>Males (n=20)</th>
<th>Females (n=18)</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression (PHQ-9&gt;=10)</td>
<td>2.1 (23.6)</td>
<td>1.9 (24.3)</td>
<td>2.2 (23.3)</td>
<td>0.75</td>
</tr>
<tr>
<td>Current Tobacco use</td>
<td>18 (47.4)</td>
<td>12 (60.0)</td>
<td>6 (33.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Ever Tobacco use</td>
<td>36 (100)</td>
<td>31 (150)</td>
<td>5 (25.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Current alcohol use (in past 12 months)</td>
<td>70 (18.5)</td>
<td>21 (27.5)</td>
<td>49 (17.7)</td>
<td>0.11</td>
</tr>
<tr>
<td>Ever alcohol use</td>
<td>217 (60.5)</td>
<td>63 (29.0)</td>
<td>148 (82.4)</td>
<td>0.001</td>
</tr>
<tr>
<td>ART adherence</td>
<td>30 (100)</td>
<td>19 (100)</td>
<td>11 (61.1)</td>
<td>0.43</td>
</tr>
<tr>
<td>ART non adherence</td>
<td>2 (26.7)</td>
<td>1 (26.7)</td>
<td>1 (26.7)</td>
<td>0.05</td>
</tr>
<tr>
<td>Family support for HIV care - YES</td>
<td>316 (82%)</td>
<td>78 (89.0%)</td>
<td>238 (84.3%)</td>
<td>0.75</td>
</tr>
<tr>
<td>Family support for HIV care - NO</td>
<td>43 (12%)</td>
<td>9 (11%)</td>
<td>34 (12%)</td>
<td>0.69</td>
</tr>
</tbody>
</table>

#### TUPED407

Prevalence and factors associate with common mental health problems among people living with HIV/AIDS in Dar es Salaam, Tanzania

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### Background:

People living with HIV/AIDS (PLWHA) are at risk of getting mental health problems such as depression, alcohol and tobacco use. These conditions can negatively impact on the disease progression and overall quality of life (QOL). This study aims to determine the prevalence and risk factors for depression, alcohol and tobacco use among people currently receiving care for HIV in Tanzania.

### Methods:

A total of 369 adult HIV-positive patients were recruited and interviewed between August and October 2017. We sampled every third HIV Care and Treatment Clinic (CTC) client receiving care at the Muhimbili National Hospital situated in Dar es Salaam. Patients Health Questionnaire-9 (PHQ-9) was used to assess for depression. WHO-Steps survey to assess tobacco and alcohol use. Structured questionnaire was used to assess predictors of interest like social support, social demographic status and anti-retroviral (ART) adherence. Frequencies and percentages were used to describe the prevalence, chi-square test to examine differences in prevalence and bivariate logistic regression for depression and predictors of interest.

### Results:

Participants were predominantly female 277/359 (77.2%), the mean age was 45.8 (SD=9.8) more than half of the participants had primary education 207 (57.1%) and a majority reported clinical attendance for the past five years (71.8%). Of 359 participants, 9 (2.5%) were classified as having depression (PHQ-9 score>10). Rates of depression were similar comparing males (2/782, 2.4%) and females (7/277, 2.5%), chi-square=0.96, 38/359 (10%) and 18/359 (5%) reported to ever use tobacco products and current tobacco use, respectively. As for alcohol use, 217/359 (60.5%) and 70/359 (19.5%) reported to ever drank alcohol and having drank alcohol in the past 12 months, respectively. Men were found more likely to have ever used tobacco (OR=1.74, 95% CI: 2.5-4.3, p<0.001) and alcohol (OR=2.6, 95% CI: 1.5-4.7). Alcohol use was also associated with receiving no family support related to HIV (OR=2.1, 95% CI: 1.0-4.2, p=0.05).

### Conclusions:

Alcohol and tobacco use are common among PLWHA and despite the reported low prevalence of depression, it is imperative to screen for common mental health problems at CTC to be able to intervene and reduce comorbidities as well as improve QOL for PLWHA.
TUPED408
Cross-sectional study of Quality of Life (WHO HIV-QL31) of HIV patients in the Philippines

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Background: Philippines has the fastest growing HIV/AIDS epidemic in the Asia Pacific region. In the past six years the Philippines has seen a 140% increase in the number of new infections, and 83% of new cases are in men who have sex with men (MSM). As the burden of HIV increases, assessing the quality of life (QOL) of PLHIV is important in order to provide appropriate care and treatment. Currently, no data are available regarding the QOL in HIV patients in the Philippines.

Methods: A cross-sectional analysis was conducted using data from the baseline visit of a cohort study of patients at a nonprofit private clinic in Metro Manila. Data were collected from October, 2016 to December, 2017. Patients completed the World Health Organization HIV QOL questionnaire (WHO HIV-QL31) in English. Data were entered into Excel and descriptive analysis was conducted in STATA 14.

Results: The study enrolled 463 patients, 91% were MSM. 427 completed HIV-QL31 questionnaires. The range, IQR, mean, and standard deviation for each of six domains and the total score are detailed in the Table. The distribution of total QOLS scores is detailed in the histogram in the Figure. The mean QOL score in the cohort was 88.3 (maximum possible total = 120, max possible per domain = 20). The domain with the lowest mean QOL was Environment (13.4) followed by Spirituality (14.3).

Conclusions: The QOL scores of our cohort are somewhat higher than those of cohorts from Thailand and from India, suggesting that QOL for PLHIV in the Philippines may be somewhat better than it is in other countries throughout the Asia Pacific region. The cohort in our private clinic is of higher socioeconomic status than the average Filipino, however, so these data may not be representative of QOL for most Filipinos living with HIV.

Further analysis should be conducted to examine the independent predictors of QOL and also to determine how QOL impacts outcomes. Understanding which domains patients have poorer QOL may help officials to plan targeted interventions to improve patient outcomes.

TUPED409
Is the PHQ-8 an efficient screening tool for depression among HIV positive pregnant women attending antenatal and postnatal care?

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Background: South African primary care guidelines stipulate that all pregnant women should be screened for depression at every antenatal care visit (ANC). Previous studies have shown high depression levels among HIV-infected pregnant women. Depression contributes to various adverse maternal health outcomes, supporting the need for a feasible and validated screening tool for detection at PHC-level in South Africa. We aimed to determine the reliability of the 8-item Patient Health Questionnaire (PHQ-8) and quantify depressive symptoms among this population.

Methods: From June 2016 to September 2017, HIV-infected pregnant women attending ANC at three primary healthcare facilities in Tshwane were recruited. Participants were screened for symptoms of depression during pregnancy, after delivery and six weeks post-delivery. Scores were categorized into depression levels: none (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), severe (20–24). A cut-off score of 10 for depression was used in accordance with previous studies. Women with high symptoms of depression were referred for further care. An inter-item scale reliability analysis was conducted to demonstrate internal consistency of the PHQ-8.

Results: We recruited 845 women. Twenty-eight percent (N=236) experienced mild to severe depressive symptoms: 6.6% (N=58) were classified as depressed. Fifty-one percent (N=430) of participants were attending first ANC. Of those, 37% (N=159) were newly diagnosed with HIV. Women diagnosed with HIV on day of enrolment showed higher levels of depression than women previously diagnosed (IQR=2.6, CI 1.49–4.61). Higher symptoms of depression (score ≥ 10) were positively associated with younger age, education level and multiple partners during pregnancy. Only 1.3% (N=6/461) were classified as depressed after delivery and only one participant at six weeks post-delivery. The Cronbach alpha for the PHQ-8 was 0.72 in ANC, 0.72 after delivery, and 0.68 at six weeks post-delivery.

Conclusions: Higher depression rates among those newly diagnosed shows the importance of early screening and ongoing mental health support. Internal consistency rates were acceptable when administering the PHQ-8 during pregnancy. However, it should be validated against a gold-standard to confirm depression rates found here.

TUPED410
Associations between HIV-related stigma and socioemotional competencies: Evidence for psychosocial and psychotherapeutic interventions

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Background: HIV-related stigma has a negative emotional impact on people living with HIV (PLHI), ranging from emotional distress to depression and anxiety disorders and ultimately leading to adverse outcomes on health and well-being. Socioemotional competencies (SEC) can be resources to adequately perceive, express and manage these negative emotions, reducing their adverse impact. The purpose of this study was to explore the association between stigma (internalized, anticipated and enacted) and SEC and to analyze the existence of predictive relations between these variables.

Methods: A cross-sectional study was conducted between June–November 2017. The Socioemotional Competencies Inventory (SECII) and the HIV-Related Stigma Inventory (EI-HIV) were administered. The
Abstracts

**Adaptation to living with HIV for individuals, families, and communities**

**TUPED412**

“It is our time”: Confronting internalized stigma to empower young people living with HIV

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Background: Young people living with HIV do not have access to resources required to keep them healthy, and to access HIV and sexual reproductive information. YPLWHA are further marginalized because of their status as HIV is linked to sex which is a taboo issue - creating a double stigma.

Description: Busega Adolescent Sexual Health Program (BUSHEP), an affiliate to the Reproductive Health Uganda (RHU) engaged 74 youth and adolescents living with HIV aged 18 - 25 in advocacy and empowerment training initiatives. Through funding from Ministry of Health, BUSHEP facilitated two programs in Kampala district between August 2016 and August 2017. YOU-STOP a health promotion and sexual education group for youth living with and affected by HIV, and YOU-CAN a private space for HIV+ youth. The programs address the misconceptions around HIV and sexual health, and also build capacity to respond to stigma and discrimination. Activities for the programs include radio talk shows, HIV testing campaigns, and life-experience sharing.

Lessons learned: After data analysis, it was reported that YLWHA were more proactive to confront internal fear and speak about against stigma. “It is our time to be part of the HIV response. Involve us at all levels to fight stigma and discrimination” one participant said. Empowerment was also seen with increased disclosure and building alliances with other groups (e.g. youth with disabilities) to collectively address stigma. In the one year of intervention, the 74 youth had also expanded their base to engage other community members to talk about HIV and sexual reproductive health.

Conclusions/Next steps: BUSHEP engaged YLWHA as a way of empowering youth to be active partners in HIV response. The project also empowered YLWHA to fight internal stigma, and to create networks for addressing stigma and improve wellness. This research recommends more involvement of YLWHA and allies to increase HIV knowledge and sexual health information.

**TUPED411**

A place to belong: Findings from a mixed-methods examination of housing as a health intervention for LGBT young adults age 18-24

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Background: Young age and housing instability independently predict virologic failure, driving heightened HIV risk among unstably housed lesbian, gay, bisexual, transgender and/or queer (LGBTQ) youth (18-24). Congregate, supportive housing can promote viral load suppression among marginalized groups. However, little is known about the impact of housing on health outcomes for LGBTQ youth, who are living at the intersection of social marginalization and late-adolescent development stage. The aim of this study is to examine a unique congregative, supportive housing program for young LGBTQ adults living with HIV.

Methods: A mixed-methods study initiated upon the housing program’s opening was designed to assess the effect of the program on HIV management, mental health, substance use, sexual health, HIV stigma, and self-esteem. Data collected to date include descriptive statistics from baseline resident surveys (N=13) and in-depth semi-structured interviews (N=8) conducted approximately 3 months following program enrollment.

Results: Most residents (average age 21.8 years) identify as male (85%), black (69%) and unemployed seeking work (62%). 77% moved more than three times in the past two years, 62% experienced homelessness, and most were staying temporarily with a family member or friend (38%) or residing in emergency housing (23%) prior to program entry. Two-thirds (63%) have histories of incarceration, 54% have experienced intimate partner violence in the past year, and 100% report perceived HIV stigma. Interviews revealed that the housing program promotes medication adherence and viral load suppression among youth through:

1) shielding residents from the risk environment;
2) connecting residents to a range of culturally appropriate physical and behavioral health services; and
3) developing a sense of community which fosters mutual support, pro-social health norms and mitigates the negative effects of internalized stigma.

Conclusions: Lack of affirming, safe housing for LGBTQ homeless youth with HIV contributes to poor health outcomes. Qualitative findings reflect volatile residential instability and high internalized stigma. Qualitative data reveal how supportive, congregate housing can promote environmental predictability and foster positive peer relationships. These factors influence LGBTQ youth’s development of sense of self and health and point to critical components of housing as a structural intervention with this group.

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Table 1. Pearson correlations and multiple regression analysis between SEC and dimensions of HIV-related stigma. Note: IS: Internalized stigma; AS: Anticipated stigma; Em: Enacted stigma: ß > 0.01

Conclusions: Participants with higher levels of SEC exhibited lower levels of HIV-related stigma. Results support previous evidence showing that experiences of HIV-related stigma and discrimination negatively affect certain SEC, especially emotion regulation and optimism. This may contribute to the increment of internalized and anticipated stigma. These specific SEC might play a particularly important role in coping with the negative emotional impact of stigma. An integrative model including them should be tested in future studies. This evidence supports the relevance of promoting and developing SEC (focusing on emotion regulation skills and optimism) in psychosocial and psychotherapeutic interventions aimed at PLHIV, to enhance individuals’ resources to cope with HIV-related stigma and reduce its negative impact on health and well-being.
**TUPED413**
The effect of social stigma on drug adherence for HIV positive secondary school teenagers in St. Kizito SSS Katikamu, December 2017

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Background: Recent statistics show, 3.8 Million Youth are living with HIV globally, 76% of whom are in Sub Saharan Africa. In Uganda, HIV is still a national problem, especially among the youth. Alarmingly, with all the efforts made, prevalence has increased from 6.4 in 2004 to 7.4 in 2016. This study therefore, sought to find the extent to which Social Stigma affected drug adherence of Secondary School Teenagers in Katikamu Sub- County, Luwero District, Uganda. The objective was to ascertain whether the close interaction with the school community, does not significantly interfere with adherence to ART.

Methods: A sample of 45 teenagers between the ages of 13 and 19, living with HIV, was selected for the study. A cross section survey design was adopted and data was collected through questionnaires. Data was analyzed quantitatively using the SPSS.

Results: Out of 45 students, 10 kept their situation in total concealment; they had a lot of difficulty taking their drugs since they did it in secrecy. Many times they missed their drugs. 30 had never disclosed their HIV status to any other student. These took their drugs under the supervision of the school nurse or counselor. They still sometimes missed their drugs. On the other hand, 4 had disclosed their status to at least one or two of their friends. These had the opportunity of taking their drugs in the company of those who knew, and they could even be reminded, they rarely missed their drugs. Exceptionally, one had publicly disclosed his HIV status and had overcome the stigma attached. He had the freedom of taking his drugs freely and never missed.

Conclusions: It was therefore concluded that social Stigma was a big barrier in drug adherence among teenage youth in School, in Katikamu Sub County, Luwerro District. The youth in schools should be encouraged to disclose their HIV status in order to fight stigma and be able to adhere to ART. Youth communities should be sensitized more on the need to give social and moral support to those living with HIV and not to stigmatize them.

**TUPED414**
Filial piety as a risk factor for self-stigma and poor mental health among HIV-positive men who have sex with men (MSM) in China

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Background: HIV-positive men who have sex with men (MSM) face double stigma of being HIV-positive as well as having same-sex attraction and behavior. Such stigma may be particularly pronounced in traditional Chinese cultural context, with filial piety as its core value. Chinese people are obliged to fulfill the filial duty to their parents and bring glory to their family and ancestors. Under the influence of Confucianism, it is also important for people to have children to carry on their family name. These filial obligations may impose considerable psychological burdens on HIV-positive MSM. The present study examined the endorsement of filial piety among HIV-positive MSM in China, and investigated its effects on their self-stigma and mental health.

Methods: A sample of 234 mainland Chinese HIV-positive MSM (mean age = 30.42; SD = 7.61) was recruited from a non-governmental organization providing services to people living with HIV (PLHIV) in Shanxi prov. China. They were asked to fill in a questionnaire on filial piety, self-stigma of being PLHIV, self-stigma of being MSM, and mental health.

Results: Filial piety was positively associated with self-stigma as PLHIV and self-stigma as MSM. Self-stigma as MSM was related to lower levels of mental health.

Filial piety was found to have an indirect negative effect on mental health via self-stigma as MSM, while the mediating effect of self-stigma as PLHIV was not significant.

Conclusions: Understanding HIV and sexual stigma within the Chinese cultural context are pivotal in controlling the HIV epidemic in China. Given the double stigma and the cultural norm of filial piety, HIV-positive MSM in Chinese societies are highly vulnerable to negative mental health outcomes. They face substantial pressure to manage the stigma surrounding their sexual desire and the sociocultural expectations. Self-stigma reduction intervention in China should always take cultural factors into consideration, supporting HIV-positive MSM to develop strategies for negotiating filial obligations.

**TUPED415**
Roles of employment status and emotion regulation in death anxiety among people living with HIV/AIDS

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Background: Death anxiety is one of the most commonly observed mental health sequelae of HIV/AIDS. However, there is limited research on contributions of employment status and emotion regulation strategies in death anxiety. This study examined the moderating role of emotion regulation strategies on associations of employment status and death anxiety among people living with HIV/AIDS (PLWHA). Death anxiety was operationalized based on its four dimensions – Death Acceptance, Externally Generated Death Anxiety, Death Finality, and Thoughts About Death. Cognitive reappraisal and expressive suppression were the emotion regulation strategies considered to be of interest in this study.

Methods: Participants were 186 PLWHA (mean age = 34.16 years; SD = 11.16; 43.5% men and 56.5% women) from the HIV/AIDS care unit of a tertiary healthcare institution in south-eastern Nigeria. Many of them (n = 108, 58.1%) had attended higher institutions. Employment status was as follows: Unemployed (n = 58, 31.2%), self-employed (n = 59, 31.7%) and currently employed (n = 69, 37.1%). They completed self-report measures of the variables and provided some demographic information including their employment status.

Results: Employed persons had lower scores on all death anxiety dimensions, than self-employed and unemployed persons. Self-employed persons did not differ from unemployed persons in any dimension. Cognitive reappraisal was not associated with any death anxiety dimension. Those with high expressive suppression were more accepting of death. Moderation analysis showed that unemployed and self-employed PLWHA were more vulnerable to higher thoughts about death when they adopt low and moderate expressive suppression than when they adopt high expressive suppression.

Conclusions: Findings underscore the benefits of formal employment and the utility of expressive suppression in effective interventions to reduce death anxiety and improve quality of life of PLWHA.

**TUPED416**
The impact of serostatus disclosure on the spousal relationship between wives and HIV-positive husbands who have sex with men in China: A qualitative study

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Background: Men who have sex with men (MSM) is classified as a key population in HIV epidemic, and the HIV prevalence among MSM was high. An overall of 38-70% of MSM entered into heterosexual marriage during the lifetime. Disclosure of HIV-positive status to wives is inevitable along with the disease progression and the necessity to test the wife’s HIV status. However, acknowledgment of the husband’s HIV-positive status may change the spousal relationship, which is rarely investigated in the literature. This study aimed to describe the impact of serostatus disclosure on the spousal relationship from the perspective of wives.
Methods: A qualitative study using semi-structured interviews was conducted among wives (n=31) who had known their husbands’ HIV-positive status in China. Their husbands were infected by HIV through homosexual behavior. Participants were identified by a non-governmental organization and a Center for Disease Control and Prevention who provide routine services for people living with HIV and their family members. Qualitative data underwent a detailed content analysis.

Results: Both positive and negative impacts on the spousal relationship were expressed by wives. Six themes were identified:
1. reduced sexual activities;
2. changes in intimacy;
3. limited communication on HIV-related issues but improved communication on other topics;
4. increased instrumental support but decreased emotional support;
5. developed spousal relationship resilience; and
6. shared privacy management rules regarding HIV-positive status. Moreover, the acknowledgment of the husband’s homosexual behavior hurt the spousal relationship more seriously than the HIV infection, and an irremediable marriage was observed among wives who knew both.

Conclusions: Disclosure of HIV-positive status had a great impact on the spousal relationship, and such impact varied across individuals. Tailored counseling is recommended to meet personal needs and contextual situations.

TUPED417
HIV-related stigma and proactive coping processes among HIV-positive clinic patients in Philadelphia, Pennsylvania

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Background: Interpersonal HIV stigma continues to burden the well-being of people living with HIV/AIDS (PLWHA), often shaping their ability to cope and integrate disease management into their lives. Extant literature on managing HIV/AIDS stigma has focused primarily on engaged (e.g., social support seeking) and disengaged (e.g., denial) coping styles. Few research efforts have explored PLWHA’s proactive coping, which refers to regulating one’s behavior in anticipation of stigma to prevent/minimize its impact. Understanding proactive coping strategies are important for contextualizing the methods undergone to reduce PLWHA’s HIV-related stress.

Methods: We conducted 19 in-depth, qualitative interviews with PLWHA recruited at a university-based HIV clinic in Philadelphia, Pennsylvania. Our sample was predominately middle-aged or older (≥ 40 years, 74%), racial/ethnic minority (74%), sexual minority (52%), cis-male (74%), and had 5+ years since diagnosis (74%). We conducted a thematic analysis guided by the Stages of Proactive Coping to understand participants’ recognition of HIV-related stigma, perceived consequences of stigma, and proactive coping efforts.

Results: Anticipated stigma regarding HIV status disclosure remained the most commonly described stressor. Manifesting as anticipated rejection, participants assuaged these stigma-related perceptions through proactive coping strategies including selective disclosure and limited pursuit of romantic/sexual partnerships. Additionally, internalized stigma manifested as fear of transmitting the virus to others and subjecting them to similar stigmatizing circumstances. Participants discussed a variety of proactive coping strategies to mitigate internalized stigma, including sexual abstinence, minimizing physical contact with others, and not sharing kitchenware and utensils.

Conclusions: Despite integrating HIV diagnoses into their daily lives, PLWHA endure on-going HIV-related stigma and seek proactive coping strategies to mitigate anticipated and internalized stigma as chronic stressors. Seeking to mitigate these experiences, PLWHA relied on avoidant behaviors as proactive coping strategies. Our findings provide implications for clinical practice, elucidating the importance of classifying PLWHA’s health beyond metrics like viral load and CD4+ counts. Future efforts should seek to understand how proactive coping strategies impact the health and social well-being of PLWHA. Lastly, individual-level strategies that elicit alternative coping strategies to build resilience in the contexts of stigma and disclosure may complement continued structural/interpersonal-level initiatives that directly address HIV-related stereotypes and misinformation.

TUPED418
Longitudinal efficacy trial of a disclosure intervention (TRACK) for HIV+ mothers

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Background: Mothers living with HIV (MLH) often do not disclose their HIV status to their young children due to concerns of burdening them and lack of confidence in their ability to disclose. However, concealment can negatively impact maternal health and child development. The Teaching, Raising, And Communicating with Kids (TRACK) program was a full-scale longitudinal efficacy trial of a previously successful pilot intervention aimed at assisting MLH with disclosure. Based on Derlagi’s disclosure model and Bandura’s theory of self-efficacy, the current study examined TRACK’s impact on MLH disclosure.

Methods: MLH and their young children (6-12 years) were recruited in Los Angeles, California and Atlanta, Georgia (March 2013 to November 2017) and randomized to intervention or wait-list control (N = 175) conditions. Participants were assessed at baseline, 3-, 9-, and 15-month follow-ups regarding HIV disclosure, disclosure self-efficacy, and parent practices. Growth curve modeling was used to examine differences between the TRACK and control groups across time.

Results: MLH (mean age = 39.3, SD 7.9) were 33.7% Latina, 56% African-American, 5.1% White, and 5.1% other/multiracial. Those in the intervention group were 4.77 times (9.9 to 95.3) CI more likely to disclose their status compared to the control group, with 34.62% disclosure in the TRACK group compared to 10.69% in the control group. Although the greatest proportion of disclosures happened within the first three months, the TRACK group continued to disclose at a much higher rate at all follow-ups. Based on growth curve modeling, intervention MLH showed a significant increase in disclosure self-efficacy, with increased self-efficacy associated with a greater likelihood to disclose. In addition, positive parenting significantly improved among the intervention TRACK mothers compared to controls.

Conclusions: TRACK helped MLH disclose their HIV status to their young children and increased positive parenting practices. By boosting confidence to effectively disclose serostatus, disclosure interventions can increase the likelihood of initial disclosure as well as improve mothers’ parenting skills for how to approach subsequent questions and conversations regarding HIV with their children. Increased positive parenting can serve as a protective factor that mitigates risk for psychological disturbance among children.

TUPED419
Can HIV counselors be supported to attain better outcomes for their child clients and their caregivers? The case of Stepping Stones with Children

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Background: Children affected by HIV and their caregivers face many physical, psycho-social and material challenges, which can lead to poor health outcomes. Salamander Trust and PASADA developed transformatively participatory workshop materials, to enable children aged 5-8 and 9-14 to realise and build on their strengths, and create happier, healthier and safer ways of being. We also developed a parallel guide to
counseling children affected by or living with HIV and their caregivers, and used it to train PASADA’s counselors, to improve their effectiveness.

**Description:** The materials were developed and tested during 2012-14 in Tanzanian coastal regions. Community workshops and counselor training then took place during 2015. 189 people participated in the community workshops, comprising 23.8% children aged 6-8, 28.6% aged 9-14, and 47.6% caregivers. 56.7% of the children and 78.4% of the caregivers were female. 88.7% of the children were clients of PASADA living with HIV. 80.6% of the 31 counselors trained were female.

**Lessons learned:** Working with children and their caregivers and with the counselors produced beneficial synergies:

- Caregivers and counselors learned the importance of and skills for listening to children and involving them in decision-making, and children became better at expressing their thoughts and feelings to others, including to their counselors. This led to improved relationships between family members and with the counselors (see table).
- Caregivers and children learned about managing living with HIV, leading to greater willingness among caregivers to share their child’s serostatus with them, while counselors improved their skills in supporting decision-making around disclosure, and supporting caregivers and child clients in that process. The proportion of children knowing their status increased from 27% to 93%.
- Greater understanding of HIV and increased attendance at counseling increased from 27% to 93%.
- Caregivers and children learned about puberty, sexuality and sexual abuse, and grief, and became less inhibited about discussing sexual matters and death.

**Conclusions/Next steps:** Working only with child clients or their caregivers or HIV counselors would likely be beneficial, but working with all parties produces important synergies that support and compound the outcomes.

**Experiences and impacts of antiretroviral therapy**

**TUPED420**

Partners of people living with HIV (PLHIV): Findings from the positive perspectives survey

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- Salamander Trust, London, United Kingdom
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- 1VIV Healthcare, Research Triangle, North Carolina, United States
- 1Pennine Acute Hospitals NHS Trust, Manchester, United Kingdom

**Background:** While studies have been conducted to evaluate the psychosocial effect of treatment and the support available to People Living with HIV (PLHIV), there remains a gap in understanding their influence on partners. We conducted an international survey of partners of PLHIV to explore the support offered specifically to them and their partner’s perception of their HIV management.

**Methods:** Qualitative in-depth interviews were performed with PLHIV and their partners to identify key hypotheses. A steering group developed the survey questions which were fielded online from November 2015 to April 2017 in 9 countries across North America, Europe & Australia. A mixed sampling/recruitment approach was used to ensure a broad cross-section of PLHIV, and partners of PLHIV were recruited where possible.

**Results:** 250 partners of PLHIV completed the survey from Europe (65%), North America (43%) and Australia (21%). 93% were male. 26% aged 150 years, 30% HIV+ themselves, and 77% lived with their partner. Results differed between HIV+ and HIV-ve partners: emotional support available to partners of PLHIV was rated as ‘quite good’ or ‘very good’ in 78% HIV+ partners but decreased to 53% in HIV- partners. Partners of PLHIV stated that they provided emotional support (87%) and encouraged their partners to raise concerns with their main HIV healthcare provider (80%), yet over half of partners would like to be more involved in these areas and 20% feel they sometimes lack the information needed for this role. Of those whose partners were on ART (98%), 63% had helped their partner prepare for an appointment with their HIV HCP and had raised concerns about side effects (82%). Strategies to reduce long-term impact of ART (82%) and the possibility of switching regimen (69%).

**Conclusions:** In this international survey, nearly two thirds of partners were involved in decisions on treatment and were most often concerned about side effects and the long-term impact of ART. Partners represent an important support system for PLHIV and dedicated resources to inform partners could enable them to become more involved in the support of PLHIV.

**TUPED421**

A psychosocial approach to understanding pathways from depression to HIV care cascade outcomes among women living with HIV in Canada


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**Background:** Women living with HIV (WLWH) experience stressors, including stigma and discrimination, that may contribute to a higher prevalence of depression in comparison with HIV-negative women. Adaptive and maladaptive coping strategies for depression, and depression severity, may account for differences in HIV care cascade outcomes. Yet psychosocial approaches to understanding pathways from depression to cascade outcomes such as ART adherence and CD4 count are under-studied. We examined pathways from depressive symptoms to ART adherence and CD4 count among WLWH in Canada, exploring depression and injection drug use history (IDU) as mediators in this relationship.

**Methods:** Baseline survey data were analyzed for WLWH (≥16 years) enrolled in a community-based cohort study in British Columbia, Ontario, and Québec, Canada. Using the Center for Epidemiologic Studies Depression 10-item Scale, we assessed depressive symptoms (score: >10) and severe depressive symptoms (score: >15). Structural equation modeling using weighted least squares estimation methods was used to test the direct effects of depressive symptoms and severe depressive symptoms on ART adherence and CD4 count, and the indirect effects via resilience and IDU history, adjusting for socio-demographic factors.

**Results:** Most participants (n=1342; mean age: 42.77, IQR: 35-50) were currently taking ART (82.91%). Nearly half (48.61%) reported depressive symptoms and one-quarter (26.90%) severe depressive symptoms. Approximately one-third (31.55%) reported an IDU history. Resilience was significantly, and IDU history was marginally, associated with depressive symptoms and severe depressive symptoms. Resilience fully mediated the relationship between depressive symptoms and ART adherence (β=0.019, p<0.01). The combination effects from resilience and IDU history, adjusting for socio-demographic factors. Results: Most participants (n=1342; mean age: 42.77, IQR: 35-50) were currently taking ART (82.91%). Nearly half (48.61%) reported depressive symptoms and one-quarter (26.90%) severe depressive symptoms. Approximately one-third (31.55%) reported an IDU history. Resilience fully mediated the relationship between depressive symptoms and ART adherence (β=0.019, p<0.01). The combination effects from resilience and IDU history, adjusting for socio-demographic factors. Results: Most participants (n=1342; mean age: 42.77, IQR: 35-50) were currently taking ART (82.91%). Nearly half (48.61%) reported depressive symptoms and one-quarter (26.90%) severe depressive symptoms. Approximately one-third (31.55%) reported an IDU history. Resilience fully mediated the relationship between depressive symptoms and ART adherence (β=0.019, p<0.01). The combination effects from resilience and IDU history, adjusting for socio-demographic factors. Results: Most participants (n=1342; mean age: 42.77, IQR: 35-50) were currently taking ART (82.91%). Nearly half (48.61%) reported depressive symptoms and one-quarter (26.90%) severe depressive symptoms. Approximately one-third (31.55%) reported an IDU history. Resilience fully mediated the relationship between depressive symptoms and ART adherence (β=0.019, p<0.01). The combination effects from resilience and IDU history, adjusting for socio-demographic factors. Results: Most participants (n=1342; mean age: 42.77, IQR: 35-50) were currently taking ART (82.91%). Nearly half (48.61%) reported depressive symptoms and one-quarter (26.90%) severe depressive symptoms. Approximately one-third (31.55%) reported an IDU history. Resilience fully mediated the relationship between depressive symptoms and ART adherence (β=0.019, p<0.01). The combination effects from resilience and IDU history, adjusting for socio-demographic factors.
TUPED422

Barriers to linkage and retention in HIV care among adolescent girls and young women (AGYW) in communities around Lake Victoria in Western Kenya


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Background: AGYW in sub-Saharan Africa experience delayed linkage to and poor retention in HIV care. Identifying and addressing specific barriers in HIV care programming is important in achieving the UNAIDS 90-90-90 targets and epidemic control. We sought to explore barriers to linkage and retention in HIV care among AGYW in communities around Lake Victoria in western Kenya.

Methods: As part of a larger qualitative study to identify drivers of HIV testing and HIV-care utilization in key populations, we conducted 103 in-depth interviews with HIV+ AGYW in and out of HIV care. We coded and analyzed resultant transcripts for theme and content using inductive methods.

Results: Barriers to linkage and retention in HIV care that emerged fell into five broad themes: confidentiality and privacy, stigma and discrimination, provider attitudes, antiretroviral treatment side effects and costs, and distance to health facilities. Participants voiced concerns about disclosure of their HIV status to community members either by being seen at clinic or through breaches in confidentiality by clinic staff. Participants also highlighted pervasive fears of stigma and discrimination by friends and family, and particularly sexual partners. Participants reported being dismayed by poor quality counseling they received from providers who they said were often rude and not prepared to deal with patients’ issues. They cited cases where clinical staff punished patients for missed appointments by asking them to return on a different day for their clinic. Challenges with treatment included side effects (medications making them feel worse), especially if taken without food, the pills being too big, and difficult to swallow, and daily routine of medication-taking being disruptive to their lives. Additionally, participants expressed concerns about the long distance to health facilities and associated transportation costs, and time spent at these facilities. They anticipated that these costs and time associated with their clinic attendance may pose challenges in the future since treatment is a lifelong commitment.

Conclusions: In these communities where concerns about confidentiality, stigma, provider attitudes, treatment side effects and costs associated with clinic attendance are still prominent, linkage and retention in care requires innovative approaches that are tailored to the individual needs and circumstances of patients.
TUPED424
Adherence misfits: Divergent perspectives on ART-fa
dulting among healthcare providers and HIV-positive adolescents
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Background: HIV is the leading cause of death for young people ages 10-24 in Africa. Adherence to antiretroviral treatment (ART) is commonly understood as the greatest healthcare challenge facing HIV-positive adolescents. Terms such as ‘defaulting’ and ‘non-adolescent’ define the extent of non-compliance to ART, delinkage from care, and related clinical consequences. A growing literature identifies structural and clinical factors for ART non-adolescence among adolescents. Less is known about how adolescents themselves understand non-adolescence, and how this may differ from their healthcare providers.

Methods: This research combines the qualitative datasets of the Mzantsi Wâko study and Paediatric-Adolescent Treatment for Africa (PATA). Mzantsi Wâko is the largest longitudinal, community-traced study of ART adherence among adolescents living with HIV (n=1057). PATA constitutes a network of healthcare providers in 24 African countries, collecting data from health providers and HIV-positive peer-supporters within 269 facilities. Different perceptions of the term ‘defaulting’ were explored through qualitative interviews with HIV-positive adolescents (n=68) and healthcare providers (n=13), and through clinic observations, in the Mzantsi Wâko study. PATA data constituted semi-structured interviews with peer supporters (n=61, health facility surveys (n=218) and programme reports with those providing adolescent services (n=289).

Results: Terms for non-adolescence are used widely in research and programming for tracking and improving the health of young people with HIV. Within this diagnostic framework, the term ‘defaulting’ is used by healthcare providers to refer to patients with the worst adherence outcomes and the weakest retention in care. However, adolescents themselves do not use or identify with these terms (apart from youths working as treatment supporters). Instead, they understand non-adolescence as temporary (‘I’ll go back’) and necessary (‘I need a break’).

Conclusions: Combining qualitative datasets from research studies and HIV programming offers a valuable opportunity for triangulating findings across settings, and for critically evaluating research hypotheses and findings in relation to programming and implementation. Through integrating qualitative datasets, including with adolescents and healthcare providers, popular and practicable understandings of adolescents’ ART adherence emerge. To improve adolescent ART-related outcomes, it is crucial to address the disjuncture between adolescent and healthcare provider understandings of non-adolescence.

TUPED425
Does involving people in treatment decisions reduce barriers to adherence to antiretroviral therapy? Results from the Positive Perspectives study 2016 - 2017
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Background: Involving patients in decisions about their treatment has the potential to improve health outcomes, enhance the quality of care and reduce costs. The aim of this analysis was to determine whether living people with HIV (PLHIV) who perceive they are more involved in making decisions about their treatment have fewer perceptual barriers to adherence to antiretroviral therapy (ART) and are more satisfied with their treatment.

Methods: As part of the Positive Perspectives study 2016-2017, a cross-sectional, multi-country survey, PLHIV completed the Treatment-related Empowerment Scale (TES) which measures patients’ perceived degree of involvement in decisions about their medicines; the Beliefs about Medicines Questionnaire (BMQ) ART-specific version, which measures perceptual barriers to ART adherence and consists of two scales - ART-Necessity, which measures participants’ beliefs about their necessity of ART, and ART-Concerns, which measures participants’ concerns about side effects of ART; and questions about treatment satisfaction and whether participants had discussed concerns about side effects and long-term effects of ART with a healthcare professional (HCP). Spearman’s rank correlation was used to determine the relationship between variables (TES, BMQ and treatment satisfaction). The Kruskal-Wallis test was used to compare TES scores between those who had discussed their concerns with an HCP and those who had not.

Results: 1078 patients (75% male, median age 45 years) from nine countries across Europe, North America and Australia completed the study questionnaires. There was a general perception of treatment empowerment as indicated by 86% of participants scoring above the TES scale midpoint, with no differences in scores by age, gender or sexual orientation. PLHIV who perceived a high level of treatment empowerment were more convinced of their necessity for ART (r = -0.102; p< 0.001), had fewer concerns about side effects (r = -0.317; p< 0.0001) and were more satisfied with their treatment (r = -0.238; p< 0.0001). Those who had discussed their concerns about side effects and long-term effects with an HCP had significantly higher TES scores than those who had not (H=5621; p< 0.001).

Conclusions: The findings indicate that involving PLHIV in decisions about their treatment may reduce perceptual barriers to adherence to ART, facilitate discussions about treatment concerns and improve satisfaction with treatment.

Growing up with HIV: specific needs and interventions for children and adolescents

TUPED426
Community-health facility care system linkages increase beaming faces of children living with HIV: Findings of ‘Towards an AIDS Free generation in Uganda’ studies on paediatric HIV care
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Background: Even with Anti-Retro viral Treatment (ART) scale-up countrywide. 37% of children under 14 years living with HIV in Uganda miss life-saving treatment; few (25%) exposed infants receive ARV prophylaxis. 30% HIV positive children are lost to follow up before and more after enrollment in care. To address this gap, Aidsfonds and its partners in Uganda implemented a 30-month (2015-2017) ‘Towards an AIDS Free generation in Uganda’ program in five rural districts. The findings indicate that involving PLHIV in decisions about their treatment may reduce perceptual barriers to adherence to ART, facilitate discussions about treatment concerns and improve satisfaction with treatment.

Methods: Aidsfonds, implementing partners and Makerere University conducted TAFU baseline (2015) and end-line (2017) studies. Studies assessed changes in children enrolled in care between start and end of the program in all 22 target health facilities in Serere, Moroto, Napak, Mubende and Mityana program districts. Data on number of children in care were obtained from health facility health management information system while on project interventions were from program monitoring reports using check list. Further conducted 42 key informant interviews with health facility district and program officials; and 53 focus group discussions with parents/caretakers. Quantitative data were analyzed using Epidata. Content thematic approach analyzed qualitative data.
Results: Overall, TAFU trained and engaged 1,378 community resource persons including Village Health Teams and expert clients. These conducted community sensitization on paediatric HIV, home visits and referred suspected children living with HIV to health facilities for HIV testing. Children who tested HIV positive or had been lost to follow-up were linked to care. Children in care increased from 459 at base line to 1,017 by end of the program. Trained community resource persons and health workers conducted dialogue meetings to increase community awareness on paediatric HIV. Sixteen peer support groups for children and 28 Village Savings and Loan Associations (VSLA) for their parents/caregivers were formed, and financially supported. These enhanced treatment adherence and retention of children in care.

Conclusions: TAFU strengthened community systems for tracing, referral and follow-up of children living with HIV.

Number of children living with HIV enrolled and retained in HIV care significantly increased.

Peer support groups for children and VSLAs for caregivers are key in meeting economic and real needs of children living with HIV and retaining them in care.

TUPED427

“These families did their research” a qualitative study of healthcare provider perspectives of US families who internationally adopt children with HIV

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Background: Emerging evidence suggests that an increasing number of US families are adopting children with HIV born outside the country. Little is known about the medical or psychosocial wellbeing of internationally adopted children with HIV (IACH), or experiences of their adoptive families. This exploratory qualitative study seeks to understand healthcare providers’ perspectives on international adoptee and family needs.

Methods: A purposive snowball sample was recruited from clinicians who attended a US think tank on adolescents with HIV and had ex- needs.

Healthcare providers’ perspectives on international adoptee and family needs.

Results: Providers had a mean of 14.9 years of experience in the field of HIV and followed an average of 18 children with HIV in their clinics adopted from 22 countries. Providers described considerable variation in the families who adopted children. Some had grown biological children while others pursued adoption due to fertility problems and several adopted multiple children with special needs. Most were connected to communities of faith which served as an inspiration to adopt and offered support. Medical issues included growth concerns, parasites, and other infectious diseases such as tuberculosis. International adoptees were typically treated for HIV before arrival in the US. HIV-related medical issues were uncommon. Psychosocial concerns were more common and included attachment, adjustment, sleep, and behavioral issues. Several participants noted that adoptive parents were well informed about HIV, but less prepared for cognitive delays and emotional challenges. Some providers experienced or expected to have challenges offering sexual and reproductive health (SRH) to adolescent adoptees due to their adoptive parents’ religious beliefs on sexuality.

Conclusions: IACH are a growing population in the US. Our study provides initial documentation that this population has unique challenges. While serious medical issues were uncommon, adjustment and attachment issues emerged as pressing concerns. Additional support around SRH may be needed as IACH transition into adolescence.

TUPED428

Social-support needs of adolescents living with HIV in transition from pediatric to adult care: Findings from a cross-sectional study in Cambodia

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Background: Understanding the circumstances of adolescents living with HIV is critical in designing adolescent-friendly services. This study describes the different aspects of social support adolescents aged 15—17 living with HIV have and may need during the critical period preparing them to transition from pediatric to adult care in Cambodia.

Methods: A cross-sectional study was conducted among 328 adolescents, randomly selected from 11 antiretroviral therapy (ART) clinics across the country. Descriptive analyses were conducted to summarize their characteristics, access to social support, stigma experience and barriers to ART access. Gender differences were explored using Chi-square or Fisher’s exact tests for significance. This study was approved by the National Ethics Committee for Health Research.

Results: Mean age of study participants was 15.8 (SD= 0.8) years. More than half (55.2%) were male, and 48.8% were living with parents and 49.3% with either grandparents or relatives. Almost half of them (48.4%) reported that their family had received social support for their health care, including food support (78.7%), school allowance (64.8%), transport allowance for going to ART clinic (55.6%), emotional counseling (34.4%), vocational training (25.9%) and home visit (10.2%). A third came from families with an IDPoor card, and over half (55.0%) reported that their family had no ability to cover health expenses. Of these, 87.6% were covered by health insurance, and 38.4% had access to the health equity fund. About a third of respondents (33.7%) had been asked to come back earlier than their scheduled appointment, and 2.7% had been asked to purchase their own drugs. A third (32.0%) had experienced stigma, and 8.2% had been denied housing or food as a consequence HIV infection. Additionally, 16.8% had not attended school within the last month, and 22.9% reported having issues with school attendance.

Conclusions: Social protection mechanisms are reaching some adolescents in need, but the majority remain without aid due to significant discontinuities in health and social care. Multicomponent interventions, supporting school attendance, reductions in child employment, mitigation of stigmas associated with HIV infection, peer support groups and improve coverage of social protection interventions are required for successful transition.

TUPED429

Internationally adopted children with HIV in the U.S.: Exploring parent and provider views on anticipated sexual and reproductive health challenges in adolescence

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Background: The number of U.S. families pursuing the international adoption of children with HIV infection has steadily increased since 2010. The majority of internationally adopted children with HIV IACH are under the age of 12 and adopted by parents who commonly work with faith-based adoption agencies. Adopted children may have additional educational needs as they mature into adolescence, particularly related to sexuality.

Methods: We conducted hour-long, semi-structured, audio recorded interviews with a purposive snowball sample of 12 mothers of IACH and 11 providers who work with this population. Parents were asked about motivations to adopt their child, medical and psychosocial needs, and potential challenges that may occur as the child moves into adolescence.
Providers were asked about their current or anticipated experiences providing care to IACH. Interviews were coded for emergent themes using standard qualitative methods.

Results: All mothers identified as white (mean age 37 years) and 12 as Christian. Mean age of their adopted child with HIV was 7 years (range 3-15; 9 females, 7 from African countries). Faith was a guiding factor that influenced most parents’ decisions to adopt a child with HIV from another country. Immediate adoption-related issues such as pre-adoption trauma, loss, and language barriers often took priority over HIV-related medical or psychosocial concerns. The majority of parents felt their religious beliefs would guide decisions to share sexuality-related information during adolescence. Several parents viewed sex before marriage as immoral and did not want their child to have access to comprehensive sex education as a teenager. Providers (6 social workers and 5 medical providers with a mean of 14.9 years of experience in the field of HIV) corroborated these findings and reported that some adoptive parents often sought to delay provider-initiated sexuality conversations including those focused on reducing HIV transmission and pregnancy risk. One provider noted, "I’ve had to be respectfully slower with some families about sex education."

Conclusions: All adolescents with HIV should be informed on ways to prevent HIV transmission and unintended pregnancy. Parents of IACH could benefit from the support of healthcare providers to better understand the importance of sexual and reproductive health during adolescence.

**TUPED431**

**Whether and why caregivers adhere to oral lopinavir/ritonavir pellets: Lessons for scaling up an innovative pediatric HIV treatment in Kenya**

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Background: Globally, only 43% of 1.8 million children living with HIV have access to antiretroviral therapy (ART), and few adequate pediatric formulations are available. Oral pellets containing lopinavir/ritonavir may be better accepted by infants and children than liquid formulations. They can be used with liquids/soft foods, taste better and do not require cool storage. Pediatric adherence is complex, involving daily supervision, practical skills and age-appropriate negotiations skills. It is also influenced by health-systems and contextual factors. To scale-up the use of the pellets, in-depth understanding of treatment initiation, adherence and underlying mechanisms is needed.

Methods: This extensive qualitative study adopted a realist evaluation approach. Nested in a clinical trial to assess the pellets’ efficacy, caregiver-child dyads were purposively selected in three Kenyan settings (Kenyatta Hospital, Gertrude’s Children Hospital, Nairobi; Faces Clinic, Kisumu. Between 01-09/2017, trained interviewers conducted in-depth interviews with care-givers (n=42), health care providers (n=12), and observations of pellet administration (n=17 at home; n=17 clinic observations). Data were analyzed in two stages with Nvivo 11: inductively, using data driven code-book and employing retrospective inference according to realist approaches for drawing conclusions. Ethics approval was obtained.

Results: The pellets’ taste and storage facilitated easy administration, simplifying initiation of treatment. While study staff gave standardized information, caregivers developed their own best way to deliver the treatment, particularly when specific problems occurred, e.g. just-weaned babies, food shortage linked to poverty. Visible treatment effects enhanced caregivers’ motivation to continue. Tailored support by providers was perceived to improve adherence. Caregivers who had received support from providers, family and informal networks developed active coping strategies for creating a daily routine. This also enabled them to deal with HIV disclosure and (self-) stigma, contributing to better adherence. For many, stigma remained a barrier reducing access to social support outside the clinic setting.

Conclusions: The study setting was supportive for the initiation of and adherence to using pellets. Pellets may mark a major step towards better treatment for HIV positive children. When scaling up pellets, tailored support by clinic staff should consider the influence of contextual factors, such as HIV-related stigma, informal peer support networks and poverty.
TUPED432

In their shoes*: Limited disclosure amongst young people living with HIV stifles their ability to contact others in the same situation, a qualitative cohort HPTN071 (PopART) study in Zambia

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Background: Support for Young people aged between 16-24 years living with HIV (YPLHIV) is critical but remains limited in Zambia, partly because YPLHIV are often hidden within communities, having disclosed to very limited networks.

Methods: A qualitative cohort of 8 purposively sampled YPLHIV (4 women, 4 men) in four communities in Zambia. Over a 10-month period in 2017, each participant was involved in three research activities (carried out at three-month intervals), including participant observations, individual in-depth interviews and a participatory workshop. Within these methods, visual tools included social network diagrams that explored geographical and ‘close in feeling’ networks and how these linked to disclosure. Qualitative analysis carried out by a team of social scientists reviewed the data and identified disclosure, secrecy and desire to share experiences with other YPLHIV as inductive key themes.

Results: YPLHIV, like other participants, had a wide network of friends and family, but only an extremely restricted number of people (and largely close family members) knew their HIV status. Parents/guardians often actively and strongly discouraged disclosure, regulated who knew the adolescents’ HIV status and rarely spoke about HIV within their homes. “Mum said I shouldn’t tell them otherwise they will start using it against me, like they do to her,” explained one young woman living with HIV, aged 19. However, YPLHIV expressed their desire to speak with, share experiences with, and get support from others who are ‘in their shoes’. The weight of not telling others about their HIV status sometimes led to feelings of loneliness and fatigue, exacerbated by the continuous secrecy of taking their antiretrovirals in private. Fears about unintended disclosure (usually linked to ART), coupled with silence about HIV in their homes stifled opportunities to be connected with other YPLHIV. One participant had attended a support group and found this contact fulfilling, and supportive for adherence.

Conclusions: YPLHIV were isolated by limited disclosure and being ‘hidden’ by parents/guardians. Drawing on this research and literature, interventions targeting YPLHIV should address relationships in the home and the benefits, challenges and strategies for disclosure YPLHIV to allow them to share experiences, concerns and feel less alone.

TUPED433

“We decided not to tell him because he would tell everyone else.” Care-giver and young people’s experiences of disclosure in Kinshasa, Democratic Republic of Congo

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Background: It is estimated that 42,000 children 1-15 are living with HIV in DRC (UNAIDS 2015). WHO recommends disclosure for HIV-positive children of school-going age, but the process remains challenging for health-care workers and care-givers. Non-disclosure is probably associated with poor outcomes during adolescence, including increased risk of poor adherence and retention, and treatment failure. Médecins Sans Frontières has been working in Kinshasa since 2002, providing treatment and support to children/adolescents living with HIV, and their care-givers. Children in DRC can only be informed of their HIV status with the approval of their care-giver, which, along with the age of consent for HIV testing being 18, can cause delays in disclosure.

Methods: Thirty in-depth interviews were conducted with care-givers (n=20) and HIV-positive children/adolescents (n=10) to understand their experiences of disclosure. Ten care-givers who had disclosed to their children and 10 who had not were purposively selected. Care-givers included biological parents, grandparents, siblings and community members. Interviews were conducted in Lingala, translated, transcribed, then coded and analysed using NVivo.

Results: Several children suspected they had HIV before disclosure. Commonly asking why they had to take medication or were ‘always ill’. Care-givers and children perceived benefits of disclosure to include improved adherence and improved behaviour at home. Care-givers who had not disclosed to their children wanted to protect themselves and their families from stigmatisation, and were fearful their children could tell others. HIV positive care-givers were reluctant to disclose to perinatally infected children because they felt guilty and did not want their children to blame them. There was also a perception amongst interviewees that there could be a risk of disclosure. Many children had more than one care-giver, often due to being orphaned, which delayed disclosure and made adherence support more challenging.

Conclusions: The fear of stigmatisation and not wanting to upset their children prevented several care-givers from disclosing. HIV-positive care-givers, particularly mothers, need additional support to overcome their fears and help their children understand their status. Attention should be given to non-primary care-givers involved in adherence support and disclosure as they also play a significant care-giving role for children living with HIV.

TUPED434

“New horizons” in taking care of perinatally HIV-infected adolescents and young people

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Background: Since 1984, the Paediatric Department of Padua University has been following 180 perinatally HIV-infected children and families. In 1992 a multidisciplinary team was created to improve the quality of the children’s life. Nowadays, HIV infection turned into a chronic disease. Children are now more likely to survive and to reach adolescence and adult age. Consequently, the focus moved from the centrality of medical therapies to ensure survival, to a growth oriented view, with its psychosocial-educational complexity.

Description: Since 1992, the psycho-educational programs have involved 75 subjects in paediatric age. In the last few years, a deficit in the acquisition of self-efficacy has emerged and so in taking care of their own health. This was confirmed by an observational study on the psychosocial and behavioral features of 23 vertically HIV-infected adolescents followed by the site. In the questionnaire, the T-scores exceeded the cut-off for items concerning Activity competences, Social skills and Positive Qualities. Rather than a significant vulnerability to psychopathology, the data describes a clinical difficulty in recognizing one’s own skills and adapting to the social environment. These difficulties are also involved in the compliance. For these reasons, in 2016, an educational experimental project with formative features for young adult called ‘New Horizons’ started. The first involved group was made by 10 young people. It was held by professional educators and volunteers appropriately trained. Every second month, it provided residential weekends where interactive workshops were conducted by extra-team professionals. The topics (self-esteem and self-efficacy, counselling about work/study, affective relationship and sexual behavior, pregnancy and reproductive health) were chosen considering the needs expressed by the attendees filing in a self-reported questionnaire.

Lessons learned: The recorded difficulties of HIV-infected adolescents in building their personal and relational autonomy, psychological distress and behavioral problems, have negative impacts on the infection
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TUPED436
Sexual behaviors among older adults living with HIV in Chiang Mai, Northern Thailand

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Background: Worldwide, the number of older adults living with HIV (OALHIV), defined as HIV infected persons aged 50 years or older, is increasing due to effective antiretroviral therapy (ART) programs and ongoing HIV transmission in elderly. Little is known about sexual behaviors and HIV sexual risk behaviors among this population, especially OALHIV who reside in developing countries. The current study describes HIV sexual risk behaviors in OALHIV in Thailand.

Methods: This cross-sectional quantitative study was conducted between November 2016 and April 2017. Participants were enrolled from ART clinics at 12 community hospitals in Chiang Mai Province, Northern Thailand. Behavioral information was collected through face-to-face interviews and clinical data were retrieved from the medical records by trained researchers upon permission from the participants and the hospital staff.

Results: Of the 328 participants, 22.4% (73) were males, with an average age of 58.8 years (range: 51-80). The majority of participants (93.9%) (308) had undetectable viral load (< 40 copies/ml). During the past 12 months, 34.1% of the participants (52.2%) among males and 16.7% among females, p < 0.001 reported having had sex. Men had sex outside of stable relationships more than women (11.8% vs 0.5%, p < 0.001). All participants reported always using condoms during sexual intercourse that occurred outside of stable relationships while 94.1% reported doing so during sexual intercourse that occurred with their stable partners. Of the sexually active participants, 48.5% (54.9% among male and 34.4% among female) had sex with sexual partners who were HIV-negative or of unknown HIV status. Three participants, all of whom had undetectable viral load, had sex without a condom during the last 12 months with sexual partners who were HIV-negative or of unknown HIV status.

Conclusions: While having sex was common among OALHIV in Northern Thailand, risk of spreading the HIV virus through sexual intercourse was low due to effective ART programs and safe sex practices. The prevalence of condom use was very high regardless of the type and HIV status of the sexual partner. The situation might vary considerably in other locations and specific studies are needed to understand this issue in particular localities.

TUPED437
Younger age of HIV diagnosis correlated with early menopause among a cohort of canadian women living with HIV

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Background: As women living with HIV (WLWH) live longer and go through the aging process, healthcare considerations and priorities need to evolve to address WLWH’s needs over the life course. Currently, there is limited evidence on age at menopause and correlates of early menopause in Canadian WLWH. The purpose of the study was to identify correlates of early menopause among WLWH in Metro Vancouver.

Methods: This analysis used baseline data (2014-2017) from the Sexual Health and HIV/AIDS: Women’s Longitudinal Needs Assessment (SHAWNA) study, an ongoing community-based, open prospective co-
TUPED438
Women ageing with HIV: "I was not meant to be here, and I’m still here." How women have adapted to living long-term with HIV

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Background: Women ageing with HIV potentially face a range of social, emotional and health challenges. Their experiences are relatively under-researched, yet as the population of people living with HIV ages, there is urgent need for greater efforts to understand their specific experiences. In the UK, over 34% of people accessing HIV care in 2016 were aged 50 and over. Many women in this age cohort have lived long-term with HIV, and were diagnosed in the pre-treatment era, creating a unique experience of living with HIV.

Methods: As part of a study exploring the experiences of women ageing with HIV in London, UK, 14 women aged over 50 participated in a life story interview. Participants were recruited to reflect the diversity of women living with HIV in the UK, and included 5 White British, 1 White Other, 1 Black British, 7 Black African. 12 were aged 50-60, 2 aged 60-70. In their life story interview, women were invited to tell the story of their lives however felt appropriate to them, with some broad prompts used to facilitate story-telling. A participatory data analysis workshop was held with four women living with HIV aged over 50, to analyse the life story data and identify key themes.

Results: Women shared a range of experiences, including both challenges and coping strategies for ageing with HIV. The particular experience of surviving a terminal diagnosis emerged as a significant theme, as both impacting on life choices and chances, and health and wellbeing, while also being a cause for celebration and gratitude. Participants in the analysis workshop described this phenomenon as ‘survivor conflict’, capturing the complex feelings associated with the challenges both physically and emotionally of unexpectedly reaching older age.

Conclusions: Women diagnosed before effective treatment became accessible have unique needs and experiences that are not adequately understood or addressed. Living with HIV is an ongoing, evolving experience that brings challenges that can be hard to reconcile with simple constructs of ‘survival’.

TUPED439
Determinants of antiretroviral adherence in Myanmar

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Background: Antiretroviral therapy (ART) adherence ensures suppression of the HIV virus and reduces transmission. Determinants that influence adherence may vary by region and cultural norms. Such factors have not been formally assessed in Myanmar.

Methods: A cross-sectional study was conducted utilizing questionnaires administered between May to October 2016 to 1,022 HIV-infected patients across four cities in Myanmar. Variables of interest included HIV knowledge, social support, structural barriers to care, enacted stigma, internalized stigma, and peer-to-peer HIV counseling (IPC). The dependent variable was medication adherence. These variables were assessed using validated scales. A logistic regression analysis was used to determine the correlation between the above independent variables and ART adherence using total scores. The statistical significance threshold was 0.05.

Results: Among 1,022 participants, mean age was 38.6 years and 65% were females. Majority of patients (65.1%) reported heterosexual intercourse as their mode of transmission. The median CD4 count was 351-500 cells/mm3, and 16% of patients had CD4 counts < 200 cells/mm3. Five hundred patients (49.1%) received PC and the remaining participants received standard counseling (HIV negative counselor). Enacted stigma (OR 0.87; 95% CI 0.82-0.94; p<0.01), internalized stigma (OR 0.96; 95% CI 0.94-0.99; p=0.01), and social support satisfaction (OR 2.19; 95% CI 1.10-4.38; p=0.03) were independently associated with medication adherence. With each increasing enacted stigma and internalized stigma score the odds of adherence was 13% and 4% lower, respectively. Participation in PC had a moderately significant association with adherence (OR 1.40; 95% CI 0.97-1.98; p=0.07) and increased the odds of adherence by 60%. Interestingly, participants with lower social support satisfaction had increased odds of adherence compared to other categories. Patients who identified doctors or nurses as their biggest source of support had higher odds of adherence (OR 1.27; 95% CI 1.03-1.26; p=0.04), but type of support was not an independent determinant. HIV knowledge and structural barriers to care were not independently associated with adherence.

Conclusions: Significant correlations were found between PC, enacted stigma, internalized stigma, and social support with ART adherence. The results overall promote reducing stigma and utilizing peer-to-peer counseling as a means to improve medication adherence in Myanmar.
HIV in South Africa

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Background: Many men living with HIV (MLWH) want to have children. Safer conception strategies such as ART, PEP, limiting condomless sex to fertility, and sperm washing allow men to meet reproductive goals while minimizing transmission to partners. We piloted an intervention to support MLWH to adopt safer conception behaviors. Exit qualitative interviews explored successes and challenges based on an ecological conceptual framework.

Methods: Between 2015-2017 we enrolled MLWH in Ethekwini, KwaZulu-Natal, South Africa. Eligible men were 20-45 years old, with HIV-serostatus known ≥1 month, ART naive or on ART <3 months, and planning to have a baby with an HIV-negative or unknown-serostatus partner in the next year. Men participated in a five-session safer conception intervention over 12 weeks. One-on-one counseling sessions provided HIV and safer conception education and cognitive behavioral therapy for behavioral change. A subset completed an IDI upon study exit to explore participant experiences with the intervention, and challenges and successes with implementing their safer conception plan. Translated transcripts were analyzed using thematic analysis.

Results: Eleven black South African MLWH with median age 32 years (range 27-37) completed exit IDIs. At intervention entry, 6 (54%) had completed secondary school, 5 (45%) reported multiple sexual partners, all (18%) had disclosed to their most recent sexual partner, 10 (91%) reported a single desired pregnancy partner. Two (18%) had disclosed to their pregnancy partner and five (45%) were employed. Some MLWH reported challenges from intimate partners, including lack of economic and decision-making autonomy and critical and attitudes and behavior. Some MLWH also reported challenging behavior from HCPs in some facilities. MLWH’s confidence to challenge negative behaviors from partners and HCPs was strengthened.

Wider awareness amongst HCPs of this programme’s value is urgently needed. Funding and geographic spread of the project also need improvement.

Conclusions/Next steps: Training Mentor Mothers to support peers proved to have a marked impact on skills, confidence and aspirations. It can also complement clinical care, improving health outcomes of young women/mothers living with HIV.

Engagement of men/partners is key to the success and continued engagement of MLWH, many of whom felt restricted by limited financial and social autonomy.

Next steps also include raising awareness among HCPs regarding anti-discriminatory behaviours.

Sexual and reproductive health, fertility, family planning, pregnancy, and abortion

TUPED442

Successes and challenges within a safer conception intervention for men living with HIV in South Africa

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Background: Through scientific advancements, vertical HIV transmission risk is potentially <2%. However, pregnant women living with HIV face many complex issues. These are now recognised to act as key barriers to treatment access, affecting women and their children. To overcome these, we conducted three peer-led organisations conducted training workshops with Mentor Mothers (MMs). The training sought to build MMs’ capacity to support their pregnant peers. MMs stands for My Health My Choice, My Child My Life.

Description: The 3-day training, led by a woman living with HIV, was practical and interactive. Held in 4 urban and rural areas, in East Africa, topics included pre-conception planning, ante- and post-natal care, safe motherhood, and creative writing. Participants created books based on their experiences, ideas, and plans. A steering group of in-country healthcare professionals (HCPs), peers and staff shaped the programme.

Lessons learned: 65 MMs were trained. 24 (37%) were <24 years. 12 (18%) were pregnant. Immediate pre- and post-training evaluation was conducted.

MMs in Nairobi continued sharing through a WhatsApp group. A 6 month post-training evaluation sampled MMs in both countries.

HCPs in both countries reported increased attendance and adherence by those supported.

Peer-led participatory training is key to establishing safe spaces for MMs to share without fear, and to understand what support can, and should, be offered to pregnant women, from community and HCPs. Some MMs reported challenges from intimate partners, including lack of economic and decision-making autonomy and critical and attitudes and behaviour. Some MMs also reported challenging behaviour from HCPs in some facilities.

MMs’ confidence to challenge negative behaviours from partners and HCPs was strengthened. Wider awareness amongst HCPs of this programme’s value is urgently needed.

Funding and geographic spread of the project also need improvement.

Conclusions/Next steps: Training Mentor Mothers to support peers proved to have a marked impact on skills, confidence and aspirations. It can also complement clinical care, improving health outcomes of young women/mothers living with HIV.

Engagement of men/partners is key to the success and continued engagement of MMs, many of whom felt restricted by limited financial and social autonomy.

Next steps also include raising awareness among HCPs regarding anti-discriminatory behaviours.

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found it challenging to implement safer conception strategies without disclosure. While problem solving and role plays helped some, disclosure remained difficult for most.

Conclusions: MLWPH are able to learn and willing to adopt safer conception strategies. Providing safer conception care at the community level during non-working hours may be necessary to meet demand for services. Creative approaches to promote disclosure are needed to support MLWPH to safely meet reproductive goals.

TUPED443
Assessment of SRH needs of women living with HIV In Pakistan

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Association of People Living with HIV-Pakistan, Islamabad, Pakistan

Background: Women living with HIV (WLHIV) in Pakistan face significant challenges in accessing sexual and reproductive health [SRH] services. One of such challenge is the lack of sensitivities and skills among health care workers. The care workers are not trained in providing SRH services and address SRH needs of WLHIV. There is also widespread stigma and discrimination towards WLHIV in primary and secondary health care settings. WLHIV are not well aware about their SRH Rights. This study aimed to establish their SRH&R needs in Pakistan.

Methods: This was a cross-sectional descriptive study. Structured questionnaire were used to document the needs of WLHIV related to SRH&R. The study participants were WLHIV, who self-reported diagnosed with HIV infection prior to their participation in the study. The sample size of 120 women living with HIV was taken from four major cities of the country.

Results: Among the participants 96% identified the need of Integrated SRH/HIV services. The participants identified that gaps in training of HCPs prohibit them from providing sexual and reproductive health information and services; they expressed a desire for better access to respectful providers who are willing to care for their needs. All participants agreed that some level of service integration is necessary. Only 19.2% of the participants were aware of their sexual and reproductive health rights. Gynecological examination was prioritized as a need by 72.5% participants. Several of the interviewed women indicated that they were most comfortable receiving comprehensive services from NGOs. Almost all the participants identified that they fear being stigmatized or discriminated at a health care setting.

Conclusions: The Study recommends training of care providers on SRH along with capacity building of WLHIV, for improved leadership in addressing SRH&R needs. Strengthening of human resource through training, combating widespread stigma and discrimination and development of a national strategy and guidelines, backed with an operational plan for providing sexual and reproductive services at the ART clinics or at the linked primary health care facilities, within the same premises and through NGOs. Empowerment of WLHIV, education on their rights and bridging the communication gap through a NGO setting may provide a working solution.

TUPED444
The effect of fertility intentions on HIV clinical care attendance among HIV-positive women on ART in Johannesburg, South Africa

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Background: Poor HIV care retention impedes optimal treatment outcomes in HIV-infected women. Women trying to become pregnant may provide a more consistent relationship with HIV care than women who are not trying to conceive. We estimated the effect of fertility intentions on clinic attendance over 12 months in non-pregnant, HIV-positive women.

Methods: 850 non-pregnant, HIV-positive women aged 18-35 on or initiating ART in Johannesburg, South Africa were enrolled into a prospective cohort study (2009-2010). We assessed both current and future fertility intentions at enrollment. Current fertility intentions assessed whether or not a woman was trying to conceive at the time of interview (yes/no). Future fertility intentions assessed whether or not a woman planned to conceive within the next 12 months (yes/no). Attendance was assessed dichotomously (any attendance vs. none) in 90-day intervals. We used generalized estimating equations to estimate the effect of current and future fertility intentions on the odds of attending clinic visits over the 12-month study period.

Results: At enrollment, 105 (12.6%) women reported they were already trying to conceive; 396 (46.6%) reported their intention to conceive in the next 12 months. The proportion of women attending a scheduled visit decreased from 93.2% in month 3 to 80.6% in month 12. Neither trying to conceive at enrollment (aOR: 0.92, 95% CI 0.56, 1.53) nor planning to conceive in the next 12 months (aOR: 0.87, 95% CI 0.50, 1.48) was associated with clinic attendance (Table).

Conclusions: We found no association between fertility intentions and attendance at HIV clinical care visits in the pre-conception period. Integrating safer conception services with other HIV prevention, care and treatment services could offer opportunities to further improve care retention in HIV-positive women and their partners who are planning to conceive.

TUPED445
Unmet need for modern contraception: Challenges reaching female sex workers without a prior pregnancy in Swaziland

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Background: Female sex workers (FSW) are disproportionately affected by HIV and have sexual and reproductive health needs like other women. Family planning has the potential to mitigate risks to mother and child, especially in the context of high HIV prevalence and inadequate access to care. This study explores predictors of unmet need for modern contraception among FSW in Swaziland.

Methods: This is a secondary analysis of a study of FSW in Swaziland between Oct/2014-Dec/2014. Women were excluded if they were currently pregnant(0-9) or trying to get pregnant(8-28). Due to inconsistent condom use, women were classified as having unmet need for modern contraception if they reported it important to avoid getting pregnant and 1) were not currently using a non-barrier method of contraception, e.g. oral contraceptives, intrauterine device. Log binomial regression models evaluated predictors of unmet need.

Unadjusted
(OR % 95 CI)
Adjusted
(OR % 95 CI)

Current Fertility Intentions

Trying to conceive

Not trying to conceive

Future Fertility Intentions

Plan to conceive next 12 months

No plan to conceive, next 12 months

1
0.52 (0.51, 1.31)
1
0.92 (0.50, 1.70)

1
0.78 (0.65, 1.00)
1
0.87 (0.60, 1.26)

Abbreviations: OR, Odds Ratio; CI, Confidence Interval

* Studies were adjusted for a minimal sufficient set of confounders including age (continuous), relationship status (yes/no), time of ART (continuous), partner fertility intentions (no partner, partner does not desire another child, partner unsure, partner desires another child), current living children (yes/no), and provider discouraged future childbearing (yes/no).

Women who were planning to conceive in the next 12 months comprised those who were currently trying and those who planned to try in the next 12 months. (Unadjusted and adjusted ORs for the effect of fertility intentions on attendance at HIV clinical care visits among HIV+ women on ART in Johannesburg.)
Results: The median age of the included women was 27(IQR 23-30) and FSW had a median of two children(OR 1:21; 1.36[1.11, 1.67]**). Among the 744 eligible FSW, 679(91%) reported it was important to avoid getting pregnant. More than two years selling sex (OR 1.02 [1.00, 1.04]), co-morbidities (OR 1.07; 1.22 [0.99, 1.51]), and reduce the operational barriers of accessing Family planning com-

Table 1. Crude and adjusted prevalence ratios for unmet need for modern contraception among female sex workers in Swaziland, 2014(n=744)

<table>
<thead>
<tr>
<th>Antenatal care attendance: Attended during last pregnancy; Did not attend; Never pregnant</th>
<th>Prevalence Ratio (95% CI)</th>
<th>Adjusted Prevalence Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: 18-24; 25-34; 35+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ref; 1.43 [0.93, 2.11]; 1.36 [1.11, 1.67]**</td>
<td>ref; 1.53 [0.99, 2.20]</td>
<td></td>
</tr>
<tr>
<td>Education: Primary or less; Some secondary; High school or more</td>
<td>ref; 0.80 [0.61, 1.05]; 1.06 [0.83, 1.35]</td>
<td></td>
</tr>
<tr>
<td>ref; 1.05 [0.83, 1.33]; 1.44 [1.07, 1.94]*</td>
<td>ref; 0.80 [0.61, 1.06]; 1.06 [0.83, 1.35]</td>
<td></td>
</tr>
<tr>
<td>Number of living children: None; One; Two; More than two</td>
<td>ref; 0.87 [0.69, 1.10]; 0.77 [0.59, 1.02]; 0.84 [0.62, 1.14]</td>
<td></td>
</tr>
<tr>
<td>Religion: Roman Catholic; Anglican or other; Christian; Other, including Bahaí</td>
<td>ref; 0.95 [0.77, 1.17]; 1.22 [0.96, 1.54]</td>
<td>ref; 1.16 [0.89, 1.53]; 1.39 [1.01, 1.93]*</td>
</tr>
<tr>
<td>HIV Status: Negative; Positive; Never tested</td>
<td>ref; 1.05 [0.85, 1.31]; 0.85 [0.62, 1.18]</td>
<td></td>
</tr>
<tr>
<td>Years selling sex</td>
<td>1.02 [1.00, 1.04]</td>
<td></td>
</tr>
</tbody>
</table>

Prevalence ratios were generated using log binomial regression models. A twenty-one women were excluded from analysis due to missing data on unmet need for modern contraception. n=12) or antenatal care attendance (n=9) **Statistically significant at p<0.05; ***p<0.01; ***p<0.001. Bolded results represent results that are statistically significant at least at the p<0.05 level. (Table 1. Crude and adjusted prevalence ratios for unmet need for modern contraception among female sex workers in Swaziland, 2014(n=744)
tings. This study sought to investigate disease and adherence experiences among patients with HIV and hypertension (HTN).

Methods: Semi-structured interviews were performed between June-December 2017 at an urban, non-profit PEPFAR-USaid ART facility in Malawi. HIV-infected adults ≥18 years, and taking ART and ≤2 antihypertensive for at least 1 year, were interviewed to understand their experience with the two conditions and treatments. Interviewed were recorded, transcribed and translated into English. A codebook was developed based on the interview guide. Iterative codes were added as needed. Analyses used theories from the public health literature to identify themes related to disease perceptions and treatment adherence.

Results: Seventy-five participants were interviewed (64% female, median age 53). Median duration on antihypertensives was 4 years with participants taking an average 2 antihypertensives (40%) had systolic blood pressure >140mmHg, and/or diastolic blood pressure >90mmHg at their most recent clinic visit. Among most respondents (63%) viewed HTN and HIV as equally important chronic diseases, nearly half (45%) reported having greater fear of HTN compared to HIV, mainly due to the perceived suddenness and severity of HTN complications versus the perceived slow and visible progression of HIV (Table 1). Despite increased fear of HTN, participants found adherence to antihypertensives more challenging than adherence to ART. 77% of participants reported missing ≥1 dose per week of their antihypertensive medications (versus 7% who missed ≥1 dose per week of ART). Barriers that uniquely affect HTN treatment included medication costs (mentioned by 61% of respondents) and lifestyle changes (30% of respondents) like diet and exercise required for HTN management.

Conclusions: Participants living with HIV and HTN recognized the importance of controlling HTN to prevent future severe complications, but barriers such as costs of medications and lifestyle changes impeded adherence to treatment. Areas of commonality and difference in perceptions of HIV and HTN may inform future efforts to improve outcomes in comorbid patient populations.

TPUED448 Improving care for people in Ukraine who have tuberculosis and HIV: Findings from a qualitative analysis of integrated services

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Background: Ukraine is one of the 10 countries with the highest incidence of multi-drug resistant TB. About a quarter of all TB patients are also infected with HIV. The USAID-funded Strengthening Tuberculosis Control in Ukraine project aims to improve the integration of TB and HIV services to reduce mortality through early diagnosis and treatment of TB- and HIV-coinfected clients. This study examined changes in the integration of TB and HIV services, and factors that facilitate or impede timely access to testing and treatment services for TB- and HIV-coinfected clients in project intervention regions.

Methods: We conducted 53 in-depth interviews with three stakeholder groups: 30 TB- and HIV-coinfected clients; 17 infectious disease and TB providers; and six coinfection specialists. We also conducted six focus group discussions with providers. All discussions were digitally recorded, transcribed, and translated. Using ATLAS.ti, we synthesized data based on key themes that were identified using deductive and inductive coding, and then presented results using direct quotes to support themes.

Results: The HIV-TB integration program affected several positive changes in the integration of services, especially around availability of diagnostic tests across facilities, training of providers, and improved communication and collaboration across services. However, client databases are not consistently shared across all TB and HIV services, which makes coordination challenging and further increases travel costs for patients, as they have to travel between TB and HIV clinics. Providers spoke of clients’ inability to accept their HIV diagnosis and follow treatment instructions, short-staffed facilities, and infrastructure issues such as buildings that needed repair as key barriers. From the clients’ perspective, barriers to accessing care included dealing with HIV-related stigma; long lines at facilities; high out-of-pocket costs associated with travel, inpatient stay, laboratory work, and medications; confusion about where to go to receive treatment; and confusion about medication regimens and their debilitating side effects.

Conclusions: The study suggests that while improvements in diagnostic testing and coordination across TB and HIV facilities is well underway, factors such as stigma, emotional burden, adequate education to deal with the side effects of the medication, and high patient out-of-pocket costs still need to be addressed.

TPUED449 Countering double trouble - PLHIV community led intensified case finding of TB cases amongst PLHIV in India

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Background: TB is the most common opportunistic infection among people living with HIV (PLHIV). TB being a major public health problem in India accounts for 20-25% of deaths among PLHIV. It is known that nationally about 5% TB patients registered under the Revised National Tuberculosis Control Programme (RNTCP) also have HIV infection. There is a need to scale up the early detection of TB presumptive cases amongst PLHIV and link them to treatment for effective management of HIV-TB co-infection.

Methods: The Global Fund-supported Vihaan care and support program is implemented by India HIV/AIDS Alliance as a principal recipient. As a core component of India’s national HIV strategy, 361 care and support centres (CSCs) have been established, most of them implemented by PLHIV networks (80%) and other civil society organisations (20%). CSCs promote treatment adherence, enhance positive living and create an enabling environment for an effective HIV response in India. Intensified case finding (ICF) for TB is one of the key activity carried out by the staff of CSCs who are mostly from the PLHIV community themselves. Through ICF, symptomatic TB cases are referred to ART centres from where TB testing is done and linked to if confirmed TB positive. Peer counselors and outreach workers from the PLHIV community provide follow up services to those identified HIV-TB co-infected. Some CSCs provide nutritional support to such clients by mobilising locally available resources.

Results: Peer led ICF and follow up services is effective for early detection and linkage with TB treatment.1,025,304 PLHIV were screened for TB, of which 14,976(1%) PLHIV were found with at least one symptom are referred for TB testing, of which 0,707(0.7%) PLHIV were diagnosed with TB and out of this 9,067(90%) were linked for TB treatment.

Conclusions: Complementing the national collaboration on HIV-TB activities, Vihaan care and support programme will continue strengthening the PLHIV led ICF and follow up of identified HIV-TB co-infected PLHIV.
to treatment adherence and course completion. The program will also emphasise on tracing of family members of the PLHIV co-infected with HIV-TB.

**TUPED450**

"You change who you hang out with": Understanding hepatitis C risk behaviours and attitudes among HIV-diagnosed gay and bisexual men

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**Background:** Due to sexual and/or parenteral exposure, gay and bisexual men (GBM) are at increased risk of hepatitis C (HCV)/HIV co-infection. In Australia, the advent of subsidised direct-acting antivirals (DAA) for HCV treatment has made eliminating HCV among co-infected GBM possible; however, high reinfection rates could threaten this elimination goal. To gain an understanding of the factors influencing HCV reinfection risk and identify post-treatment support needs, this study explored HCV risk perceptions and attitudes among HIV-diagnosed GBM recently cured from HCV.

**Methods:** Fifteen in-depth interviews were conducted with HIV-diagnosed GBM in Melbourne post DAA-treatment success. Interviews focused on participants’ experiences related to HCV risks and attitudes towards reinfection avoidance. Data collection, analysis and interpretation were guided by constructivist grounded theory.

**Results:** Three categories conceptualise participants’ experiences: Rejecting the junkie label. Contrary to feelings of inevitability associated with HIV seroconversion, a lack of HCV risk awareness coupled with perceived knowledge about safe drug use meant that HCV-diagnosis came as a shock to most participants. Despite high prevalence of injecting drug use, participants did not identify with populations typically at risk for HCV.

Risk environments and fear of social isolation. Interviewees implicated the macro-social environments in which they were socially and sexually engaged as risk environments, where sexualised drug use was perceived as ubiquitous. Removal from high-risk environments and sexual activity to avoid HCV reinfection resulted in disengagement from their communities, leaving many feeling socially isolated.

Beyond cure. HCV was experienced as highly stigmatising and many jumped at the opportunity to achieve cure. Treatment was identified as a catalyst for substantial lifestyle changes among those who had become critical of their use of methamphetamines. A key narrative was the commitment to avoiding HCV-reinfection; conceptualising reinfection as representing a personal failure and manifest of an inability to maintain their current, healthier lifestyles.

**Conclusions:** Tailored HCV prevention campaigns need to take account of the intersectionality between multiple stigmatised social identities. An understanding of HCV-infection as both behavioural and social should form the basis of treatment support. Establishing peer support networks could mitigate social capital loss following a commitment to behaviour change and contribute to avoidance of HCV reinfection.

**TUPED451**

Qualitative study on the experiences and perspectives of public sector patients in managing workload of demands of HIV and type 2 diabetes co-morbidity in Cape Town and Polokwane, South Africa

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**Background:** In South Africa, little is known about how chronic patients with multi-morbidities currently experience the (re-)organisation of health services as suggested by the Integrated Chronic Disease Model (ICDM); and what their perceived needs are in order to enhance the management of their conditions both at point of healthcare and in their daily lives. Shippee’s Cumulative Complexity Model (CCM) was used as a testing tool to explore patient workload and capacity to manage HIV and type two diabetes (T2D) and how this impact on their capacity for effective self-management.

**Methods:** 28 qualitative in-depth interviews to Cape Town patients; 12 Polokwane patients; 6 Cape Town and 6 Polokwane patients’ health providers were conducted and health facilities document review in Khayelitsha and Mankweng hospitals. Convenience and purposive sampling (people living with HIV and T2D; and key informant health providers) were utilised in respondents’ selection. Grounded Theory method was used in the data analysis.

**Results:** Patients’ Workload demands were transport challenges/costs to health facilities and frequent visits. Patients’ capacity to deal with burden of illness were physical and mental functioning challenges, financial resources, social support and problems with the health system. Facilities access barriers included long waiting periods and queues to consult and collect medication, health worker attitudes and confidentiality. Some patients were no longer using the facilities and receive their medication elsewhere or consult traditional healers. Prolonged waiting at outpatient departments in hospitals, creates problems for diabetic patients who cannot stay for a long time without a meal.

**Conclusions:** There is tremendous demand related to the amount of patients’ workload (collecting medication, clinic appointments, medication intake, job demands, and self-management). As patients’ physical, emotional capacity and other aspects deteriorate they are unable to cope with managing their conditions. Health education and counselling related to management of co-morbid conditions and adherence to treatment need to be intensified.
**Treatment regimens included sofosbuvir-pegylated-interferon-rabavirin 12weeks; sofosbuvir-rabavirin 12-24weeks; sofosbuvir+daclatasvir-/ribavirin 24weeks; ledipasvir/sofosbuvir+/ribavirin 12weeks. Multi-disciplinary teams (MDT) consisting of doctor, nurse; social worker from local NGOs were operational at each Project site. Every enrolment was covered with social support. Case managers served as a link to integrated services (HCV-HIV-TB diagnostics, treatment and opioid substitution therapy management, prevention of HCV re-infection). Among 1400 HIV/HCV co-infected patients, 1373 completed full treatment course. 27 (1.93%) discontinued treatment (12 - adverse reactions; 8 - refused to continue treatment; 5 - non-related to HCV deaths; 8 - other). Treatment results are available for 1325 patients who were tested for HCV RNA at 12 weeks after end of treatment. 1261 (95.2%) patients achieved sustained virologic response (SVR12). Lessons learned: KPs’ high adherence to treatment is evidenced by few treatment discontinuations and high treatment success. Adherence indicator was conditioned by the patient-centred approach practiced by MDTs when delivering integrated services within community-based HIV/HCV treatment model.**

**Conclusions/Next steps:** Implemented by Alliance innovative community-based HCV treatment model is regarded as paradigm of best practices and evidence-based solutions for HCV treatment policy decisions for HIV/HCV co-infected patients.

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**TUPED453**

**Understanding the burden of mental health among persons living with HIV in Northern Indiana, United States**

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**Background:** Indiana has one of the highest rates of HIV and ranks as one of the worst states for mental health well-being. In collaboration with AIDS Ministries/Aids Assist (AM/AA), HIV care organization, we need to determine the following in order to improve services: (1) the prevalence of MHDx among PLWH. (2) their mental health care seeking behaviors and (3) the relationship between viral load status, mental health care seeking behaviors and type of mental health provider.

**Methods:** A cross-sectional, quantitative study was performed utilizing AM/AA’s anonymized client database (N= 366). Variables included were: gender, race, ethnicity, MSM, viral load status (below 20 copies/mL of blood was deemed undetectable), MHDx, and mental health provider (was the client in the care of a licensed mental health provider).

**Results:** Of the 366 clients, 140 (38.3%) clients had a MHDx. Of the 140 clients that had a MHDx, 139 (99%) clients sought mental health care. Of those seeking mental health care, 125% male, 25% female. A chi-square test revealed a significant difference in viral load status of those seeking mental health care and those who did not (p = .007). Those who sought care were more likely to have an undetectable viral load. There was also a significant difference in viral load status between those seeking care from a licensed mental health provider, seeking care from a non-licensed provider and those not seeking care (p =.037). Black MSM with a MHDx were more likely not to seek care (p = .037).

**Conclusions:** While many clients are seeking care for their MHDx, there remains a group that is not seeking care which may be negatively affecting their viral load status resulting in possible HIV transmission. However, because of the positive relationship between seeking care from a licensed mental health provider and an undetectable viral load, providing access to a licensed provider should be made a priority. The implications of this study are significant; access to a licensed provider is important for quality of life, more likely to achieve an undetectable viral load, and reduce HIV transmission.

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**TUPED454**

**First experience of viral hepatitis C screening, diagnostic and treatment in HIV-infected patients of the penitentiary sector**

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**Background:** As of January 2018 prison population in Ukraine reached 57 456 with 6,7% HIV prevalence (3 830 HIV+ persons). No reliable data on the numbers of Hepatitis C virus (HCV)-infected patients in prisons in Ukraine was available till the end of 2017. HCV treatment was unavailable as well. With the support of the Global Fund to Fight AIDS, TB and Malaria HCV screening program in HIV+ prison population with further HCV diagnostic and treatment was first initiated in November 2017 by the Alliance for Public Health, Ukraine. and implemented in close cooperation with penitentiary sector.

**Description:** The main goal of the study was to create an algorithm of granting access to HCV screening, diagnostic and treatment to HIV-infected imprisoned patients. 1000 express tests were distributed to 23 penitentiary institutions. Screening was performed among HIV-positive prisoners by penitentiary service medical staff. 1000 HCV express tests gave 742 positive results (74.2%). 139 random patients out of 742 with HCV positive antibodies results were further diagnosed for viral load (quantitative) and genotyping (G). Genotyping results distribution: 53 persons with G1a/1b; 6 persons with G2; 56 persons with G3, mixed G was detected in 2 persons, undetectable G in 22 persons. 50 available 12 weeks ledipasvir/sofosbuvir treatment courses were granted to the first 50 patients with G1a/1b in two penitentiary medical settings. December 2017. Treatment was prescribed and provided by the doctors from the hospitals mentioned, previously trained in HCV management.

**Lessons learned:** Results of the first ever HCV screening showed dramatic levels of HCV antibodies prevalence among HIV+ prison population in Ukraine. The model applied (HCV screening followed by HCV diagnostic and further HCV treatment) opened the window of opportunity for the prison population in Ukraine to get access to HCV testing, diagnostic and innovative short-course treatment with directly active antivirals.

**Conclusions/Next steps:** Implemented for the first time innovative model of HCV screening, diagnostic and treatment among HIV+ prison population of Ukraine is considered to be valuable evidence for filling in the challenging gap of the health care system in screening, diagnostics and treatment of HIV+ population co-infected with HCV in the penitentiary sector.

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**TUPED455**

**Accessing universal health care for all by 2030 - improving legal environments to ensure equitable access to HIV and SRHR services for young key populations (YKPs) in Africa**

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**Background:** Young key populations (YKPs) continue to face enormous challenges to access HIV and SRH services despite global and regional commitments. Data on YKPs remains limited resulting in poor planning.
for YKP-oriented services including for HIV, STIs, teenage pregnancies, access to contraception, drug use, etc. and policies and legal frameworks for young people are not aligned with international and regional obligations.

Description: Recognising that a third of the population in sub-Saharan Africa are young people aged 10–24 years, the Government of Netherlands supports a project in 5 countries to
(a) harmonise their national laws and policies with international and regional commitments to enable them to improve access to HIV and SRH services for YKPs;
(b) strengthen capacity of YKPs as active participants in law and policy reform processes;
(c) assist SADC to develop inclusive guidelines to increase HIV/SRHR services among YKPs;
(d) create an environment conducive for legal reform; and
(e) to establish indicators to measure increased service uptake by YKPs in the region.

AMSHer, HEARD and UNDP are implementing partners in this project in Angola, Madagascar, Mozambique, Zambia and Zimbabwe. Interventions include assessment of law, policy and national strategic plans, development of engagement scans for policy advocacy; capacity building of YKP groups on advocacy and policy change; and evidence-based research on access to SRH services for YKPs.

Lessons learned: Multisectoral advocacy approach resulted in the adoption of the SADC Key Population Strategy by Member States; SRH Scorecard developed to monitor KP interventions at national and regional level. Government, CSO and KP community capacitated on HIV, law and human rights resulting on a government led undertaking of Legal Environment Assessment; One LEA report finalised in Zimbabwe.

Conclusions/Next steps: Using a participatory multisector approach in the analysis of laws and policies involving governments, key populations and CSOs is vital as it sensitisises stakeholders on HIV/TB/SRH rights of YKP and builds national consensus on priority actions to be taken forward. Additionally, such approach creates a pace for dialogue and assists duty-bearers to change their perceptions on issues affecting YKPs and their access to services and justice.

TUPED456
Advancing human rights in the HIV response in Africa: The case of the report on HIV, law and human rights of the African commission on Human and Peoples’ Rights

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Background: Advancing human rights in the HIV response in Africa: The Case of the report on HIV, law and Human Rights of the African commission on Human and Peoples’ Rights

Methods: Following the adoption of Resolution 290, the Commission undertook a consultative process based on the terms of reference for the Study Report. Inputs were received from a wide range of stakeholders in a session held on December 1st, 2015 at the margin of the 18th International Conference on AIDS and STIs in Africa in Harare, Zimbabwe. The civil society voices emphasized that the study process needs involvement of civil society and other stakeholders. Between December 2015 and November 2017, five face-to-face consultations were held in Harare, Banjul, Durban and Abidjan, online submissions were opened for December 2016. Submissions of testimonies and technical inputs were received from United Nations experts, International NGOs and affected communities from all regions of Africa.

The report, with strong and unprecedented recommendations on human rights and key populations, was adopted on November 2017 by the Commission.

Results: The process demonstrated the potentials, benefits of a healthy collaboration between the Commission, the UN agencies, governments and civil society, including representatives of key populations in the development policy standards at the regional level. This multi-stakeholders’ engagement model is commendable and allows for ownership, legitimacy and swift progress in policy formulation and implementation at all levels.

Conclusions: Through its inclusive and multi-stakeholder process, the report provides a strong model for engagement between African regional bodies, civil society and the UN on HIV-related issues. Country-focused initiatives were identified at the launch of the report to support the implementation of the bold recommendations to advance zero discrimination and rights for all in the HIV response.

TUPED457
Africa regional grant on HIV: Removing legal barriers - emerging results

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Background: The Africa Regional Grant on HIV: Removing Legal Barriers aims to address human rights barriers faced by vulnerable communities in Africa, and facilitate access to lifesaving health care. The grant is the first of its kind and covers 10 countries, including Botswana, Côte d’Ivoire, Kenya, Malawi, Nigeria, Senegal, the Seychelles, Tanzania, Uganda and Zambia. The programme also works at the continental and regional levels with the African Union Commission and key Regional Economic Communities (SADC, ECOWAS, EAC) to promote alignment of national laws and policy with regional and international human rights commitments.

Description: The programme is supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria. UNDP is the Principal Recipient of the grant and implements in collaboration with four sub-recipients - the AIDS and Rights Alliance for Southern Africa (ARASA), ENDA Santé, KELIN, and the Southern Africa Litigation Centre (SALCI) - with recognized expertise in documenting human rights violations, strategic litigation, advocacy and capacity-strengthening. The goal of the programme is to strengthen the legal and policy environment to reduce the impact of HIV and TB on key populations in Africa, including men who have sex with men, sex workers, transgender people, people who use drugs and prisoners.

Lessons learned: Now that the grant is in the third and final year of implementation, many results have been achieved. Sharing lessons across the 10 countries has proven invaluable in removing legal barriers. Specifically, the successes in strategic litigation in Kenya, Malawi, Botswana shows that integrated capacity strengthening of critical stakeholders (lawyers, judges, CSOs etc) in HIV/TB and human rights is key to preventing and addressing human rights violations of KPs; reinforcing the implementation of supportive laws and strengthening the evidence base for law reforms. Advocacy efforts have also resulted in integration of TG into NSPs, and adjudication for women living with HIV, and sex workers.

Conclusions/Next steps: To ensure sustainability, UNDP will follow up at both the regional and national levels including working towards institutionalizing such efforts in formal training institutes and curricula.
after the “Swedish statement” on infectiousness was published October 2013 that says that the risk of transmission of HIV from a well-treated person is minimal. With the Swedish statement the Supreme Court needs to come up with a new precedence.

**Description:** In 2010, RFSU partnered with RSFL and HIV-Sweden on a project that aimed to educate and inform politicians and the justice system on advances in HIV science, and the negative impact of overly broad HIV criminalisation on public health. Since then we have kept fighting for that the unjust prosecutions and sentences of people living with HIV should stop. We have done so via debate articles in relevant papers and magazines. We have also had discussions with The Public Health Agency of Sweden, government officials and with people in the Parliament.

**Lessons learned:** In 2015 where a well-treated person with HIV was prosecuted despite no transmission, the person was acquitted in lower court and later on also in the court of appeal. For us it was very important to try and get this case all the way to the Supreme Court to get a new precedence. The Supreme Court eventually announced its decision to take the case. The case haven’t been dealt with so far (February 2018) so we don’t have the result from the Supreme Court yet.

**Conclusions./Next steps:** Even if the Supreme Court does come up with a new good and relevant precedence, we will keep on monitoring human rights for people living with HIV. The violations of people living with HIV takes place not only in court rooms, but also in society overall from time to time. Not least because there is still a lack of sufficient knowledge about HIV and how it is to live with HIV. It is getting better, but we are not yet there.

**TUPED460**

Facilitating access to justice for communities of people living with HIV in Kenya

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**Background:** Since 2012, Kenya Legal and Ethical Issues Network on HIV and AIDS (KELIN), with support from UNDP Kenya, has been implementing the project focusing on Enhancing the legal environment for an effective HIV response.

The project aimed at enhancing the legal environment for an effective HIV response in Kenya through:

1. Strengthening capacities of legal professionals, law enforcement officers, judges, magistrates, healthcare workers, PLHIV, key affected populations, youth, religious leaders and traditional elders.
2. Improving access to justice and legal services by communities of PLHIV.
3. Engaging in advocacy for change to HIV related law, policy and practices.

**Description:** Interventions of this project included:

1. Empowering lawyers on the link between HIV and human rights, and creating a pool of lawyers available to offer free legal services on HIV related cases. KELIN trained 233 lawyers in Kenya, 54% female and 46% male.
2. Development of a compendium of cases decided by the HIV and AIDS Tribunal as a documentation of HIV related cases, and raise awareness on violations facing PLHIV.
3. Sensitization of judicial officers on HIV since they are key players in the justice system through judicial dialogues and colloquium. A total of ninety one (91) judges and magistrates and one hundred and twelve (112) other judicial officers were sensitized through this project.
4. Public Interest Litigation to challenge government policies that violated the human rights of PLHIV. One such case involved an unconstitutional presidential directive that would violate the right to privacy of children living with HIV.

**Lessons learned:** It is important to mobilize and empower communities of key and affected populations to ensure their direct involvement in influencing responses that address problems in the justice system.

**Conclusions./Next steps:** There is a need to support countries to take steps to strengthen legal frameworks to protect PLHIV. One such case involved an unconstitutional presidential directive that would violate the right to privacy of children living with HIV.

**TUPED459**

Utilizing African national human rights institutions in promoting and protecting the rights of key populations

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**Background:** In most countries in the African region, the rights of key populations are often seen as controversial. Key population groups often struggle to carry out their work because they work in criminalised settings. NHRIs can serve as key players in creating enabling legal environments to ensure access to affordable, accessible and quality HIV prevention, treatment and care services. NHRIs, due to their powers and mandates, have a duty to speak in defense of the rights of key populations.

**Description:** Recognising that National Human Rights Institutions (NHRIs) have a significant role to play in creating an enabling legal environment for HIV and TB prevention, treatment, care services for Key Populations, the AIDS and Rights Alliance for Southern Africa (ARASA) under the Africa Regional Grant on HIV: Removing Legal Barriers, has implemented a number of interventions and activities to strengthen the capacity of NHRIs in promoting and protecting the rights of key populations:

1. Annual Regional Capacity Strengthening Meeting for NHRIs
2. Media briefs for NHRIs focusing on the role of NHRIs in the HIV response
3. National Advocacy meetings in Malawi and Kenya in collaboration with the NHRIs.

**Lessons learned:**

A. Regional Lessons learned: Key population groups were asked why they do not utilise complaint mechanisms put in place by NHRIs. A number of issues were identified:

1. Lack of trust in government institutions
2. Discriminatory attitudes by NHR staff members
3. Reluctance of NHRIs to speak out against human rights violations on key populations
4. Lack of strength and influence of NHRIs

B. Collaborative partnerships: Two national meetings were organised by key population groups and NHRIs. The collaborative approaches formed a bridge between the NHRIs and the key populations, thus addressing the regional lessons stated above.

**Conclusions./Next steps:** NHRIs are perfectly placed to advise governments on law review and reform. The Annual Regional Capacity Strengthening Meeting for NHRIs will continue to increase the capacity and knowledge of NHRIs around HIV, TB and the law.

**TUPED461**

Breaking the legal barrier for sex workers justice.

Alternative dispute resolution grass root system for sex workers

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**Background:** Bar Hostess Empowerment and Support program(BHESP), a women led organization, being in the forefront in advocating for the human rights of sex workers in Kenya. Despite this effort, Sex workers continue to face significant layers of GBV/SGBV on account of repressive patriarchal structure, misogynist interpretation of law, culture and morality, stigma and discrimination, preventing them from accessing reproductive health service. HIV prevention and care and other social services.
One worrying report revealed by the Polling Booth Survey 2016 is that the proportion of FSWs who had experienced physical violence increased significantly from 44% to 48%.

Significant number of sex worker prefer giving of bribes rather than pursuing the case through litigation due to prolonged and tedious judicial processes in Kenya. With this fact BHESP started employing Alternative Dispute Resolution(ADR) which is a process for resolving disputes other than litigation.

Methods: BHESP has engaged the judicial service commission and government representatives from ministry of health in four progressive dialogues after presenting a proposal to them the urgency of strengthening the grassroot ADR system to reduce procedural delay of cases and assist speedily access to justice and support for SGBV survivors. These meetings were held with identified judicial members, sensitized on special needs of sex workers as a means of lobbying. BHESP is making a case on GBV against sex workers in Kenya through breaking the legal barrier in ensuring that sex workers access justice.

Results: 27 incidences have been successfully resolved through grassroots Alternative Dispute Resolution (ADR) system. Members of Judicial service commission sensitized by BHESP have been very supportive in the effort of ensure that sex workers cases that are in court are handled without delay. Most sex workers have found this as the best option and sustainable way to address Human Rights Violations challenges they face day to day.

Conclusions: Removing legal barriers against sex workers in Kenya will be paramount to fully accessing of sex workers Rights. It is paramount to Creation of progressive jurisprudence which advances human rights for sex works. BHESP recommends that sex workers to seek redress for human rights violation in quasi-judicial bodies and courts.

**TUPE462**

**Documenting sex workers’ human rights violations in Kyrgyzstan Shah Ayim network**

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**Background:** The goal of the project is to strengthen the advocacy platform of sex workers community and their allies to increase the effectiveness of countering violence. Illegal law enforcement practices against sex workers and legislative initiatives that criminalize sex work.

**Description:** In Kyrgyzstan, adult sex work has been decriminalized since 1997. Based on the data of the first national survey “Observing the Human Rights of Sex Workers in the Kyrgyz Republic” 2012 supported by Soros Foundation Kyrgyzstan, Shah-Ayim network began documenting sex workers’ human rights violations in 2013. Trained employees from the community and friendly lawyers were recruited for human rights violation documentation, counseling and support. The documentation data was used to prepare the Alternative Reports to the CEDAW Committee, to inform key agencies whose activities affect sex workers and are related to the implementation of international human rights obligations. Quarterly analysis of documented cases is distributed through e-mails to all NGOs in Kyrgyzstan, engaged in HIV. human rights NGOs, international organizations whose activities concern sex workers, rights and gender.

Kyrgyzstan’s experience in documenting sex workers’ human rights violations is transmitted to members of Shah-Ayim network from other countries.

**Lessons learned:** Documented cases in Bishkek and Jalal-Abad
In 2016 - 364 cases, in 2017 - 306 cases reported by 249 people (of which 11 are trans sex workers). Police officers are the main source of violence and human rights violations.

The main types of violations:
- arbitrary detention 8%
- money extortion 81%
- threat, blackmail and pressure 68%
- degrading and inhuman treatment 61%

Outcomes of detentions: sex workers who could not pay the police are registered on charges of petty misdemeanor or for disobeying police officers and are brought to court. Judges convict sex workers without reviewing the case.

**TUPE463**

**HIV criminalization in California: Policing sex work and women’s bodies**

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**Background:** HIV criminalizations laws target individuals living at the intersection of multiple oppressions. In California, women and people of color are disproportionately impacted by such criminalization. Additionally, almost all (95%) of those criminalized came under the felony targeting those engaged in sex work, or suspected of doing so, while living with HIV (Cal. Penal Code §647f). We sought to better understand whether trends in HIV criminalization were related to trends in the policing of sex work.

**Methods:** Data from 2005-2013 from the U.S. American Community Survey, California Department of Public Health, and California Department of Justice, including de-identified Criminal Offender Record Information (CORI), was analyzed. We compared CORI data for all individuals that were arrested under Penal Code §647f to general demographic data and frequencies of arrest for prostitution over the same time period. Inferential statistics were used to test differences between racial/ethnic subgroups.

**Results:** From 2005-2013, women made up 12 percent of the people in California living with HIV but accounted for 37 percent of those arrested for Penal Code §647f. Black women made up 4 percent of all HIV-positive women in California but accounted for 22 percent of those arrested for Penal Code §647f. Of all HIV-positive people living in California, Black women were the most overrepresented subgroup arrested under Penal Code §647f. Despite a decrease of overall number of arrests for sex work statewide, Black women made up an increasing proportion of those arrested in California. Across 2005 and 2013, Black women were arrested for prostitution at a rate of 11 to 14 times their rate in the general population.

**Conclusions:** Efforts of advocates led to the repeal of the felony solicitation law in California as of January 1, 2018. However, 30 U.S. states and over 70 countries still have criminal laws that target people living with HIV. Further attention must be paid to the impact of criminalizing HIV and sex work and the resulting policing of vulnerable communities. Understanding criminalization, and its role in underscoring societal bias and discrimination, is integral to understanding what may contribute to the rising rates of HIV especially among Black women.
Description: LGBTI organisations in Uganda, Kenya, Mozambique and Zimbabwe are using a Rights-Evidence-Action (REAct), a secure IT-based human rights monitoring and response system owned by grassroots organisations. Focusing on the Ugandan experience, Sexual Minorities Uganda and Icebreakers Uganda, have since 2014 adopted safety and security measures in KP service delivery programming and used REACT to successfully support and respond to community members affected right at the onset of the Anti-Homosexuality act being passed. They documented evidenced-based human rights-related barriers, including gender violence, to accessing HIV and health services. SMUG has used the evidence generated to review and strengthen its human rights-based programming, such as with the introduction of Know Your Rights campaigns for LGBTI people. The data and case studies have also been critical for advocacy work. The ground-breaking publication And That’s How I Survived Being Killed, was based on 264 violations conducted against the backdrop of the 2014 Anti-Homosexuality Act and on-going political and social oppression against community members.

Lessons learned:
- REACT has improved skills and human rights knowledge among KPs increasing their ownership to document and analyse to shape and demand action.
- REACT has generated an unprecedented body of evidence of the reality of human rights violations against LGBTI communities and its link to accessing HIV services, prevention, treatment and care.
- The importance of advocacy focused peer-to-peer support to LGBTI organizations in multiple African countries, offering a wealth of learning and practical experience.
- The importance of including safety and security on KP programming.

Conclusions/Next steps: REACT is a powerful and safe mechanism to empower KP led organisations, to inform human rights-based and HIV programmes on treatment, care and support as recommended by the UNAIDS. The REAct database provides a unique and powerful body of evidence for advocacy.

TUPED466
Human rights barriers to access TB and TB/HIV perceptions by mine workers in 10 Southern Africa Countries (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zimbabwe and Zambia)

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Background: It is reported that “the mining industry is among Southern Africa’s largest employers. In such an environment, it is expected that Human Rights and Gender issues will be amongst the key challenges faced by this industry particularly concerning access to health. The objective of this Survey was to identify the human rights and gender barriers to accessing to TB, TB/HIV and occupational lung diseases by mine workers in ten (10) Countries of Southern Africa Region (Botswana, Namibia, South Africa, Swaziland, Lesotho, Zimbabwe, Zambia, Tanzania, Malawi and Mozambique).

Methods: This study was a national cross-sectional survey of miners. Probability proportional to size criteria was used to distribute miners by country, mineral and mine size. The target sample size for current miners was 1,068. Data Management was done in CSPro while data analysis was done using SPSS. Clearance approval was applied for and received in each respective country Ethical Review Boards/committees except in Mozambique which was then dropped.

Results: Only 12.0% of miners were female. Lesotho had the highest proportion of females in mining at 22.6%, while Tanzania had the lowest (3.4%). Unavailability of comprehensive package of services (44%), was the main barrier followed by service providers’ attitudes (38%), long waiting times (38%) and overcrowding (32%). In addition, where services were available, access became a barrier due to distances, costs, service acceptability and relevance. When respondents were asked if TB treatment is accessible, only 28.3% said yes.

Conclusions: Quality of services in general is a barrier to accessing TB, TB/HIV and occupational lung diseases services in the mines. This therefore requires that existing health care services to miners should be periodically assessed for availability, accessibility, acceptability and their quality. Governments should consider provisions for health insurance systems that would help decongest public facilities, but also affordable. Funders, Mine Unions and Civil Society Organizations in the region should recognize and prioritize TB in the Mining Sector as a critical gap that needs and deserves prioritization given that TB ultimately affects the general population.
Long overdue: HIV-related discrimination in immigration and the need to repeal the “excessive demand” regime

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Background: Since before Confederation, Canada has excluded immigrants with disabilities, beginning with a prohibition on admitting persons with disabilities who were believed to impose financial burdens on the state or charities. Similarly, today’s Immigration and Refugee Protection Act stipulates that foreign nationals are inadmissible to Canada if their health condition, or that of a family member, might reasonably be expected to cause an “excessive demand” on health or social services. Due to the high cost of HIV medications, people living with HIV are generally medically inadmissible.

Description: Human rights advocates, immigration and HIV organizations, and people with disabilities have long argued that the “excessive demand” regime is discriminatory, rooted in the outdated idea that people with disabilities are a burden on Canada, and unjustifiably violates the human rights of newcomers with disabilities. This prompted Canada’s Parliamentary Committee on Citizenship and Immigration to study the law, during which advocates for people living with HIV described the regime as a complex and dehumanizing process that reduces people living with HIV to the cost of their medications. Advocates also questioned the government’s cost-savings estimates and described how HIV-related discrimination in immigration violates Canada’s obligations under international human rights law.

Lessons learned: During the study, the Immigration Minister acknowledged that the excessive demand regime “simply does not align with our country’s values on the inclusion of persons with disabilities in Canadian society.” Committee members also learned that numerous countries do not have any laws or policies that deny migration based on health status, the excessive demand regime undermines many of the objectives of Canada’s immigration legislation, and the regime is rife with operational flaws.

Conclusions/Next steps: In December 2017, the Committee released its study recommendations, in which it emphasized “the dignity and human rights of those applying to enter Canada play a central role in the selection of a policy path forward” and recommended an historic repeal of the excessive demand regime. While the recommendation is a tremendous first step, a repeal of the discriminatory provision is long overdue and advocates must continue their work to ensure parliamentarians heed this recommendation.

After the repeal: Prosecution of HIV exposure after the removal of specific offences in Colorado, USA and Victoria, Australia

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Background: The use of HIV-specific criminal offences to prosecute people living with HIV (PLHIV) has been extensively criticised, and achieving repeal of such laws has been a target of sustained advocacy in many countries. Following extensive grassroots advocacy campaigns, HIV-specific criminal laws were repealed by the legislatures of the Australian state of Victoria (2018) and the US state of Colorado (2016). PLHIV still face possible prosecution in both jurisdictions under other, unrepealed, laws however, which raises the question of the degree to which these repeals have alleviated the burden of HIV criminalisation.

Methods: The repeal of HIV-specific criminal laws is argued to be a significant step in reducing HIV stigma as well as having practical benefits for people who might otherwise face criminal prosecution. We compared the frequency of charge/prosecution and the range of sentences in the pre- and post-repeal environments in the two jurisdictions.

Results: A review of pre-repeal prosecutions shows the laws were in fact infrequently charged or prosecuted. When compared to prosecutions that have occurred since reform, under substitute offences, there appears to be no significant change in the frequency of charge or prosecution. Our analysis suggests police and prosecutors may instead be increasing prosecutions of HIV-related cases under general provisions that were previously unutilised. In Victoria, there has been a problematic increase in prosecutions under a provision that criminalises procurement of sexual penetration by fraud.

Conclusions: The repeal of HIV-specific offences, while a worthwhile goal, may have little practical utility beyond stigma reduction. It may have the perverse effect of increasing prosecution under substitute offences, as penalties are less than before. It may also see prosecutors utilising other provisions that are difficult to monitor in regard to HIV because they are not specific to the virus. Continued monitoring of arrests and prosecutions under the new provisions should continue, to provide an accurate understanding of the long-term impact of law reform.

When health systems collapse: Strengthening the advocacy and accountability role of people with HIV in Venezuela

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Background: In the last five years, Venezuela has lost 1/3 of its GDP and inflation rates have reached 1,600%. Economic collapse has made accessing medicines impossible for most. As a result, the number of AIDS-related deaths has risen nearly 75% since 2011. In this context, with support from ICASO and UNAIDS, a project was launched to strengthening the leadership of the Venezuelan Network of Positive People (RVG+), increase the evidence-base of Venezuela’s health crisis, and improve advocacy for health service delivery.

Description: The 3-year project had three phases:
(1) Training
(2) Monitoring
(3) Advocacy.
In the Training Phase, multi-stakeholder consultations assessed the state of the crisis (including human rights violations). During the Monitoring Phase, tools were designed and implemented in 39 health centers across 12 states, gathering information on health infrastructure, human resource gaps, and ARV stock-outs. The results were analyzed and published. During the Advocacy Phase, RVG+ discussed the reports with high-level health authorities and UN-agencies. A social media campaign was targeted at the Minister of Health. Technical and financial support was leveraged from a network of international NGOs.

Lessons learned: The project enabled activists living with HIV to be leaders in the process of building peer knowledge. Identifying problems affecting HIV services, and developing evidence-based reports and advocacy strategies. Activists revealed a 100% stock-out rate of ARVs, OI medicines, HIV test-kits, and viral load monitoring reagents. Health infrastructure is in critical condition, staffed with insufficient personnel. But, the project is also a success story. Linked to the project’s data-driven advocacy, short-term supply of ARVs for 15,000 people was secured through the international community. The resilience of communities working in challenging operating environments was also highlighted. They faced and overcame fears of constant attacks, reprisals and threats from the government, ultimately achieving progress for their community.

Conclusions/Next steps: This project revealed that the Venezuelan government continues to violate human rights of people living with HIV, rooted in its persistent denial of the collapse of the public health system and refusal to receive aid. In this context, it is imperative that international agencies and organizations continue to invest in community-led solutions.
Wednesday 25 July

**TUPED470**
Advocacy for preventing violence against PLHIV and PWUDs among law enforcement, civil society, religious leaders and family members

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OHRA, Hardam Reduction & HIV Prevention, Cheshmeh, Afghanistan

**Background:** Afghanistan is among one of the countries that produces more than 90% of the world’s opium, that shows it is also among the countries that are more likely at the high risk of HIV and BBIDs. Drug use and crime both have a direct relationship which cannot be avoided, although it is a crime to manufacture, distribute and possess drugs in Afghanistan, but due to high demand of drugs by PWUDs and the high rate of drug production, it is almost impossible to prevent the drug use, directly resulting on user’s negative behavior by generating illegal activities that causes people and members of communities performing violence against them.

**Methods:** A research conducted by OHRA’s advocacy team in 2017, concluded the violent cases occurred on PWUDs by people in Kabul hotspots, mostly in (Ishkoh, District #6). A number of 100 questionnaire distributed and interviews were conducted with PWUDs by outreach team. The aim of the following interviews was to collect the data of violence acted on PWUDs in one month.

**Results:** The collected data from 100 questionnaires showed 40% of different types of violence against PWUDs acted by community members, religious leaders, law enforcement and family members. OHRA conducted regular awareness raising campaigns throughout 2 months for 400 individuals from community members, law enforcement, family members, religious leaders etc.

After the campaigns, OHRA team distributed another Questionnaires and collected data from 100 more PWUDs on the same target area which shows a result of 28% violence against PWUDs, resulting a 12% decrease in violence cases comparing to the data collected before the campaigns.

**Conclusions:** The surveys finding shows that by conducting awareness raisings and advocacy campaigns for the rights of people who use drug, could be an effective tool for preventing violence against PWUDs and PLHIV.

**TUPED471**
“Global advocacy to end Duterte’s war on people who use drugs in the Philippines” - the first won battle

B. Gurung, A. Chabungbam, R. Kaffe
Asian Network of People who Use Drugs, Bangkok, Thailand

**Background:** In June 2016, the world witnessed the beginning of the Philippines war on people who use drugs under President Duterte’s regime. In a year, over 13,000 people - many of them children - ostensibly suspected of using or selling drugs were brutally killed. It destroyed millions of lives of people who use drugs, including thousands who are imprisoned and the families and children of those who were killed. Amid such crisis, numerous games were made available through Apple App Store that promoted the war on people who use drugs in the Philippines. Some of the games had over a million download. The Asian Network of People who Use Drugs (ANPUD) led a global petition demanding Apple Incorporation’s CEO to urgently perform a formal review and remove all the apps.

**Methods:**

- The petition was endorsed by 131 organizations, including community, human rights and drug policy reform organizations from across 35 countries globally. The media release was featured by CNN Philippines, BBC, Philstar, Reuters, Inquirer, ABS CBN News and many others, with global coverage.
- Apple removed most of the games from their app store.

A case study of the advocacy effort was developed and disseminated to inform and inspire more community-led advocacy at different level. The case study recaptured attention of wide range of online media.

**Conclusions/Next steps:** The petition was one of many advocacy efforts against Duterte’s war. It brought the Philippines human rights crisis back into the attention of the global community. The achievement was more than the removal of apps in that this collaborative approach made by ANPUD brought the activists, organizations and media from around the world together. The Philippines drug war continues and only global unity can put an end to it.

**TUPED472**
Organizing PLHIVs on ART for collective advocacy: Assessing its impact on the human rights, participants and the environment in urban India

P. Singh1, P. Varma2, P. Prabhughate1, R. Verma1, S. Schensul1
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**Background:** Interventions to change knowledge, attitudes and behaviors that negatively affect the health and mental health status of persons living with HIV (PLHIV) have largely focused on providing individual education, counseling, group mobilizations and clinical care. This paper describes the testing of a less utilized approach: the organization of PLHIV to collectively address structural barriers and issues of human rights.

**Methods:** The research and intervention described in this paper is drawn from a US National Institutes of Health-funded study (2014-2016) focused on male PLHIV treated at five ART Centers in Greater Mumbai who have habit of consuming alcohol. Three centers were randomly selected for experimental interventions that consist of individual counseling, group interaction and collective advocacy with two centers as controls; a total sample of 940 (188 from each center) was recruited. The collective advocacy intervention consisted of six, two-hour sessions conducted on monthly basis with a group of 10-15 PLHIV on ART and CSF centers. The curriculum covered the benefits of collective action, promotion of human rights, selection of a structural issue of stigma and implementation approaches to collective advocacy.

**Results:** An extensive survey instrument was administered at baseline and follow-up in year gap to assess the impact of collective actions on the participating PLHIV. In comparison with the PLHIV in the two control centers, those who participated in collective action showed improve reported alcohol drinking frequency, less reasons for drinking (p < .001), less experiences with external stigma (p < .01) reduced self-stigma (p < .001) improved CD4 count, reduced viral load and risky behavior. Qualitative process data showed better response from public service sector on PLHIV rights, expanded social networks, improved relationship with spouse and family and a greater sense of collective capacity to affect change.

**Conclusions:** The results indicate that collective advocacy not only play a complimentary role in human rights, but also promote environmental change and individual empowerment.

**TUPED473**
Study of the key open national data at improving the quality of programs for PLHIV / PWUD, CSW and MSM implemented jointly by NGOs and government authorities

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1PLHIV/PWUD, NGO Ishonch va Hayot, Tashkent, Uzbekistan, 2WLH, NGO Ishonch va Hayot, Tashkent, Uzbekistan, 3Sociologist, Tashkent, Uzbekistan

**Background:** As of 01 January 2016, 32 967 people living with HIV (PLHIV) and 186 under ART were registered in Uzbekistan. Less than half of PLHIV reached viral suppression, half of PLHIV are not covered by treatment. To reach the 90-90-90 objectives a transition plan has been approved to implement ART for all patients regardless of the immunosuppression...
level by 2018. For the plan to be effectively implemented, a quality analysis of regulatory framework and the needs of key groups is required.

Methods: Overview of secondary data - laws, national plans, protocols, resolutions, etc. in HIV/AIDS context. Five in-depth interviews (2 persons) and 2 focus groups (2 persons each) with representatives from communities of PLHIV and key groups (KG) from government institutions, specialists and key informants.

Results: Present day legislation on HIV/AIDS prevention generally complies with international standards. The state declares involvement, transparency and responsibility of political resolutions on HIV problem through coordinated efforts of all society spheres. However national standards change rapidly and new Uzbekistan laws fail to keep up. Low level of involvement of key groups.

Conclusions: Owing to the survey of PLHIV/ KG community we were able to identify dimensions for development of Strategic Action Plan.

1. Change of regulatory framework through direct participation in the dialogue with decision makers.
2. Acknowledgement of existence of special needs of PLHIV and KG and alignment of standards for services to PLHIV and KG with WHO recommendations.
3. Ensure tolerant treatment of PLHIV and KG through implementation of de-stigmatization programmes with the general public and professional community.

Programmes for prevention, harm reduction, care and support need to be reinforced through the Makhalley network public fund financed by the state and involved in prevention services and activities at all levels with involvement of key groups.

TUPED474
Women, ART and the criminalization of HIV non-disclosure (WATCH): Mapping criminalization’s creep into the health and social care of women living with HIV in Canada

J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3, J. Cotnam1, S. Greene1, A. Ion1, L. Birungi1, K. Dunn1, M. Frank2, S. Glum3

Abstracts
• Ados showcasing a new participatory arts-based research project: READY Teens in Uganda - Thorny track to teens’ wellbeing - findings from an HIV and SRHR baseline study conducted among adolescents most affected by HIV in Uganda

D. Bitir William1, G. Caswell2, C. Khara3, E. Dyker4, M. Cassokato5, Adolescents showing a new participatory arts-based research project: READY Teens in Uganda - Thorny track to teens’ wellbeing - findings from an HIV and SRHR baseline study conducted among adolescents most affected by HIV in Uganda

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Background: People living with HIV in Canada are legally obligated to disclose their HIV status to sexual partners in specific circumstances under the Criminal Code. In Canada, the criminalization of HIV non-disclosure falls under sexual assault law and consequently stigmatizes people living with HIV while disregarding the realities of women’s lives. The WATCH study explored how the socio-legal context in which women can be criminalized for not disclosing their HIV status to sexual partners impacts their sexual and familial relationships, and their interactions with legal, health, and social services.

Methods: WATCH is a participatory arts-based research study. Seven Body Mapping workshops with 48 women and trans women across 4 Canadian provinces were co-facilitated by peer researchers (women living with HIV). Utilizing a variety of art materials, women visually expressed experiences of the impact of the criminalization of HIV non-disclosure on their everyday lives. Sharing circles were co-facilitated for the purpose of sharing and recording each woman’s unique criminalization of HIV narrative. Narratives underwent a process of participatory thematic analysis.

Results: Women expressed concerns about the criminalization of HIV non-disclosure in the context of historical and current experiences of HIV stigma and other marginalized social positioning. Women identified concerns about how the law characterizes them as sexually deviant and does not account for their commitments to cultural, personal and social responsibilities. Connections were made between the stigma inherent in the criminalization of HIV non-disclosure and other experiences of HIV stigma including access to health and social services. Concerns about having a sexual relationship raised fears about how the law could be applied in circumstances outside of the current legal precedent.

Conclusions: WATCH illuminates how legal obligations to disclose one’s HIV status uniquely impacts the lives of women living with HIV in Canada. Importantly, the law positions women living with HIV as irresponsible, which perpetuates stigma and increases surveillance in all aspects of their lives. Canadian women living with HIV and their advocates require global support for legal reform.

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TUPED476
Preserving human rights through involvement of the community, judicial system and law makers

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Reachout Centre Trust, Harm Reduction, Mombasa, Kenya

**Background:** Most People Who Use Drugs (PWUDs) in Kenya have been discriminated and stigmatized hence have been living in an isolated areas e.g. Streets, drug dens and parks and involve in criminality and sex work as their primary means for survival. Hence have been the targets of neglect, arrests by county Inspectorate and national police service units, harassment and mob justice by the community.

**Description:** It’s estimated that Mombasa has 3000 People Who Inject Drugs (PWID) who contributes 18.3% HIV prevalence for PWIDs in Kenya. 70% of all cases reported yearly at the county Law courts are related to drug use. 225 cases of violence, 41 cases of mob justice& 8 cases of death as a result of mob justice were reported at Reachout since 2016 to November 2017. From January 2016 to November 2017, Reach out Centre Trust (RCT) engaged the judicial system through a Justice Actors conference where 70 Judges, magistrates, lawyers, law enforcers, probation and civil society organizations were brought together under the theme clemency for social justice for PWUDs. 140 Law enforcers and 20 members of the county Assembly on Health were sensitized on Harm Reduction and social inclusion Health rights. RCT raised community awareness through 66 radio talk shows, 60 public bazaras, and 40 health workers, 15 religious leaders and 230 family members on Human rights Protection needs of KRPs are invisibilised and not served by public or health care facilities. PWUDs accesses heath care with minimal assistance.

**Lessons learned:** Through the training and sensitization of law enforcers and the judicial system, 600 cases of petty crimes related PWUDs were given alternative sentence through the community service order.Both Matt clients &PWUDs cases were intervened by RCT Paralegals and released at the police cells. RCT has a representation at the Court Users Committee and Discharge Board Committee in prison. All sentenced Matt clients access MAT services and treatment without hindrance. Media fraternity participated in RCT in advocating for Harm Reduction and drug policy reforms in Mombasa. PWUDs accesses health care with minimal assistance.

**Conclusions/Next steps:** There need to change the narcotic drugs and psychotropic substances act 1994 and the existing by-laws of the county.

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TUPED477
Assessment of the protection needs of Key Refugee Populations in Access to Health and other Services

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**Background:** Key refugee populations (KRP), namely LGBTI people, sex workers and PLHIV in Turkey, experience high levels of stigmaisation, discrimination and violence which hinders their access to all forms of services such as health, protection, housing, justice/redressal, etc. Protection needs of KRP are invisibilised and not served by public or other institutions. This situation increases the risk of HIV and other STIs against KRP. Health as well as human rights situation of KRP are negatively impacted on.

**Description:** UNFPA, in collaboration with Red Umbrella, SPoD and Positive Living Association, carried out a joint project between January - December 2017 to assess the needs of KRP and to provide services to them. Outreach work in Istanbul and Merсин was carried out towards LGBTI, sex worker refugees and refugees who live with HIV in order to share information on the services they need, to refer them to services and to further gather data on their needs especially in relation to SRHR. Within the scope of this project, partners have reached out to 1000 KRP members, through outreach work, legal counseling and psychosocial support.

**Lessons learned:** KRP are systematically excluded from all forms of services, including SRHR services. KRPs do not have Access to information on specific health services, such as HIV/AIDS and STIs testing, counseling and treatment. KRPs have higher burden of HIV in comparison to the host community. Therefore, programs must be designed in accordance with the specific sensitivities and needs of KRP.

**Advocacy intervention programs** must be designed and implemented through direct involvement and ownership of KRP members in order to better the overall human rights and health situation.

**Conclusions/Next steps:** Partners have decided to empower KRP through service provision, outreach and advocacy in order to strengthen their capacities to access to information and services in 2018. As next steps, the partners will establish 5 service units in Istanbul, Ankara, Eskişehir and Mersin where legal counseling, PSS support, HIV counseling, SGBV counseling, referrals will be provided to beneficiaries (1000 refugees in total in 2018). Advocacy workshops with local stakeholders (health service providers, public officials, local administrations, NGOs, etc.) will be organized.

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TUPED478
Migratory status, gender and HIV/AIDS Continuum of Care Navigation Experiences among Hispanics immigrants in Puerto Rico

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1University of Puerto Rico, Social Sciences Research Center, San Juan, Puerto Rico, 2University of Puerto Rico, Clinical & Translational Research, San Juan, Puerto Rico, 3City Youth of Puerto Rico, San Juan, Puerto Rico

**Background:** Longer delays in the diagnosis of HIV, treatment interruptions, and lack of health care access could influence AIDS disease progression and increase new HIV infections. There is lack of research to understand barriers that keep Hispanics immigrants from successfully navigating the HIV/AIDS continuum of care, specially in the US owned territory, Puerto Rico (PR). This is the first research on the Continuum of Care outcomes among the growing immigrant population living with HIV in this Caribbean island.

**Methods:** The aims are: To identify and characterize differences in the HIV/AIDS continuum of care experience between Dominicans of varying migratory status and genders. Specially differences on a. HIV/AIDS diagnosis and link to care, b. retention/engagement in HIV/AIDS care, c. access to prescribed HIV/AIDS antiretroviral therapy & d. achieved viral suppression.

An exploratory and descriptive national cohort study on data from immigrants receiving HIV/AIDS services through Department of Health, Ryan White Program (RWP) in HIV/AIDS Clinics of PR during the period of January 2010 to December 2016 was conducted. Data was obtained from the PR HIV/AIDS Surveillance System, and matched with RWP. Part B database of patients in care and validated with the case management component to analyze the navigation’s outcomes at each step of the continuum of care and late diagnosis. Associations with gender and migratory status were applied.

**Results:** Among 77 Dominican immigrants diagnosed with HIV/AIDS during the period of 2010 to 2016, 62% were linked to care, 71% of those were retained in care. 97% of those were on ART, of whom 88% achieved viral suppression of VL (< 200 cp/ml). For non-authorized immigrants diagnosed, only 53% were linked to treatment and 27% achieved viral suppression. Statistical significances suggest that non-authorized Dominican immigrants show lower success linking to care (p=0.03), during the period of 2010 to 2016, 62% were linked to care, 71% of those were retained in care. 97% of those were on ART, of whom 88% achieved viral suppression (p=0.01). retaining in care (p=0.01), in ART (p=0.00) and achieving viral suppression (p=0.00).

**Conclusions:** No statistical difference was observed between gender and the different phases at the continuum of care. Despite USA federal government efforts to link Hispanic immigrants to their HIV/AIDS services, including SRHR services.
TUPED479
Showing the problem in Perú: We create an app to complaint the lack of antiretroviral drugs
M. Castillo Castro1, LL. Espati Izquierde2
1Si, da Vida, Lima, Peru, 2GIVAR, Lima, Peru

Background: Since 2004, peruvian government offers HIV’s treatment for free in several national hospitals. Today, this service benefits around 47,000 people living with HIV. However, during last years, the lack of medicines for this illness became a great problem, due the patient’s fear to complaint about that. So, in 2010, we created the group of organization named GIVAR, as a response of this crisis, picking up information in order to probe the lack of antiretroviral medicines.

The result was a better relationship between the authorities and the society’s organizations. Also, the population’s mind about complaining was changed, due the patients now have a real knowledge about their rights.

Description: Because of the increasing number of cell phones and the low cost of internet service in my country, last year, GIVAR developed the app called DENUNCIA GIVAR, as a support tool that improves the website for complaints. This app is free and can be downloaded to android cell phones. The users have 4 ways to complain, according to the nature of their case. On the other hand, DENUNCIA GIVAR allow them to probe the outrage by showing pics or videos, recorded by the accuser. So far, it has been reported around 700 complaints by Givar. Twenty of them were possible thanks to the app.

Also, DENUNCIA GIVAR have a virtual pill box that provides the users a schedule for monitoring the antiretroviral dosis.

Lessons learned: The revelation of the shortage, based on arguments and statistical data, allows the society negotiate with government and improve the supply of medicines. Society’s Watchfulness and government attention, must be supported by technologic tools, mobilization of society and media campaigns in order to diffuse the patient’s rights.

Conclusions/Next steps: DENUNCIA GIVAR is the only entering app to fight the shortage of antiretrovirals medicines in Perú. One of the achievements is the benefit of 61 babies, whose mothers are living with HIV. So, they could obtain infant formula milk, after a regulation of the government deny them that product. The achievement allows the mothers to save 400 dollars per month to feed their children.

TUPED480
Delivering legal interventions for key populations in Nigeria through HIV prevention and treatment programs
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Background: Men who have sex with men (MSM), female-sex-workers (FSW) and people who inject drugs (PWID) - key populations (KPs) are highly affected by HIV in Nigeria. They are subject to acts of violence due to discriminatory laws criminalizing their behavior, and further face barriers to accessing legal services for redress. Barriers such as the fear of reprisal and prosecution can play a role in heightening their vulnerability to HIV by driving them further underground and limiting their access to HIV care and support services. This paper appraises legal intervention services under the Integrated MARPs HIV prevention project (IMHIPP) implemented by Heartland Alliance in Nigeria.

Methods: IMHIPP provides legal intervention services to KPs who have suffered violations as part of its comprehensive HIV package in Akwa Ibom, Benue, Cross River, Lagos, Nasarawa and Rivers states and the FCT. Quantitative data was collected using the standardized violation reporting tools across the program states. This paper accessed the types of violations suffered that necessitated legal intervention, provided between July and December 2017.

Results: 29% (435) - (FSW: 149, MSM: 102, PWID: 68) of KPs who reported violence (Table 1) and 95% (507 KPs) were afraid of future reprisals. In the cases that required legal intervention, 82.5% (289) were assisted between July and December 2017. A majority (75%) of violations were related to police raids, arbitrary arrest and detention, and trends cuts across all KP groups, but highest numbers from female-sex-workers who suffer from frequent brothel raids and arrests.

Conclusions: Findings show an alarming average of 2 KPs in HIV programs per week needing some sort of legal intervention, most likely arising from the law enforcement agencies meant to provide redress. Engagement of law enforcement agencies in the HIV response is therefore essential to improving access of KPs to HIV services.

Gender equity
TUPED481
Results of the community efforts in mitigating violence and discrimination among TG/Hijra community in Lahore, Pakistan
Save the Children International, Global Fund Program, Kathmandu, Nepal

Background: Lahore, a city in Pakistan is home to nearly 4455 Hijras. This socially stigmatised community faces abuse from their families, clients, same sex partners and public. The abuse and violence are the main cause of emotional distress and mental agony among the Hijras. Despite gaining the legal identity from Pakistan Supreme Court in 2009, the legal environment supporting the co-existence of Hijras in the society is ill-defined due lack of domestication of law, internalization of rights law enforcement instrumentation and access to legal remedy. Theses non
Sexual and reproductive health and rights

TUPED482
Improving the access to sexual and reproductive health and rights among women who use drugs in Ukraine. Where are we now?

S. Tkalya1, A. Basenko2,3, P. Skala2, M. Andruschenko2, M. Kasianchuk4, A. Basenko2,3, P. Skala2, M. Andruschenko2, M. Kasianchuk4, G. Kornienko1
1Charitable Foundation 'Hope and Trust', Kyiv, Ukraine, 2Alliance for Public Health, Policy and Partnership, Kyiv, Ukraine, 3PITCH Program, Country Focal Point, Kyiv, Ukraine, 4ECOM, Tallin, Estonia

Background: Ukraine has the second-largest HIV epidemic in Eastern Europe and Central Asia. The epidemic is closely associated with injecting drug use. The estimated number of injecting drug users are 348,000 people, of whom 75% are men and 25% are women. In Ukraine, HIV prevalence among women who inject drugs was estimated at around 21.9% in 2016. HIV prevalence was higher among women who inject drugs (23.6%) than men who inject drugs (20.8%).

Methods: The assumption is that WUD are constantly faced with stigma and discrimination by medical personnel and have a number of problems in obtaining reproductive health services. Within the PITCH project, the CBO of WUD carried out the intelligence study (in-depth interviews) on sexual and reproductive health rights of women who use drugs including OST patients in Ukraine. The main points of the questionnaire were the accessibility of medical services (in particular, gynecologists), medical registration and access to women consultation during pregnancy, cases of patients’ interaction with the police and social services, as well as cases of violence.

Results: 77 women from five regions of Ukraine aged 26 to 55 were interviewed, mostly have secondary education with a predominantly low average monthly income and a long (over 5 years) experience in the use of psychoactive substances. It was shown that 80% had problems with registering in the case of pregnancy and only a quarter received completely satisfactory medical services in case when doctor knew that the patient was taking drugs and had a positive status for hepatitis C or HIV. 63% were faced with a refusal to provide medical care. 33% used drugs during pregnancy. The majority of interviewed women indicate problems when applying for assistance to the National Police of Ukraine. One third has experience of domestic violence, physical, psychological or economic.

Conclusions: Due to stigma and discrimination, women are not registered in the women’s consultation, and as a result, only during the birth will learn about existing infections and accordingly do not undergo vertical transmission. Wider range of NGO services is necessary. There is a need of national campaign to protect sexual and reproductive health rights.

TUPED483
Awareness-raising on sexual and reproductive health and rights among school-going adolescents for services access in Tanganyika province, Democratic Republic of Congo

N. Eliya Nduelbi
Sauve la Femme et la Jeune Fille du Katanga, SAFEKA, Senior Management, Kalamie, Congo, Democratic Republic of the

Background: Based on the 2016 report from the Tanganyika Provincial Educational Division, 25% of adolescent girls dropped out of schools between 2013 and 2016 due to reproductive health problems. 35% of cases were due to risky sexual behavior while 65% were caused by SGBV in school settings and communities. Prevailing social norms sustain the disregard of SRHR and condone SGBV among adolescent boys and girls. Our project aimed at empowering the latter with appropriate knowledge and skills on SRGV and SRHR in order to respectively enable them to manage such violence and make informed choices regarding their sexual life.

Description: Funded by AmplifyChange, the project (May 2016- April 2018) started with the creation of 50 secondary school-based SRHR/ SGBV youth clubs, each consisting of 25 members (13 girls: 12 boys or vice versa) aged 12-16. Then, 250 were trained as trainers in SRHG management. SRHR promotion and Participatory Theatre. Under SAFEKA coaching, trainees taught back their 1000 peers before all of them engage in mass sensitization in both schools and communities from November 2016 to date. Last August, a provincial conference brought together 250 adolescents to amplify voice for advocacy around SGBV and SRHR.

Lessons learned: From routine data we found out that 625 young boys are currently supporting girls’ SRHR and acting as role models. 732 persons (495 female; 297 male) believe that women and girls are equal to men and boys; estimated 66,282 sensitized community members are aware of comprehensive sexual education benefit for young girls and boys; reported cases of SGBV from school settings have gone up, and the number of adolescents accessing such services as HIV testing, ART, contraceptives and legal support has increased respectively in 30%, 5%, 11% and 25%. A Provincial SRHR/SGBV Youth Network was created as well. Yet, shifting social norms that undermine SRHR and condone SGBV still remains a big challenge because adolescents’ reference networks have been overlooked.

Conclusions/Next steps: The project has created a space for dialogue around SGBV and SRHR among Tanganyika adolescent girls and boys whose participation is increasingly high. Project extension is needed with additional focus on norms change and reference networks.
TUPE484
Health, rights and well-being: A practical tool for HIV and sexual and reproductive health programmes with young key populations in Eastern Europe and Central Asia

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Background: The Tool is based on the experience of young key populations in eight countries in the region who participated in focus group discussions organized by UNFPA and IPPF in 2015. Key publications underpinning this tool are the four technical briefs on young key populations and HIV (UNAIDS Interagency Working Group on Key Populations, 2015), and the four key populations implementation tools (the SWIT, MSMIT, TRANSIT and IDUIT) published by WHO, UNFPA, UNDP and UNODC in 2013-2017.

Description: This tool contains practical advice on implementing HIV and sexual and reproductive health and rights (SRHR) programmes with young key populations—sex workers, men who have sex with men, transgender people, people who inject drugs and people in detention (prison or other closed settings)—in Eastern Europe and Central Asia. Health, Rights and Well-Being is designed to support UNFPA, IPPF and their partners in the region in developing rights-based and evidence-based programmes for HIV prevention and sexual and reproductive health for young key populations. It is intended for use by public-health officials and managers of HIV and SRHR programmes; nongovernmental organizations, including community and civil-society organizations; and health workers. It may also be of interest to international funding agencies, health policy-makers and advocates. The tool describes the context of young key populations and HIV in Eastern Europe and Central Asia and outlines the importance of sexual and reproductive health and rights; discusses community empowerment, participation, rights and social inclusion, and the importance of comprehensive sexuality education; and explores the legal and policy environment for young key populations, including issues of parental consent, stigma, discrimination and violence. The comprehensive package of services for HIV and SRHR is described, and issues of effective service delivery are discussed. Examples from programmes in the region and further afield are given to show how challenges may be addressed.

Lessons learned: The tool became possible only due meaningful participation of young key populations throughout the development of this tool and in the development of country-level action plans; their experiences inform much of the text.

Conclusions/Next steps: The global tool will be developed in 2018 based on this regional one.

TUPE485
Using legal and policy mapping for advocacy, by women with HIV in Latin America (LAC)

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Background: Since 2016 the International Community of Women Living with HIV in Latin America (ICW Latina) and Hivos have been implementing a Global Fund grant aimed at strengthening the participation and advocacy of women with HIV in regional and national decision making processes, in order to achieve political, legal and regulatory changes that improve their quality of life.

Description: ICW Latina commissioned a mapping of the legal and policy framework regarding HIV, gender violence, gender inequality and HIV transmission for women with HIV in Latin America. The mapping analyzes 37 criteria, and has been the basis for the development of an online tool (http://mapo.icwlatina.org/map) that shows a comprehensive legal and policy landscape, with a human rights perspective, in 18 countries: Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, Dominican Republic, Argentina, Chile, Brazil, Cuba, Mexico, Uruguay and Venezuela.

TUPE486
The importance of harmonizing laws and policies to fulfill adolescents sexual and reproductive health rights: Good practices, gaps and opportunities in 23 countries in Africa

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Background: UNFPA with the University of Pretoria conducted an analysis of the legal and policy environment that affects adolescents’ sexual and reproductive health rights (ASRHR) in 23 countries in Africa. The study focused on 10 main rights such as:

1. Age of consent to sexual activity;
2. Age of consent to marriage;
3. Criminalization of consensual sexual activity;
4. Age of consent to health services, including HIV and contraception;
5. Access to sexual and reproductive health services, including abortion;
6. Sexual and reproductive health rights of adolescents and youth;
7. Criminalization of HIV transmission;
8. Harmful cultural, religious or traditional practices;
9. Learner pregnancy and re-entry laws and policies and

Methods: The assessment includes:

1. A review and analysis of the laws and policies in place in each one of the 23 countries that influence directly or indirectly ASRHR;
2. An in-depth analysis of the laws and policies and how they affect young people and adolescents’ sexual and reproductive health rights and access to services in six countries (Malawi, South Africa, Swaziland, United Republic of Tanzania, Uganda and Zambia).
Results: The study indicated the existence of overall disjuncture between the relevant policies and laws in the majority of the 23 countries while identifying some good practices. It demonstrated that many countries’ laws do not comply with international and regional commitments. A particular challenge in the region is the co-existence of customary law and civil law. The harmonisation of these legal systems on the issues under review is a difficult task, but essential for the fulfilment of ASHRH. The field study also demonstrated that adolescents, young people, medical practitioners, teachers and counsellors generally lacked knowledge about laws pertaining to ASHRH both from a right holder and a right bearer perspective. The rights bearers were unaware of their rights, and the service providers - while often working diligently - also did not work within the law.

Conclusions: Efforts need to be made to go beyond piece-meal actions but look at adolescents’ sexual and reproductive health rights in a holistic manner in order to harmonize national legislations and policies accordingly while ensuring their implementation.

TUPED487

Linking HIV and gender based violence: A critical analysis of the dis-proportionate burden on Kenyan women and girls

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Background: In 2016, UNDP Kenya, in collaboration with KELIN conducted a baseline survey titled ‘common forms of gender-based violence against women living with HIV’. The study revealed that whereas approximately 16 million people are living with HIV countrywide, a larger proportion of this population, 68%, constitutes women. Women living with HIV regularly face discrimination and are more likely to experience violence as a direct result of their HIV diagnosis. Living with HIV exposes women to new sites of violence, not only from partners, family members and the wider community, but also within institutional settings, particularly health care institutions. Further compounded is the area often given less attention, particularly women from key populations, such as female sex workers, and drug users, who are even more likely to experience violence.

Description: In 2016, premised on the above findings, UNDP, in collaboration with local partners including KELIN and the Network of people living with HIV, NPHAK, embarked on a one year long campaign to sensitize duty bearers such as police, judiciary and court users committees on their role in safeguarding the rights of women living with HIV. The overall aim of the trainings was to create an understanding of the linkages between sexual violence & HIV, ensure revamped, professional, and accountable duty bearers with the primary mandate to institute and undertake prosecution of criminal matters and all other related incidents occasioned against women living with HIV in an aim to foster justice.

Lessons learned: This rights based approach model of trainings was crucial in not only advancing the rights of women but also ensured that stigma generally associated with HIV was addressed by combining informative lectures with case studies, experience sharing, statistics, practical exercises and group work that enriched the learning experience of duty bearers to be able to see the real life issues in practice.

Conclusions/Next steps: KELIN aims to continue working with the Employment and Labour Relations Court as well as the HIV Tribunal to address the common forms of violence meted on women living with HIV as well as develop IEC materials that heighten awareness on SGBV and HIV.

TUPED488

The HIV epidemic among young women: Overcoming human rights violations and gender inequality to achieve the SDGs

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Background: Global efforts to curb the HIV epidemic among young women and girls are persistently challenged by gender inequality and human rights violations. In 2015, women in Sub-Saharan Africa accounted for 55% of new infections among adults over the age of 15. Lack of sexual and reproductive health services, economic insecurity, and limited educational access contribute to the high prevalence of HIV. The SDG 5 - to achieve gender equality and empower all women and girls - promises to address these determinants of health.

Description: We analyzed the progress towards and current challenges in achieving the SDG 5 through a legal framework. We described the links between gender inequality, policies, and health outcomes, and reviewed the state of national, regional and global policies that support women and girls’ rights. We discuss the human rights barriers that must be addressed to achieve the SDGs and aim to generate action and accountability around women and girls’ human rights.

Lessons learned: There are widespread gaps in implementation of comprehensive sexuality education, access to safe and legal abortion, and the development of special protection measures for adolescents and youth regarding their sexual and reproductive health. States with plural or multiple-legal systems, which allow customary, religious and tradition or practice to rule, present a challenge in measuring the SDG 5.6. Ensuring that data collection and validation incorporates relevant laws and commentaries by human rights bodies and civil society organizations will be necessary to achieve the SDG’s promise. An integrated human-rights approach to assess compliance with human rights obligations and measures key issues areas in sexual and reproductive health and rights and their implementation is necessary to overcome these challenges.

Conclusions/Next steps: Improving access to sexual and reproductive health services is necessary to achieve the SDGs. The provision of these services fundamentally relies on the fulfillment of human rights. A human-rights based approach is needed to adequately document and address the political barriers individuals face in plural and multi-legal systems, correctly measure our progress towards the SDG 5, ensure compliance with SDG commitments, and reduce the burden of HIV in women in Sub-Saharan Africa.

TUPED489

Leveraging social media as a tool to promote SRH/HIV information among visually impaired persons in Lagos State, Nigeria

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Description: AMPLIFY CHANGE is working on a project titled Voices for Change: Promoting increased uptake of SRH services among PWDs in Lagos State which seeks to equip PWDs with SRH knowledge and skills to enable them make informed SRH decisions. After training the leadership of the
PWDs clusters in Lagos State on SRHR issues in June 2017, trainees were required to conduct step down trainings among members. The NAB cluster opted to utilise their existing WhatsApp and Facebook platforms to share SRH information. Since September 2017: NAB leadership has been training group members at a dedicated hour every weekend. SRH topics are posted on the WhatsApp group. NAB Lagos and Southwestern Facebook pages. The sessions are interactive and the SRH series reaches 451 members weekly. Topics addressed have included: Basic concepts of SRH; Sexuality, Gender, SRH as a Human Right; Menstrual hygiene, Ovulation, Fertilization, STIs and Family Planning.

Lessons learned: Based on the series, individual members have reached out to the moderators for guidance on dealing with personal SRH challenges ranging from poor erection, irregular menses to coping with a HIV positive partner in a discordant relationship. Using social media has created the space for members within and outside Lagos to better understand their SRH rights, and discuss their SRH concerns in a non-threatening space.

Conclusions/Next steps: PWDs can be better equipped to make informed SRH decisions. Stakeholders need to explore innovative ways of reaching PWDs with appropriate and user friendly information in formats that will support their uptake of SRH services.

TUPED490
Prevention of pediatric HIV/AIDS and AIDS orphans: Celebrating 35 years of hope, fear, innovation and courage among women living with HIV in the early years of the pandemic

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Background: Pediatric HIV/AIDS was first reported in New York City in 1983. Ten years later, HIV/AIDS had become a “Health Care Crisis of Women and Families” increasing at “alarming” rates. During those years, effective HIV prevention and treatment were absent, and in this absence, even HIV testing of women of reproductive age, pregnant or not, was greeted with fear, ambivalence and ignorance. For those infected, recommendations were clear: no woman with HIV should have children.

Description: Twenty-five to 30 years ago, most women living with HIV did so in isolation, and did not know whether they would live to see their children go to kindergarten. Their providers had limited resources: Until 1994 zidovudine was the only available antiretroviral. Until 1996 viral load testing, even when available, had a limit of detection of 10,000 copies/mL. Women all over the world demonstrated courage and determination to protect their families. We present four young women who exemplify the courage and determination of women all over the world to confront their own family’s health care crisis.

Personal Stories:
Mom #1: Taking on the United States Congress and FDA.
Mom #2: Rebecca’s story: Creating WORLD and a family.
Mom #3: I never gave up on myself or my family. Today I’m a grandmother.
Mom #4: Surviving genocide to fight for health.

Lessons learned: We celebrate here heroic pioneers who lived with the virus in the 1980s and early 1990s, dared to assert their human rights, and fought the long, hard fight for their own health and the health of their families. In so doing, these women changed the course of the pandemic. Today, the right of women living with HIV to found a family has been achieved.

Conclusions/Next steps: None of these achievements came easily. The HIV/AIDS innovations of health care advocacy at community and personal levels must be acknowledged and remembered. Those of us who lived through those years have a duty to celebrate one of the great victories of 20th century medicine, so that these lessons are not forgotten.

TUPED491
Facilitating access to sexual and reproductive justice for orphaned and vulnerable adolescent girls

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Background: Young people (15-24) contribute significantly to Kenya’s HIV burden accounting for 51% of all the new infections with adolescent girls and young women (AGYW) accounting for a disproportionate amount of this burden. The intrinsic connections between HIV and sexual and reproductive health and rights (SRHR) are well established given that HIV is predominantly sexually transmitted or associated with pregnancy.

Informed by this, the Kenya Legal and Ethical Issues Network on HIV and AIDS (KELIN) is implementing a project: “facilitating access to sexual and reproductive justice for orphaned and vulnerable adolescent girls”, aimed at securing sexual and reproductive justice as an avenue to reduce the HIV prevalence among AGYW.

Description: The two-year project which begun in 2016, is being implemented in Homa-Bay and Kisumu counties. It is structured to address individual and societal barriers of access to health, information and justice through:

a) Increased knowledge and understanding on SRHR, HIV and women land and property rights by AGYW.

b) Addressing structural barriers of access to services and justice through engagements with key stakeholders including elders and widows; the Judiciary and its structures; and policy makers and legislators.

c) Nurturing AGYW through sports and drama. One of the foundational lessons learned in this project is “realising your dreams” and dismantling stereotypes on what spaces AGYW should or ought to belong in.

[1] Rationale for counties: HIV burden, 26% and 21% rates of unintended pregnancy; and KELIN’s existing relationships in the region through its Cultural Structures Project.

Conclusions/Next steps: There is need to replicate intervention models that seek to address both structural and individual barriers. Interventions solely aimed at addressing the individual needs of AGYW fail to address the societal contexts in which AGYW come from and the areas of vulnerability that individual empowerment cannot shift.

Children’s rights and HIV

TUPED492
Findings from violence against children survey in Nigeria: Inferences for HIV programme for abused children and young people

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Background: Globally, Nigeria ranks second in the number of people living with HIV/AIDS. Although more than 90% of Nigeria’s 15-to-24 years old had heard of AIDS, only 24.2% females and 33.5% males had a comprehensive and correct knowledge of HIV/AIDS while an estimated
325,900 of them are living with HIV in the country. A National Survey on Violence Against Children was conducted in 2014 by National Population Commission, in collaboration with FMWASD, NACA, UNICEF Nigeria and United States Centers for Disease Control and Prevention. The study provided strong justification for improved HIV programmes for young people.

Methods: A multi-stage cluster design was used for the Nigerian Violence Against Children Survey (VACS). Data collection included interviews with 1,766 girls and young women and 2,437 boys and young men. The survey examined the link between exposure to violence in childhood and subsequent sexual risk-taking behaviours of males and females aged 18-24 who had experienced sexual violence in childhood. Data from this population provides estimates of the prevalence of violence ever experienced in childhood, while data from 13-17-year olds estimate the prevalence of violence experienced in the 12 months prior to the survey.

Results: According to the VACS findings, violence against children is highly prevalent in Nigeria. In 1 in 4 females and 1 in 10 males between the ages of 18-24 reported ever experienced sexual violence in childhood. Almost half of females and males who experienced sexual violence reported that their first incident of sexual violence occurred before the age of 14. A majority of females and males who experienced sexual violence in childhood reported never having been tested for HIV (51% of females and 60% of males).

Conclusions: Based on the findings of the Nigeria VACS, priority actions were developed through a consultative and participatory approach by the Technical Working Group on VACS. The TWG developed and is implementing a comprehensive, holistic and multi-sectoral response which focused on adopting and implementing laws and policies that prevent and respond to violence, encouraging children to speak out and enhancing access to youth-friendly HIV Testing Services and other services for young people.

**Stigma and discrimination regarding people from key populations**

**TUPED493**

**Reaching key populations within the East African Community: Rhetoric unsupported by policy**

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**Background:** The East African Community (EAC) partner states-Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda, have approximately 23% of the global people living with HIV (PLHIV) population. Significant resources mobilized for HIV prevention and treatment services in the EAC have contributed to a decline in HIV prevalence and access to antiretroviral therapy for 48% of PLHIV. Spread of HIV in these countries is concentrated among key and vulnerable populations particularly criminalized groups: commercial sex workers, men who have sex with men, and people who inject drugs. Therefore achieving 90-90-90 targets require interventions focused on key populations and a supportive legislative and policy framework.

The EAC HIV and AIDS Prevention and Management Act 2012, provides a harmonized framework to guide HIV responses in partner states and provides protection for key and vulnerable populations. This study sought to identify if partner states’ legislation is consistent with the objectives of EAC legislation, specifically protection of key populations.

**Description:** USAID-funded Cross-Border Health Integrated Partnerships Project conducted a desk review in 2016 of EAC and partner states’ HIV-related legislations, policies, and strategies focusing on points of convergence and divergence, and fundamental issues affecting key populations.

**Lessons learned:** In summary, the EAC and partner states have substantive HIV laws, policies and strategies. The legislation across countries aspire to a rights based approach, and include constitutional provisions to guarantee access to health and HIV services. However, some partner states’ laws are regressive with regards to key populations which limit progress towards epidemic control. Among partner states’ laws, positive elements include mandating provision of HIV services and prohibiting discrimination in employment and admission to academic institutions based on HIV status. Regressive elements include disclosure to third parties without consent; criminalization of intentional transmission; criminalization of key populations; and mandatory testing of some populations which contradicts EAC legislation.

**Conclusions/Next steps:** Strides have been made to align country legislation to EAC legislation, but gaps remain. To reach 90-90-90, lobbying and advocacy to address decriminalization, stigma and discrimination challenges facing key populations is needed. Otherwise, available services may not be used and impact on the HIV concentrated epidemic among key populations will not be realized.

**TUPED494**

A qualitative study of intersectional stigma and discrimination of transgender women living with HIV: Implications for HIV vulnerability and access to HIV-related care

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**Background:** Transgender (trans) women experience a disproportionate HIV prevalence relative to cisgender women, due to social and structural contexts of inequity, including intersectional stigma and discrimination. Scant stigma literature has focused on trans women as a unique key population, separate from women or LGBT populations. Studies have also failed to document the strengths of trans women in navigating intersectional stigma. This exploratory study sought to understand:

1. How does intersectional stigma influence HIV vulnerability and access to HIV-related care for trans WLWH?
2. How do women exhibit resiliency and empowerment in relation to intersectional stigma?

Methods: Semi-structured in-depth individual interviews lasting 30-90 minutes were conducted with 10 trans WLWH purposively sampled based on HIV-related healthcare access, transition situations, and intersecting identities from 3 Canadian cities (Toronto, Montreal, Vancouver) between May 2017 and January 2018. Interviews were audio-recorded and transcribed verbatim. Qualitative data analysis was conducted using framework analysis, a qualitative content analysis method, which includes line-by-line coding using an inductive approach to develop themes, development of an analytic framework, application of the analytic framework to subsequent transcripts, charting of the data, and interpreting the data with key stakeholders. Data analysis was supported through the use of NVivo10.

**Results:** Women’s narratives highlight intersectional stigma and discrimination, including transphobia, gender non-conformity stigma, and HIV stigma, among others experienced by trans WLWH. These intersecting stigmas resulted in pervasive violence which increased HIV vulnerability and decreased access to HIV-related care. However, findings also suggest that trans WLWH exhibit resiliency and empowerment through multiple mechanisms, such as setting boundaries (e.g., refusing care), becoming self-advocates (e.g., informing providers of how/why their actions or words are discriminatory), supporting each other in accessing competent, stigma-free care (e.g., sharing experiences with other trans women), and becoming public advocates for the rights of trans women living with/affected by HIV (e.g., volunteering at AIDS service organizations).

**Conclusions:** Future research should develop/adapt, implement, and evaluate stigma reduction interventions to address HIV vulnerabilities and healthcare access disparities for trans WLWH, which take into context the lived realities of trans women’s daily lives and acknowledge their many strengths as individuals and as a community.
TUPED495
Stigmatization of HIV and barriers to health service use for men who have sex with men with HIV in Manila, Philippines: A qualitative study
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Background: The Philippines currently has one of the fastest growing HIV epidemics in the world. Despite recent expansions in free testing and treatment services for PLHIV, the growth of the epidemic continues to increase. In other settings, HIV-related stigma has proved to be a substantial deterrent to accessing health services. The objective of this study was to describe experiences of stigma among HIV-positive men who have sex with men (MSM). A subpopulation that accounts for the vast majority of sexually transmitted cases of HIV.

Methods: Using purposeful sampling, 21 in-depth interviews with MSM with HIV (n=15) and with NGO workers (n=6) were conducted in Manila. Data were analyzed using a thematic analysis framework to illustrate the ways stigma influenced health service use–related behavior for participants both pre– and post-diagnosis.

Results: Drivers of stigma included connotations with injection drug use, extramarital sex, homosexuality, and sex work, leading to a “dirty-ness” associated with HIV. Perceived and indirect experiences of stigma drove participants’ fear of HIV more than any direct experience of stigmatization. The deep-rooted collectivism and Catholic culture in the Philippines heightened participants’ awareness and internalization of stigma. Overall, these stigma-related fears created reluctance to get tested, often leading to late diagnoses. Post-diagnosis, participants discussed fears of accessing treatment, despite the fact that it was free, because of the stigma attached to potentially being seen at clinics and hospitals that treat HIV patients. Medication adherence was also challenging because of the fatalistic attitudes regarding health created by internalization of HIV-related stigma.

Conclusions: Overall, this study illustrates the ways in which stigma can play a role in decision-making regarding health service use for MSM with HIV in the Philippines. Despite awareness of free testing and treatment services, stigma provides a substantive deterrent to access. This effect may be particularly strong in the Philippines, which has deep-rooted cultural factors like strong Catholic traditions and collectivism that may exacerbate the impacts of stigma. As such, programs designed to specifically target the drivers of stigma and mitigate the impacts of stigma on the lives of PLHIV are needed in the Philippines.

TUPED496
Reporting, prevention and response of gender-based violence against key populations in Côte d’Ivoire
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Background: Men who have sex with men (MSM) and female sex workers (FSW) in Côte d’Ivoire have HIV prevalence rates that are 3 to 5 times higher than the general population. They are also frequent victims of gender-based violence (GBV) and are considered to be widespread in Russia. Little is known about individual and contextual factors that influence its severity.

Methods: We used data from a cohort study of HIV-positive people who reported a lifetime history of substance use in St. Petersburg, Russia. We focused on two outcomes: perceived HIV stigma (20-item Berger Stigma Scale) and substance use stigma (score on 21 questions). Multivariable linear regression was used to examine the cross-sectional association of each stigma outcome with the following potential risk factors: perceived level of social support, gender, recent (past month) substance use, depressive symptoms (CES-D score ≥ 16), alcohol dependence, and ever setting sex.

Results: Participants (n=249) had the following characteristics: mean (standard deviation) age 34 (6) years; 168 (68%) males; 113 (46%) depressed; 137 (55%) alcohol-dependent; 97 (39%) recent substance use; and 149 (60%) low social support. Mean (SD) HIV stigma score and substance use stigma scores were 21 (8) and 55 (16), respectively. Alcohol dependence and presence of depressive symptoms were associated with increased HIV and substance use stigma (Table). Recent substance use was associated with higher substance use stigma, but not with HIV stigma. We did not detect an association between social support and either stigma outcome.

TUPED497
Determinants of HIV and substance use stigma among people with a history of substance use who are living with HIV in Russia
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Background: Persons with substance use and living with HIV are affected by stigma. Although stigma related to HIV and substance use is considered to be widespread in Russia, little is known about individual and contextual factors that influence its severity.

Methods: We used data from a cohort study of HIV-positive people who reported a lifetime history of substance use in St. Petersburg, Russia. We focused on two outcomes: perceived HIV stigma (20-item Berger Stigma Scale) and substance use stigma (score on 21 questions). Multivariable linear regression was used to examine the cross-sectional association of each stigma outcome with the following potential risk factors: perceived level of social support, gender, recent (past month) substance use, depressive symptoms (CES-D score ≥ 16), alcohol dependence, and ever setting sex.

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Table 2017 GBV Services offered

<table>
<thead>
<tr>
<th>Services</th>
<th>Number of sessions/Sites</th>
<th>Number of participants</th>
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<tr>
<td>Advocacy sessions</td>
<td>13</td>
<td>185 authorities</td>
</tr>
<tr>
<td>Legal “listening sessions”</td>
<td>42</td>
<td>630 KP</td>
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<tr>
<td>Psycho-education</td>
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</tbody>
</table>

A FSW from Santa Maria de Gagnoa confided in a “circle against violence” that “now when a violent client comes, we blow in our whistles and he leaves.”

Conclusions/Next steps: Unfortunately GBV continues to be a barrier to HIV prevention and treatment for KPs in Côte d’Ivoire. In 2018, HAI plans to extend the “Circles against Violence” to all sex work sites of the project for a better reference of GBV survivors to medical, legal and social support services and to promote the systematic documentation of violence to nourish local, national and even international advocacy.

TUPED498
Stigmatization of HIV and barriers to health service use for men who have sex with men with HIV in Manila, Philippines: A qualitative study
A. Adia, M. Callahan, A. Restan, L. Hernandez, R. Imperial, D. Operario

Background: The Philippines currently has one of the fastest growing HIV epidemics in the world. Despite recent expansions in free testing and treatment services for PLHIV, the growth of the epidemic continues to increase. In other settings, HIV-related stigma has proved to be a substantial deterrent to accessing health services. The objective of this study was to describe experiences of stigma among HIV-positive men who have sex with men (MSM). A subpopulation that accounts for the vast majority of sexually transmitted cases of HIV.

Methods: Using purposeful sampling, 21 in-depth interviews with MSM with HIV (n=15) and with NGO workers (n=6) were conducted in Manila. Data were analyzed using a thematic analysis framework to illustrate the ways stigma influenced health service use–related behavior for participants both pre– and post-diagnosis.

Results: Drivers of stigma included connotations with injection drug use, extramarital sex, homosexuality, and sex work, leading to a “dirty-ness” associated with HIV. Perceived and indirect experiences of stigma drove participants’ fear of HIV more than any direct experience of stigmatization. The deep-rooted collectivism and Catholic culture in the Philippines heightened participants’ awareness and internalization of stigma. Overall, these stigma-related fears created reluctance to get tested, often leading to late diagnoses. Post-diagnosis, participants discussed fears of accessing treatment, despite the fact that it was free, because of the stigma attached to potentially being seen at clinics and hospitals that treat HIV patients. Medication adherence was also challenging because of the fatalistic attitudes regarding health created by internalization of HIV-related stigma.

Conclusions: Overall, this study illustrates the ways in which stigma can play a role in decision-making regarding health service use for MSM with HIV in the Philippines. Despite awareness of free testing and treatment services, stigma provides a substantive deterrent to access. This effect may be particularly strong in the Philippines, which has deep-rooted cultural factors like strong Catholic traditions and collectivism that may exacerbate the impacts of stigma. As such, programs designed to specifically target the drivers of stigma and mitigate the impacts of stigma on the lives of PLHIV are needed in the Philippines.
Building social capital to improve the context for LGBT service access among the LGBT community in Lesotho

I. Mwhasa
Phelisanong Bopheleng, Programs, Hlotse, Lesotho

Background: The right to health is considered universal. However, in countries like Lesotho, exclusion of minority groups, such as Lesbians, Gays, Bisexuals and Transgender (LGBT), continues to affect health access. LGBT-led organisation Matrix are aware of approximately 315 LGBT-Gays, Bisexuals and Transgender (LGBT), continues to affect health access. In 2015, national NGO Phelisanong Bopheleng began focusing on empowering LGBT people to access HIV services and have their rights recognized through Bocha Ke Palesa youth project.

Description: The project took a two-pronged approach (2015-2017):
- First Pride event held in Hlotse
- 25 community leaders engaged in discussions and awareness events.
- 28 stakeholders trained on gender and sexual diversity.
- 20 health providers sensitized to provide LGBT-friendly HIV services.
- 268 LGBT reached through safe spaces.

Conclusions: Stigma related to HIV and substance use continues to affect people with a substance use history living with HIV in Russia. Depressive symptoms and alcohol dependence were associated with both HIV and substance use stigma. Further research, including qualitative studies, needs to examine whether these associations are causal and to explore further sources of stigmatization of HIV and substance use in Russia, such as provider stigma or public attitudes around HIV and substance use.

### Analysis of risk factors of HIV and substance use stigma

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>HIV stigma score</th>
<th>Substance use stigma score</th>
<th>β (95% CI)</th>
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<tr>
<td>Social Support</td>
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<td>Ever Selling Sex</td>
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<td>Recent Substance Use (past month)</td>
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**TUPED498**

Getting to the root: Addressing the barriers to HIV service access among the LGBT community in Lesotho

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**TUPED499**

Stigma is still a problem: Experiences of HIV and gay-related stigmas and coping among young HIV+ GBMSM in Puerto Rico

S.M. Malave-Rivera, R. Vargas-Molina, E. Santiago-Rodríguez, C.E. Rodríguez-Díaz, S.D. Rhodes
1University of Puerto Rico. Graduate School of Public Health, San Juan, Puerto Rico. 2Wake Forest University. Social Sciences & Health Policy, North Carolina, United States

Background: Despite significant advances in biomedical and socio-behavioral sciences to improve the health outcomes of people living with HIV (PLWH), HIV and gay-related stigmas still persist. Both types of stigmas negatively impact HIV prevention efforts, linkage and retention in care, and quality of life of PLWH. Young gay, bisexual and other men who have sex with men (YGBMSM) are at increased risk for HIV in the United States and Puerto Rico (PR). In 2015, youth 13 to 24 y/o accounted for 22% of new cases and 81% of those were GBMSM. Latino GBMSM are among the most vulnerable and disenfranchised from care.

Methods: We conducted a qualitative study in PR to understand how YGBMSM experience stigmas and how they cope with those experiences. We conducted 5 focus groups with n=29 HIV+ YGBMSM ages 18 to 29. Audio files were transcribed and organized in NVivo v11 for content analysis.

Results: Results suggest that HIV+ YGBMSM in PR experience enacted, perceived and internalized HIV and gay-related stigmas, and intersections between stigmas exist. Accounts of enacted HIV stigma include experiences of discrimination at work and healthcare settings. Participants also perceive that many Puerto Ricans are uninformed about the routes of HIV transmission; thus, they act negatively towards PLWY. Participants also perceive that other GBMSM have negative opinions about those with HIV, based on notions of personal responsibility of infection and “slut shaming”, which foster exclusion. Feelings of shame about being GBMSM and being HIV+ were also found. Active and passive coping strategies to deal with stigmas were identified, including confronting stigmatizers and concealing one’s HIV status and/or sexual orientation/behavior.
Conclusions: In the era of PrEP, undetectability, and LGBT rights, HIV and gay-related stigmas still hinder HIV prevention and care globally. It is important to understand current manifestations of HIV and gay-related stigmas and the effects on wellbeing and health outcomes. Developing interventions to address stigmas must acknowledge the complex intersections between various forms of stigmas. In addition, it is important to incorporate the voices from younger generations into the development of responses to eliminate stigmas.

TUPED500
Impact of social stigma on the mental health outcomes of female sex workers and men who have sex with men in Cameroon

O.M. Olawore1, S. Ketende1, S. Zadrove1, I.M. Njindam1,3, G. Fako3, J. Knight-Johnson5, I. Cruickshank6, D. Chevannes-Vogel7, C. Stewart3
1Ministry of Health, Jamaica, HIV/STI/TB Unit, Health Promotion and Protection Branch, Kingston, Jamaica, 2University of the West Indies, HIV
and STI Research Unit, Mona, Jamaica, 3HP+/RTI International, Washington D.C., United States, 4The Palladium Group, Health Policy Plus Project, Kingston, Jamaica, 5University of Miami, USA, 6Ministry of Health, Jamaica, 7University of Toronto, Canada

Background: Social and sexual-related stigmas affecting key population (KP) have been shown to limit engagement in care including through their impacts on mental health. Here, we assess the association between stigma, self-reported HIV status and the mental health status of men who have sex with men (MSM) and female sex workers (FSW).

Methods: 2255 adult FSW (median age 28 years) and 1323 adult MSM (median age 23 years) were recruited by respondent-driven sampling in five urban centers of Cameroon and completed a structured instrument and biological testing. A positive depression screen defined as a Patient Health Questionnaire (PHQ-9) score of 10 or greater. Social stigma experienced, perceived or anticipated as a result of being a FSW or MSM was measured by asking the study participants a series of validated indicators. Logistic regression models stratified by population were used estimate the odds of depression associated with any experience of stigma and self-reported HIV status with adjustments for demographic, social and behavioral factors.

Results: The prevalence of depressive symptoms was 70.4% among FSWs (aPr = 71.8%, 95% CI: 69.5-74.0) and 71.2% among MSM (aPr = 72.1%, 95% CI: 69.8-74.0). Stigma was significantly associated with depression in both the crude and adjusted analysis for both FSW (OR = 1.55, 95% CI: 1.28-1.86, aOR = 1.34, 95% CI: 1.04-1.72) and MSM (OR = 2.83, 95% CI: 1.82-3.67, aOR = 1.63, 95% CI: 1.21-2.19). For FSW, however, the significance of the association was negated after adjusting for RDS sampling. In these analyses, self-reported HIV status did not appear to be associated with depression. Among FSW, disclosure to a healthcare worker about KP membership and age remained significantly associated with depression after all adjustments. Finally, transgender women were found to have higher levels of depression as compared to cis-gender MSM.

Conclusions: There are consistent relationships observed between mental health and stigma among key populations in Cameroon. Currently, HIV and stigma mitigation programs offer limited mental health services and existing mental health services offer limited HIV prevention and stigma mitigation services suggesting the need for better integration of these services as a means of providing comprehensive and evidence-based services for key populations in Cameroon.

TUPED501
Make us feel safe: Discrimination and disclosure of sex work status in healthcare settings and implications for HIV harm reduction strategies among US-based sex workers

J. Brown1, B. Robinson1
1Call Off Your Old Tired Ethics Rhode Island (COYOTE RI), Providence, United States, 2Brown University, Alpert Medical School, Providence, United States

Background: Sex workers (SWs) of all gender identities remain a key population that face disproportionately high rates of HIV in the US. The criminal status of sex work, many structural barriers to healthcare and support across other sectors, and widespread discrimination against SWs create an environmental in which it is difficult for SWs to obtain healthcare. Many harm reduction strategies target SWs but are often unsuccessful due to the many intersecting forms of marginalization SWs face in the US. A nationwide SWs rights organization, COYOTE RI, carried out a study for four months in 2017 through which they looked to understand how healthcare systems and those attempting to conduct harm reduction programs with SWs could better connect with this key population.

Methods: This community-based research was carried out by organizations that have advocated for SWs rights for many decades. This study surveyed people working in various areas of the sex industry in all regions of the US [n = 1,496]. Analysis of the data utilized qualitative and quantitative methodologies and key findings were developed through the use of grounded theory.

Results: This study found that there are many ways in which clinicians, healthcare workers, and harm reduction programs can better serve US SWs. Retaining absolute confidentiality, eliminating moral judgments, showing respect, treating SWs the same way other patients are treated, listening to and inquiring for facts, avoiding assumptions about sex work, reading publications by SWs, and publicizing the fact that programs are SW-friendly would allow SWs to be less hesitant in seeking and continuing HIV care.

Conclusions: There is much work to be done in the US to remedy the discrimination that SWs face in healthcare settings. Understanding and taking into consideration the experiences and perspectives of SWs is key in connecting with and providing effective, long-term HIV care for this key population.

Stigma and discrimination in specific settings, including family, community, work place, education, and healthcare settings

TUPED502
Fear of workplace HIV transmission, an unrecognized and actionable driver of stigma and discrimination in health facilities

N. Skyes1, R. McLean1, J. Nyblad2, S. McLeish1, T. Clough1
1Ministry of Health, Jamaica, Health Promotion and Protection Branch, Kingston, Jamaica, 2University of the West Indies, Jamaica

Background: Stigma and Discrimination (S&D) are barriers to uptake and retention in HIV prevention, care, and treatment programs and particularly damaging within health systems. Measuring key actionable S&D drivers is a critical first step to reducing S&D and improving access, link-age, and retention in HIV services. One key actionable driver is worry about HIV transmission in the workplace, which can lead to unnecessary
infection control behaviors. These are not only stigmatizing behaviors but can lead to breaches of confidentiality, signaling to others that a client is different in a dangerous way. The USAID-and-PEPFAR-funded HP+ project and UWI-HARP with the MOH and the National Family Planning Board are applying a total-facility approach to S&D-reduction. The first step in Jamaica was collection of baseline data that is informing tailored facility-based S&D-reduction activities and will support evaluation.

Methods: Quantitative survey data was collected in three facilities (July-Sept 2017) with all levels (medical and non-medical) of public sector healthcare workers (HCWs) and 292 clients living with HIV. Data on key drivers (fear of HIV transmission/attitudes/health facility environment) and manifestations of S&D were collected from HCWs, while clients reported on experienced discrimination, anticipated stigma and its relationship to health seeking behaviors.

Results: When asked about worry of contracting HIV when conducting five routine activities within the purview of their occupational requirements, doctors (60%) and other medical staff (58%) reported concern/fear of at least one activity (Table 1). Self-reported routine uses of stigmatizing avoidance behaviors with clients living with HIV was high across all categories of staff (Figure 1). For example, HCWs reported using precautionary measures with clients living with HIV that are not used with other clients (48%). HCWs also reported high rates of training in infection control. Clients reported lower levels of experiencing double gloving (8%) in the past 6 months than staff reported using.

Conclusions: Data revealed that despite significant training or other knowledge building interventions, the attitudes or behaviors of key HCW towards PLHIV continue to reflect stigmatizing tendencies. Strengthening understanding and enforcement of the universal application of standard precautions can reduce one common type of S&D in facilities—stigmatizing avoidance behaviors.

**Table 1. Areas of Concern about HIV Exposure by Job Category (Percentage)**

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<tr>
<th>Areas of Concern</th>
<th>Doctors (N=108)</th>
<th>Other Medical (N=178)</th>
<th>Admin/ Support (N=43)</th>
<th>Aux/ Cleaning (N=68)</th>
<th>Total (N=417)</th>
</tr>
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<tbody>
<tr>
<td>Touched the clothing of a client living with HIV</td>
<td>Worried</td>
<td>4.6%</td>
<td>6.2%</td>
<td>14.0%</td>
<td>20.5%</td>
</tr>
<tr>
<td>Dressed the wounds of a client living with HIV</td>
<td>Worried</td>
<td>51.1%</td>
<td>42.1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Drew blood from a client living with HIV</td>
<td>Worried</td>
<td>54.6%</td>
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<td>0%</td>
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</tr>
<tr>
<td>Took the temperature of a client living with HIV</td>
<td>Worried</td>
<td>0%</td>
<td>2.5%</td>
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<tr>
<td>Save an injection to a client living with HIV</td>
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<td>39.8%</td>
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</tbody>
</table>

**Composite Indicator:** Yes, to at least 1 of 5 applicable items

**Table 2. Internalised stigma and ARV drug adherence among health care workers living with HIV in Zambia and South Africa**

<table>
<thead>
<tr>
<th>Health facility workers n %</th>
<th>Zambia Community health workers n %</th>
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<th>Health facility workers n %</th>
<th>South Africa Community health workers n %</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Sample: Those who self-reported their HIV status Living with HIV</td>
<td>n = 60</td>
<td>95</td>
<td>15.3</td>
<td>n = 123</td>
<td>35</td>
</tr>
<tr>
<td>Sample: Those living with HIV Not currently taking ARV drugs</td>
<td>n = 95</td>
<td>10.0</td>
<td>n = 35</td>
<td>0.0</td>
<td>n = 105</td>
</tr>
<tr>
<td>Sample: Those living with HIV who answered all three internalized stigma questions Agreed or strongly agreed with one of the three items reflecting internalised stigma</td>
<td>n = 88</td>
<td>22.0</td>
<td>n = 35</td>
<td>20.0</td>
<td>n = 102</td>
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**TUPED503**

“Self-stigma is the worst kind of stigma”. Internalised stigma and navigating HIV care amongst health workers living with HIV in Zambia and South Africa. the HPTN071 (PopART) stigma ancillary study

V. Bond1,2, M. Mwamba3, N. Vanqa3, D. Ziba4, D. Milimo5, L. Vilijoen5, T. Mänga1, H. Ayles4, M. Steinhaus1, J. Hargreaves2, G. Hoddinott1, T. Nicholson1, A. Stang1

Zambart, Lucoza, Zambia, 1London School of Hygiene and Tropical Medicine, Department of Global Health and Development. Faculty of Public Health and Policy, London, United Kingdom, 2Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Faculty of Medicine and Health Sciences, Stellenbosch, South Africa, 3London School of Hygiene and Tropical Medicine, Department of Clinical Research, London, United Kingdom, 4International Center for Research on Women, Washington, United States, 5London School of Hygiene and Tropical Medicine, Department of Social and Environmental Health Research, London, United Kingdom

Background: Sub-Saharan African health workers are looked up to as knowledgeable professionals and leaders. This assigned professional status may heighten feelings of shame, guilt or worthlessness stemming from the acceptance, or internalisation, of negative attitudes about HIV, making it harder for this group to reveal an HIV-positive status. We explore the prevalence of internalised, or ‘self’, stigma amongst Zambian and South African health workers living with HIV (HIV-LWH) and implications for accessing care.

Methods: Health facility (n=963), community health workers (n=281), and trial-specific community health workers (n=831) across 21 urban health facilities linked to a cluster randomised trial HTPN071 (PopART) completed a self-administered survey in 2015. Questions included self-reported HIV status, ART status, and reported internalised stigma for HIV-LWH. Fifty HW-LWH were then interviewed about their experiences in 2016-17.

Results: Of all health workers, 87.8% self-reported their HIV status. Across the health worker cadres, reports of positive HIV status ranged from 15.3% to 28.5% in Zambia, and from 8.3% to 19.6% in South Africa. Compared to South Africa, all Zambian HIV-LWH cadres reported higher internalised stigma, particularly health facility workers, with 25% agreeing with one of three internalised stigma items, and 10.5% reporting not taking ART.

In qualitative data, the term ‘stigma’ was often aligned with ‘self-stigma’. Health facility workers discussed fearing gossip, co-workers using their status against them, and client reactions. Community health workers (both types) were more open about living with HIV, drawing on their experiences to support clients. They were also more likely to access HIV clinic services at the local clinic. If health facility workers accessed ART at their workplace, they employed tactics to ‘fast-track’ care and avoid identification. Experienced stigma, youth and pregnancy heightened in internalised stigma. Interviews evoked poignant stories of Health facility workers accessing ART being challenged, making it harder for this group to reveal an HIV-positive status. We explored the prevalence of internalised, or ‘self’, stigma amongst Zambian and South African health workers living with HIV (HIV-LWH) and implications for accessing care.

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Conclusions: Most health workers reported their HIV status. HIV-LWH reported concerning levels of internalised stigma, particularly Zambian health facility workers. Interventions are required to support those at the heart of HIV service delivery.

Methods: Synthesis of baseline HIV stigma data from a large, mixed-method, longitudinal study. Quantitative data came from a representative population cohort (3869 PLHIV, a subsample of 5088 CMs not living with HIV, and 1558 HWs). Stigma was categorised into three domains using 11 items: experienced in communities, in health settings and internalised stigma (self-stigma). Qualitative data came from observations and key informant interviews.

Results: 137/3859 (3.5%) of PLHIV reported at least one of 11 types of stigma. Reported stigma was more frequent in the community (22.1%) than in health settings (7.3%). Internalised stigma was common (22.6%). There was more internalised but less experienced stigma in health settings in Zambia than in South Africa. Structures and client-flow patterns identifying HIV status in clinics sometimes made PLHIV uncomfortable. Among PLHIV on treatment before the start of the trial, experiencing stigma was less common reported by those who had been non-adherent (AOR 1.52, 95% CI 1.12-2.07). Stigma was experienced most acutely close to time of diagnosis.

Few CMs reported stigmatising attitudes, but many perceived that stigma was present. HWs rarely reported they would be ashamed if a family member was living with HIV (176/1439, 5.2%). In contrast, high proportions reported they would be ashamed if a family member were a man having sex with men (1065/1366, 78.2%) or a pregnant woman (1100/1408, 78.2%) or a woman pregnant before marriage (553/1432, 45.6%), especially in Zambia. However, HWs supported the rights of these groups to access health services.

Conclusions: HIV stigma remains a commonly experienced phenomenon for PLHIV. Going forward, it may be particularly important to address any negative effects of HIV stigma on treatment success, and to reduce stigma toward KPs.

They are not responsible enough to use protection1: The blind spot of stigma and discrimination towards young people in healthcare settings

D. Mark2, K. Bloc1, A. Ronan2, H. Chortton2, L. Hatane2
2PATA, Cape Town, South Africa, 1University of Cape Town, Psychology, Cape Town, South Africa

Background: Efforts to reach the 90-90-90 treatment targets in young people living with HIV (YPLHIV) are failing, with HIV testing, treatment and viral suppression rates worse than adults. UNAIDS warns that HIV-related stigma and discrimination in healthcare settings discourages YPLHIV from accessing HIV services. Confronting marginalisation in HIV care is critical to ensuring service access and positive treatment outcomes for YPLHIV.

Methods: In 2016-2017, Paediatric Adolescent Treatment Africa (PATA), a network of frontline health workers conducted semi-structured knowledge, attitudes and practices (KAP) surveys with 54 health providers from 29 health facilities across Kenya, Malawi, Uganda, Zambia and Zimbabwe. 68 YPLHIV from Cameroon, DRC, Ethiopia, Malawi, Tanzania, Uganda, Zambia and Zimbabwe. Data were analysed using descriptive statistics and thematic coding to describe central tendencies and identify themes.

Results: Providers were most frequently nurses (41%), predominantly female (67%), and had a mean age of 38 years. Participating YPLHIV were predominantly female (95%), with a mean age of 22 years. Eighty-seven percent of providers reported training in care and support for YPLHIV, and most providers (85%) reported that YPLHIV do not receive inferior care. Ninety-eight percent of providers reported being comfortable talking about sexual and reproductive health (SRH) with YPLHIV, but 41% of YPLHIV reported fear discussing SRH with providers. While two-thirds of providers (76%) reported that they did not scold YPLHIV for requesting SRH services (76%), 41% of YPLHIV reported that they had been scolded.

Conclusions: Results indicate a discrepancy between health provider versus YPLHIV accounts of youth services. Providers seem to have little awareness of young people’s experience of services as discriminatory. Fundamentally there remains a blind spot in providers’ insight and willingness to provide services without judgement. To mitigate stigmatising health provider attitudes and practices, we recommend urgent and intensified health provider education, sensitisation and training on peo-
ple-centred healthcare and the rights of YPLHIV, as well as routinized engagement with YPLHIV. In particular, integration of YPLHIV as peer supporters within health facility teams and active YPLHIV patient feedback mechanisms build trust between YPLHIV and providers. Improve YPLHIV service experiences and increase provider confidence.

**TUPED507**
Creating an enabling environment for equal employment opportunities at the workplace for sexual minorities and People living with HIV

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**Background:** Congenial employment conditions and fair working environments play an important role in determining a country’s economic progress. Discrimination and non-inclusion of LGBTQ employees and People living with HIV (PLHIV) result in reduced job performance, employee disparity, lack of job security and limited access to health care services. The adverse legal environment in India also contributes to employment inequality, marginalization and socio-economic alienation for LGBTQ persons and PLHIV.

**Description:** The Humsafar Trust is a Community Based Organisation (CBO) and Sub-Recipient for Global Fund Round 9 RCC phase II grant through Alliance India is managing the Vihana programme by establishing 30 Care and Support Centres (CSCs) and 1 Helpdesk in Punjab, Chandigarh, Haryana, Chhattisgarh and Rajasthan State as part of national effort with a key objective to improve the survival and quality of life of PLHIV including those who are members of high-risk groups, women and children.

**Description:** CBO is an important constituent of all HIV related programme. A total of 29 DRT are functional and addressing issues in adequately to ensure fundamental rights of PLHIV. The total (28) discrimination cases are reported and resolved by DRT. A gender analysis of data reveals that female (58.51%) reported more stigma and discrimination compare to male (34.40%), and shows vulnerability of women and further followed by children (5%) and TG community (3%). Further from the total the majority of discrimination incidences were reported by Family Members (55.81%) and Health Facility (23.6%). The incidents are responded and resolved further documented to emerge the advocacy efforts for PLHIV.

**Lessons learned:**
- Disclosure plays immense role and related to Stigma and discrimination
- Sensitization meetings with community and families is needed utmost
- Regular interaction with clients and their family is very important to address issues at the earliest.
- Partnership efforts with CSO,CBO, DLN and Governments system to respond effectively.

**Conclusions: Next steps:** DRT and dwindling of stigma and discrimination are closely related and plays crucial role in reducing vulnerability as well as fostering quality of life of PLHIV. Hence, it should be a key component of all HIV related programme.

**TUPED509**
“Stigma and discrimination-free zones”: An innovative approach to engaging the private and public sectors in creating more inclusive environments for key populations in Central America

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**Background:** Central America’s HIV epidemic is concentrated in key populations (KPs): MSM, transgender women (TW), and female sex workers (FSW). Despite existing HIV laws and policies that respond to KP’s specific needs, there is evidence of widespread discriminatory attitudes and practices towards these populations, and stigma and discrimination (S&D) continue to be important barriers to accessing HIV services and care. In 2015, under the USAID Combination Prevention Program for HIV in Central America, the Pan American Social Marketing Organization (PASMO) designed an intervention entitled “stigma and discrimination-free zones” as part of a broader initiative known as Generation Zero, contributing to the goal of “getting to zero discrimination”.

**Description:** PASMO developed guidelines and works with public and private sector institutions, companies, and other organizations to meet five criteria that would allow them to become “stigma and discrimation-free zones”.

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<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Methodology</th>
<th>Number of workshop</th>
<th>Number of stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Theatre performances</td>
<td>24</td>
<td>More than 800</td>
</tr>
<tr>
<td>2</td>
<td>Presentation &amp; Film screening</td>
<td>10</td>
<td>165</td>
</tr>
<tr>
<td>3</td>
<td>Panel discussion &amp; Talk</td>
<td>4</td>
<td>120</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>38</strong></td>
<td><strong>1085</strong></td>
</tr>
</tbody>
</table>

(Table Summary)
Experiences of discrimination increase the risk of depression and suicidal ideation among men who have sex with men and transgender in Nepal.


Perceived Discrimination

<table>
<thead>
<tr>
<th>MSM (n=513)</th>
<th>TG (n=227)</th>
<th>Overall (n=740)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At School (Yes)</td>
<td>34(5.5)</td>
<td>30(8.8)</td>
</tr>
<tr>
<td>Getting hired or Job (Yes)</td>
<td>20(2.3)</td>
<td>22(10.0)</td>
</tr>
<tr>
<td>At work (Yes)</td>
<td>83(18.8)</td>
<td>46(28.4)</td>
</tr>
<tr>
<td>Getting Medical Care (Yes)</td>
<td>37(0.0)</td>
<td>16(5.5)</td>
</tr>
<tr>
<td>In the street or in a public settings (Yes)</td>
<td>165(29.6)</td>
<td>72(40.8)</td>
</tr>
<tr>
<td>From Police Security Personnel (Yes)</td>
<td>87(6.9)</td>
<td>23(7.0)</td>
</tr>
<tr>
<td>Getting service in a store or restaurant (Yes)</td>
<td>117(20.4)</td>
<td>51(13.0)</td>
</tr>
<tr>
<td>Family Rejection (family force them to live outside of home because of their sexual orientation) (Yes)</td>
<td>41(10.6)</td>
<td>18(10.9)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency (%)</th>
<th>Frequency (%)</th>
<th>Frequency (%)</th>
<th>RDS-Adjusted % (95% CI)</th>
</tr>
</thead>
</table>

Conclusions/Next steps: Experience of discrimination increases the risk of depression and suicidal ideation among men who have sex with men and transgender in Nepal in 2017.
TUPED512 Global trends in HIV criminalisation: Overview, analysis and country ranking

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

Background: HIV criminalisation describes the unjust application of criminal law to people living with HIV based on HIV-positive status, either via HIV-specific criminal statutes or general criminal or similar laws. Such state-sponsored stigma and discrimination within the criminal justice system is a barrier to universal access to HIV prevention, testing, treatment and care, and a human rights issue of global concern.

Methods: A global audit of HIV-related arrests, investigations, prosecutions and convictions. Abstract covers October 2015 to September 2017; final data will be presented to April 2018. Despite changes to previous methodology including new regional hubs and use of multi-lingual staff with strong regional contacts, these data should be considered illustrative of a more widespread, undocumented use of criminal law against people with HIV. Countries were ranked based on the total number of cases per 1000 people living with diagnosed HIV during the audit period.

Results: Sixty eight countries have HIV-specific criminal laws. During the audit period, four new HIV-specific criminal laws were proposed (Cameroon, Malawi, Nepal, and Quintana Roo, Mexico); a new law was enacted in El Salvador; proposed problematic statutes were withdrawn in Brazil, Malawi and several United States (US) states; and in Kenya one of two HIV-specific criminal statutes was suspended after being ruled unconstitutional.

At least 69 countries have ever used HIV-specific or general laws to prosecute people with HIV for alleged HIV non-disclosure, potential or perceived exposure or non-intentional transmission. Norway modified its non-specific law to allow for disclosure and ‘treatment as prevention’ defences. Cases were reported for the first time in ten countries: Honduras, Kenya, Kyrgyzstan, Israel, Malawi, Northern Ireland, Nigeria, Paraguay, Somalia and Tajikistan.

The majority of reported cases occurred in the US, Belarus, Russia, Canada and Zimbabwe. Belarus, the Czech Republic and New Zealand had the greatest number of per capita cases, although several individual US states (Iowa, Tennessee, Ohio, Michigan, Indiana and Kentucky) ranked higher per capita than most countries.

Conclusions: Despite a more co-ordinated approach to national, regional and international advocacy, and to case monitoring, HIV criminalisation does not appear to be diminishing fast enough, requiring further urgent attention, focus and funding.

Results: Both HIV stigma and Gay stigma were documented by participants. Issues with confidentiality, poor quality HIV services, disclosure of sexual orientation and HIV status, and linkage to care were among participants’ main concerns. They emphasized on discriminating actions by HCP, citing ultraconservative cultural influences for their stigmatizing attitudes. Also, experiences of stigmatization by mental health providers based on their sexual identity was consistently mentioned by participants. The quality of the interaction between HCP and participants greatly influenced the willingness to disclose HIV status and sexual orientation and to choose providers and health care settings.

Conclusions: Experiences of stigma in healthcare settings prevent people with HIV from engagement and retention in continuum of care. Future interventions should invest in culturally-appropriate training for HCP to address stigma and how to provide appropriate services to gay, bisexual men and other MSM. This way we can move forward to eradicating stigma and assuring the quality of life of those affected by HIV/AIDS.

TUPED514 Measuring stigma and discrimination in health facilities in Ghana for intervention design: Fear of HIV status disclosure and lack of confidentiality are key actionable factors


Background: Health-facility stigma and discrimination (S&D) undermine access to and retention in HIV-services. Health-facility S&D data are essential to tailoring evidence-based S&D-reduction interventions and catalyzing action. In response, the USAID-and-PEPFAR-funded Health Policy Project has partnered with the Ghana AIDS Commission and the Educational Assessment Resource Center, with support from the Global Fund, to measure health-facility HIV-related S&D from the perspective of health facility staff (HFS) and clients. These data have informed the design of a tailored whole-facility HIV-S&D-reduction intervention that engages all levels of staff (medical and non-medical) to improving quality of care while also providing baseline data for an ongoing intervention evaluation.

Methods: Surveys in 20 high HIV caseload facilities in 5 regions with all levels of HFS (41 female/950 male) and clients living with HIV (342 female/88 male). Key measures included: 1) S&D actionable drivers (fear/attitudes/facility environment) and observed discrimination among HFS; 2) anticipated/experienced S&D, avoidance/delay of health services, and perceptions of health-facility policies among clients.

Results: Fear of status disclosure and lack of confidentiality emerged as a key area to address for S&D-reduction. 36% of clients reported not using their closest HIV facility for HIV care. 74% reported at least one stigma-related reason for not doing so: fear of status disclosure was the most frequently cited (Table 1): 30%/33% female/male. Key measures included: 1) S&D actionable drivers (fear/attitudes/facility environment) and observed discrimination among HFS; 2) anticipated/experienced S&D, avoidance/delay of health services, and perceptions of health-facility policies among clients.

Conclusions: Data from this study were used to tailor whole-facility S&D-reduction interventions. Ensuring confidentiality is an essential part of this approach and critical to reducing anticipated and experienced S&D, and improving service access for and retention of clients living with HIV.

TUPED513 The power of stigma: Experiences of HIV-positive MSM in healthcare services in Puerto Rico

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Background: Puerto Rico (PR) has a highly homorphic, patriarchal and extremely religious culture. More than 35 years into the HIV epidemic, stigma is still manifested by many, especially by healthcare providers (HCP). This causes detrimental social and medical implications for people with HIV. Stigma enacted as prejudice and discrimination in the context of healthcare have been associated with challenges in patient’s care continuum. This is particularly true for HIV-positive men who have sex with men (MSM) who are otherwise disenfranchised in health services. Greater attention needs to be paid to stigma as a Social Determinant of Health for HIV. However, limited research has been conducted to understand how stigma impacts the retention in HIV care, particularly of HIV-positive MSM in high-stigmatizing contexts such as PR.

Methods: A qualitative study was conducted using in-depth semi-structured interviews with 19 HIV-positive MSM. Participants were cis-gender males, at least 16yo, and sexually active during the three months prior to the interview. Interviews, conducted in Spanish, included three thematic areas: experiences with HIV testing and treatment, engagement in care, and experiences with HCP. Content analyses were performed using NVivo V10.
In October 2017, the LINKAGES project in Malawi implemented SMS2. Respondents’ perceptions of S&D were much higher than other KPs, how-ere most likely to report being denied health services. Transgender and transgender people were most likely to report staff gossip and MSM.

Results: Feedback from sex workers quality rating (3.75 out of 5), while Lilongwe, Machinga, and Zomba had

Facilities in Mangochi district received the highest average service quality improvement activities at those facilities (see Figure 1 for exam-

that could be used to generate live facility-specific dashboards to inform

“SMS2” to routinely collect feedback from KP referred to health facilities.

Developed a technology-based service quality monitoring system called

SMS52 to systematically monitor S&D in health settings, there-

by allowing programs to manage and reduce S&D and increase patient satisfaction to increase uptake of services.

Conclusions: Technology-based and community led-monitoring sys-

tems like SMS52 can systematically monitor S&D in health settings, there-

by allowing programs to manage and reduce S&D and increase patient satisfaction to increase uptake of services.

**TUPED515**

“What is not measured is not managed” - implementing a routine technology-based patient feedback system to reduce stigma and discrimination in key population HIV services in Malawi

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Background: Stigma and discrimination (S&D) limit key populations’ (KP) access to HIV and other health services. However, most HIV programs do not systematically monitor S&D in health settings and are therefore unable to manage and reduce it to improve services.

Methods: The USAID- and PEPFAR-supported LINKAGES project de-

veloped a technology-based service quality monitoring system called

“SMS52” to routinely collect feedback from KP referred to health facilities. In October 2017, the LINKAGES project in Malawi implemented SMS52 with 30 community outreach workers (ORW) in 6 districts using online assessments with Survey Monkey, smartphones, and mobile data pack-

ages to assess KPs’ perceptions of health facilities or experiences of S&D and service quality issues during recent facility visits. Surveys were con-

tinuously implemented during routine outreach activities.

Results: From October 2017 to January 2018, KPs completed 1052 assess-

ments 62% from sex workers, 34% from men who have sex with men (MSM), and 6% from transgender individuals. Nine percent of KPs reported living with HIV. Approximately 85% of assessments captured experiences during facility visits and 14% assessed KPs’ perceptions of referral facilities they had not yet visited. Of 103 different health facilities assessed using SMS52, 13 facilities accumulated 20 or more assessments that could be used to generate live facility-specific dashboards to inform quality improvement activities at those facilities (see Figure 1 for exam-

ple). Facilities in Mangochi district received the highest average service quality rating (3.75 out of 5), while Lilongwe, Machinga, and Zomba had the lowest score of 2.9 each - but only in Zomba did this correspond with high rates of S&D experienced in facilities. Feedback from sex workers and KPs living with HIV reported the lowest service quality ratings. MSM and transgender people were most likely to report staff gossip and MSM were most likely to report being denied health services. Transgender re-

spondents’ perceptions of S&D were much higher than other KPs, how-

ever, actual experiences at facilities were comparable with other KPs.

**TUPED516**

HIV related stigma and discrimination among health care providers and people living with HIV In Thailand

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1Ministry of Public Health. Department of Disease Control, Nonthaburi, Thailand, 2Consultant UNAIDS, Bangkok, Thailand, 3Chiang Mai University, Research Institute for Health Science, Chiang Mai, Thailand, 4Chiang Mai University, Faculty of Public Health, Chiang Mai, Thailand, 5UNAIDS, Bangkok, Thailand

Background: Thailand is committed to zero stigma and discrimination against people living with or affected by HIV (PLHIV) and key populations. We present findings from surveys measuring stigma and Discrimination among Health Care Providers (HCP) and PLHIV.

Methods: Surveys were conducted in Bangkok and Chiang Mai using purposeful sampling of clusters, and in 16 other provinces using multi-

level cluster sampling. Data from sampled provinces were extrapolated to unsampled provinces and weighted by HCP or PLHIV population sizes in all provinces (n=77) to calculate a weighted mean average for each indicator.

Results: In the past year, 24% of HCP observed stigma or discriminatory practices towards PLHIV and between 4.2% and 4.8% observed HCP unwill-

ing to care for a patient who is or thought to be a man who has sex with men, transgender or female sex worker, 7.9% observed HCP unwill-

ing to care for a patient who is or thought to be a migrant. 60.9% of HCP experienced personal fear of HIV infection and 53.1% reported using unnecessary precautions to avoid HIV infection from a PLHIV. 84% of HCP felt they stigmatized PLHIV in the past year, 13% of PLHIV and 12% of females who became pregnant since learning of their positive HIV status avoided/delayed health care because of fear of stigma and discrimination. 5% of PLHIV were coerced/ advised to terminate a pregnancy in the past year. 12% of PLHIV experienced internal stigma in the past year.
Conclusions: Thailand has been a global leader in formulating national monitoring systems to measure S&D and creating an evidence base for S&D reduction programs. By the time of the 22nd International AIDS Conference data from a larger number of locations using the same questionnaire conducted in late 2017 will be available and presented.

TUPED517

Double stigma affecting HIV-positive people who use drugs in Ukraine and care integration

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1Ukrainian Institute on Public Health Policy, HIV and Addiction Research, Kyiv, Ukraine; 2Brown University, Warren Alpert Medical School, Providence, United States; 3Brown University School of Public Health, Providence, United States; 4Boston Medical Center/Boston University, CARE Unit, Boston, United States

Background: Stigma related to both HIV and substance use (SU) affects HIV-positive people who use drugs (PWUD) in Ukraine. While integration of HIV and SU treatment improves access to care and care outcomes, its effect on internalized stigma is unknown. This study assessed HIV and SU stigma perceived by HIV-positive PWUD in addiction treatment, and associations of stigma with care integration in Ukraine.

Methods: We conducted a cross-sectional survey of HIV-positive PWUD, receiving opioid agonist treatment (OAT), in six regions of Ukraine, at 3 facilities providing addiction treatment only and 3 integrated facilities providing both SU and HIV care. Primary outcomes were total HIV and SU stigma scores measured with Berger Scale and Substance Abuse Stigma Scale respectively. We assessed the facilities’ user-friendliness and accessibility, on-site support from non-governmental organizations (NGO), regular HIV care visits, receiving ART, receiving OAT, and presence of depressive symptoms as predictors of stigma in linear and logistic regression models.

Results: Study participants (n=310) had the following characteristics: 75% male; mean age 40–59 % unemployed; mean time in OAT 34 months; and 73% receiving NGO services at OAT site. Levels of HIV stigma (mean 0.39 out of 1 1.95; CI:0.36-0.41) and SU stigma (mean 0.41 out of 1 1.95; CI:0.38-0.43) were similar. Receiving integrated services was not associated with total HIV stigma (AOR=1.08; 95% CI:0.59-1.98) or SU stigma scores (AOR=1.16; 95% CI:0.60-2.2). SU stigma was the only predictor of HIV stigma (AOR=2.59; 95% CI:1.41-4.81). SU stigma was associated with high HIV stigma (AOR=3.01; 95% CI:1.28-7.93), depressive symptoms (AOR=2.00; 95% CI:1.01-3.97), and being unemployed (AOR=2.01; 95% CI:0.4-2.78). SU stigma scores measured with Berger Scale and Substance Abuse Stigma Scale respectively. We assessed the facilities’ user-friendliness and accessibility, on-site support from non-governmental organizations (NGO), regular HIV care visits, receiving ART, receiving OAT, and presence of depressive symptoms as predictors of stigma in linear and logistic regression models.

Conclusions: In our study, integrated treatment was not associated with a significant decrease in substance use or HIV stigma. Findings indicate that targeted interventions are necessary at integrated and non-integrated care facilities to address both forms of stigma affecting HIV-positive PWUD. Reinforcing protective factors such as NGO support at addiction care facilities, including assistance with employment, might help mitigate the highly persistent stigma related to substance use and its potential interaction with HIV stigma in Ukraine.

TUPED518

HIV and substance use stigma among non-specialized medical care providers in Ukraine

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1Ukrainian Institute on Public Health Policy, Kyiv, Ukraine; 2Boston Medical Center, CARE Unit, Boston, United States

Background: HIV-positive people and people who use drugs (PWUD) experience multi-level stigma in the community and in health services in Ukraine. Decentralization of services within current health care reform implies that HIV and drug addiction treatment (ART and opioid agonist treatment (OAT)) will be provided at primary care level. With this study, we explored the opinions of HIV-positive PWUD in OAT program and health providers at OAT sites about stigma faced by patients with HIV and addiction at non-specialized health care facilities.

Methods: In August-September 2017, we conducted six focus groups with HIV-positive OAT patients and 13 in-depth interviews with their health providers at six OAT sites in five regions of Ukraine. Interviews were transcribed verbatim, and a thematic analysis was performed. Results: Forty-seven OAT patients (18 were women, 66% unemployed, aged 30–55 years) and 13 providers participated in the study. Across all sites, all participants described stigma towards HIV-positive PWUD, specifically at non-specialized care facilities. While stigma towards HIV-positive patients has been decreasing in Ukraine health care system, this is not the case regarding HIV-positive PWUD. Patients reported referring to their OAT physicians with all kinds of health problems, as providers at other facilities often “did not treat them like humans” and avoided providing services to them. According to providers, physicians of other specialties associate both people in active drug use and OAT patients with criminal behavior, seeing them as non-reliable, non-compliant with treatment, and, most important, impericious patients. However, all respondents admit, that if a PWUD can pay for the medical services, he will be treated differently.

Conclusions: Due to limitations of existing programs, providers at non-specialized health facilities are poorly informed about problems of HIV infection and drug addiction. Education on these diseases is necessary for physicians of all specialties to reduce stigma related with HIV and addiction. The attitude towards patients based on their financial capacity must be taken into account in the context of health care reform, when physicians will be paid depending on the number of patients and the quality of care.

TUPED519

Exploring the mediating effect of HIV-related stigma on the HIV counselling and testing service utilisation in Nigeria - A PLS-SEM approach

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Background: HIV/AIDS is a severe health problem in Sub-Saharan Africa. Globally, Nigeria is second in a number of people living with HIV/AIDS (3.2 million) after South Africa. HIV Counselling and Testing (HCT) is regarded as a critical entry point to other essential HIV/AIDS prevention and intervention programmes. However, HIV-related stigma pose severe threat to its success in Nigeria. Although many studies have been carried out on the role of stigma on HIV/AIDS programmes, but studies that explored the mediating impact of the HIV-related stigma on the relationship of willingness to do HIV test, perceived threats of HIV/AIDS and benefits of HCT, and HCT service utilisation in Nigeria is very scarce. The aim of this study is to assess the mediating impact of HIV-related stigma on the relationship of willingness to partake in HIV testing, perceived threats of HIV/AIDS, perceived benefits of HCT and HCT service utilisation in Nigeria using PLS-SEM approach.

Methods: We assessed latent construct of HIV-related stigma as a mediator on the relationship of perceived benefits of HCT, perceived threats of HIV/AIDS, willingness to do HIV test and HCT service utilisation using 768 respondents from cross-sectional survey data collected in three Local Government Areas of Lagos State, Nigeria. We employed Partial Least Square-Structural Equation Modelling (PLS-SEM) method to analyse mediation effects of the research model.

Results: Meditational analysis results revealed that HIV-related stigma was significant and fully mediated the relationship between the willingness to do HIV testing and HCT utilisation (β = 0.007; p = 0.049), while on the other hand, it partial mediated the relationship between perceived benefits of HCT and HCT utilisation (β = 0.009; p = 0.018), and perceived threats of HIV/AIDS and HCT service utilisation (β = 0.015; p = 0.060).

Conclusions: In spite of the perception of individuals about the threat posed by HIV and the benefits accrued from testing, fear, rejection, and stigma associated with being tested positive constitute severe hindrances to accessing HCT services in Nigeria. Therefore, for Nigeria to
The law alone cannot end HIV-stigma and discrimination: Lessons from the Kenya HIV Tribunal Kenya

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Background: Established under Section 25 of the HIV Prevention and Control Act of 2006, the HIV and AIDS Tribunal of Kenya is a HIV-specific statutory body with the mandate to adjudicate cases relating to violations of HIV-related human rights. The Tribunal commenced its work in 2009 and has since kept the promise to advance the human rights of people living with and affected by HIV in Kenya, notably through addressing barriers to access to justice, swift ruling, and purposeful application of the law.

Description: Between 2015 and 2017, the HIV Tribunal received 460 cases seeking redress through litigation based on its mandate to ‘hear and determine complaints arising out of any breach of the provisions of the Act’. Of these, 340 applications met the legal threshold for full-fledged litigation. This means that 120 applications (26%) did not meet the legal threshold required by the Tribunal for litigation. Ten complaints were criminal in nature and referred to the Kenya High Court while 21 could not be litigated because the Tribunal cannot act retrospectively. Of the successfully litigated cases, 62% had to do with discrimination at workplaces, 12% with HIV malpractices that contravened the provisions of HAPCA and 6% with discrimination of young learners living with HIV within learning institutions. Cases stigmatization, verbal abuse and isolation, including by family members did not meet the threshold for litigation.

Lessons learned: Through its composition, mandate, procedures, and decisions, the Tribunal is emerging as a positive mechanism for enforcing HAPCA and for protecting the rights of PLHIV. The tribunal is able to address the challenges relating to access to justice and rights-based judicial decisions for people PLHIV, mainly because it’s sensitive to and knowledgeable on HIV issues, less cumbersome proceedings that protect confidentiality and privacy, and speedy rulings. A positive feature of the Tribunal is its effective referral arrangements to other bodies, including for psycho-social support.

Conclusions/Next steps: HIV Tribunal is an excellent mechanism for protecting the rights of PLHIV. However, the high number of complaints received by it but not meeting the legal threshold is reminder that the law alone is not enough to eliminate HIV-related stigma and discrimination.

TUPE520

Status disclosure is closely associated with social HIV discrimination and self-stigma: Lessons learned from the implementation of the people living with HIV Stigma Index in Taiwan

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Background: Disclosure of HIV positive status is important for getting appropriate medical or psychological supports and for secondary prevention. However, it is generally thought as a sequential decision making process that may involve many factors. The aim of this study is to delineate the relationship between status disclosure and self-, social stigma/discrimination.

Methods: A cross-sectional nationwide survey using the People Living with HIV Stigma Index was conducted in Taiwan in 2017. People living with HIV (PLHIV) who were willing to participate in the survey were referred from HIV-associated NGOs and treatment centers to trained interviewers for face to face private interviews. A total of 822 (3% total PLHIV population in Taiwan) valid questionnaires were collected. Demographic information, self-stigma and social discrimination events were extracted from the pooled data and analyzed.

Results: We found that during the early years of infection (<4 years), a person was more willing to disclose his/her HIV status to social workers if there was less self-stigma (p<0.05). A person with less self-stigma also tended to talk to his/her friend about his/her HIV infection. In contrast, among those living with HIV for 10–14 years, persons with higher self-stigma were less likely to have disclosed his/her status (p<0.05). Importantly, social discrimination experiences from the partner, family, friends, co-workers, employers, religious leaders and medical staff were all in positive association with the extent of self-stigma (p<0.05). A stronger self-stigma was also related to the fear of potential discrimination events (p<0.05). Among the key populations, participants that used intravenous drugs were associated with higher extent of self-stigma (p<0.05).

Conclusions: Our study showed that status disclosure is closely associated with social HIV discrimination and self-stigma. Building a support system without HIV discrimination may facilitate status disclosure of PLHIV and may assist in timely delivering of medical/psychological resources to those in need.
Representations of stigma: social attitudes, media, and public debate

**TUPED522**

Status of HIV/AIDS-related stigma and its relationship with the mental health of HIV-positive persons in Japan

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- National Cancer Center Japan, Tokyo, Japan
- Acelight Inc., Tokyo, Japan
- TIS Inc., Tokyo, Japan
- Hitotsubashi University, Kunitachi, Tokyo, Japan
- Japan Society for the Promotion of Science USPSI, Tokyo, Japan
- Kobe City College of Nursing, Kobe, Japan
- Ritsumeikan University, Urayasu, Japan
- Japanese Network for People Living with AIDS, Tokyo, Japan

**Background:** HIV/AIDS-related stigma leads to the unfair, unjust treatment of HIV-positive persons based on discrimination against or biased views on them. Previous quantitative studies in Japan rarely examined their frequency of perceiving or experiencing such stigma. The present study examined the status of HIV/AIDS-related stigma, including changes in its pattern, as well as its influence on the mental status of HIV-positive persons, through 2 online questionnaire surveys separately conducted in Japan.

**Methods:** Two anonymous, self-administered online questionnaire surveys were conducted by the HIV Futures Japan Project. The first survey (T1) was conducted between 2013 and 2014, and 933 responses were valid for analysis. The second survey (T2) was conducted between 2016 and 2017, and 1,038 responses were valid for analysis. HIV/AIDS-related stigma was quantitatively compared using 3 scales to measure: stigma perception scale (4 items, range: 4-16), stigma-related fear scale (8 items, range: 8-32), and stigma-related behavioral self-restriction scale (6 items, range: 6-24).

**Results:** At T2, the rate of answering the statement: “I become very cautious when I disclose my HIV-positive status to others” with “Yes” reached 92.8%. The rate was 85.7% for “In general, people reject me after learning that I am HIV-positive”. 65.9% for “I am careful to keep my HIV-positive status a secret from others”, and 62.9% for “I may lose my position if my employer or superior learns about my HIV-positive status”.

In T1 and T2, the mean stigma perception scale scores were 9.40 (SD: 3.28) and 9.69 (3.43), respectively, mean stigma-related fear scale scores were 24.45 (5.33) and 25.32 (4.75), respectively, and mean stigma-related behavioral self-restriction scale scores were 19.63 (5.63) and 19.52 (5.55), respectively.

Using survey data at T1, multiple regression analysis, with scores from the Hospital Anxiety and Depression Scale as a dependent variable, stigma-related behavioral self-restriction scale scores as an explanatory variable, and the gender, age, frequency of perceiving LGBT-related stigma, and stigma perception scale scores as control variables, revealed a significant positive correlation with the explanatory variable (r²=0.28, p<0.005, R²=0.157).

**Conclusions:** The results emphasize the necessity of creating detailed plans to implement HIV/AIDS-related stigma reduction measures as a domestic issue to be urgently addressed.

**TUPED523**

Open conversations on reducing stigma and discrimination in Botswana by using cultural values to foster support to end stigma and discrimination

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**Background:** Of recent there has been an increase in visibility of Gay Men and Male Sex workers in African countries, and this has been coupled with conversations to decriminalize both same sex sexual activity and sex work done at International level with little work done in country in fear of harassment by law enforcement officials. This has led to gay and male sex work turning in a burning issue in Africa countries including Botswana. The gay and sex work community has been systematically silenced and face abuse, rejection, stigma and discrimination with the local leaders urging that Gay men and Male Sex workers are cultures adopted from the western culture and therefore ‘Un-African’. This abstract aims to show how the Botswana gay and male sex workers communities’ uses native values to foster support towards reducing stigma and discrimination.

**Description:** The international community often condemns African governments by writing petitions, threats to stop aid and these have often led to the local communities taking the wrath of these action by the Western activists. In Botswana, the gay men and Male sex workers group uses native Botswana culture and values. This approach has been implemented in 5 districts of Botswana through gathering local traditional leaders, politicians, Police and using native styles of consultation and consensus - building. We have adopted strategies which are derived from Botswana norms and cultural values such as ‘mofalo a ligotso a gelega mosalo’ (Every person’s opinion must be respected without stigma). The main aim has been to lobby leaders to end stigma and discrimination in a language Botswana People can understand without referencing much to western arguments.

**Luboms learned:** This approach proved to work, in the 5 districts in which this was done through traditional consensus building and consultation in native languages and strategies. The dialogues through slow, are indeed building to a conducive environment where gay men and Male Sex workers can engage without discrimination and stigma in addressing issues of health and human rights and inclusion.

**Conclusions/Next steps:** Going forward, the aim is to continue evaluating these initiatives in-depth and find ways how other communities can implement them to their benefit.

**TUPED524**

Disclosure of HIV sero-positive status and linkage to care in remote rural and border settings of Mbeya, Tanzania: Qualitative findings of a mixed methods study

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**Background:** Despite mobile/outreach testing models and anti-stigma efforts, the disclosure of HIV status remains a challenge and significantly impedes linkages to care. In our prospective 2-armed cohort study of 1,012 newly diagnosed individuals testing at mobile/outreach vs facility-based testing sites in remote and hard-to-reach border areas of Mbeya region, Tanzania; participants who disclosed their HIV status had a two and half times earlier rate of linkage to care than those who had not disclosed (pc 0.001). This study describes the reasons for failure to disclose HIV sero-status and its implications for linkage into HIV care.

**Methods:** We report on the embedded qualitative findings of our sequential explanatory mixed methods study. Between August 2014 and July 2015, eight focus group discussions and ten in-depth interviews were conducted with purposively selected participants from the cohort of 1,012 newly diagnosed HIV positive individuals from 16 HIV testing sites, complemented by twenty individual interviews with healthcare providers. Data were transcribed verbatim and translated, then thematic content analysis was undertaken, supported by Atlas.ti software.

**Results:** The major reasons reported to influence individuals’ decision not to disclose their HIV positive sero status, were fear of stigma related to HIV/AIDS, lack of trust and fear of intimate partner violence and/or divorce. New relationships or marriages after death of the first partner was also reported to interfere with disclosure to partners. HIV status disclosure to family/relatives was significantly associated with linkage to care (AHR=2.64; 95%CI: 2.05-3.39). They received both financial and moral support from their partners and other family members. Individuals testing at mobile/outreach sites were less likely to expect an HIV+ result and reported more concerns about disclosure and linkage to care.
Conclusions: Lack of disclosure was reported to impede successfully linkage to care and timely initiation of ART due to lack of both practical and emotional support from significant others. Mobile/outreach testing reaches new people but barriers to disclosure, notably stigma and fear of damaging relationships, must be addressed.

TUPED525

Media perpetuation of HIV fear and stigma: A content and textual analysis of coverage of an HIV criminal prosecution

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Background: Research shows that laws criminalizing HIV non-disclosure, exposure or transmission, which currently exist in more than 30 states in the U.S. are rooted in and perpetuate stigma. HIV stigma impedes HIV prevention, testing, engagement in healthcare, and adherence to medication. In 2015, Michael Johnson, a Black gay college student in St. Charles County, Missouri was tried and convicted based on allegations that he did not disclose his HIV status to multiple partners. Media coverage of the case was widespread. While media is known to shape public perceptions of people living with HIV, few studies have examined recent HIV criminalization cases to understand how the media produce conceptions about HIV disclosure, innocence, and guilt.

Methods: We conducted a content and textual analysis of 90 articles and five videos from local and national media sources. Open and axial coding were used to develop a code book. Once the code book was created, four coders coded the data. Inter-rater reliability was over 90%. This analysis focused on the descriptions of Michael Johnson’s character and behavior.

Results: Findings revealed consistent framing of innocence and guilt based on cultural assumptions about black gay men who are living with HIV. Michael Johnson was described as dishonest about his HIV status; media frames draw on ideologies of homophobia and racism to present Johnson’s sexuality as secretive and hypersexual, evidenced by discussions of secret sex tapes; engagement in consensual condomless sex was framed as deception, placing sole agency and responsibility onto Johnson, and Johnson was presented as lying to medical staff about his sexual behavior.

Conclusions: Media is a key disseminator of facts and ideologies about people living with HIV. Media coverage of this case contributes to racialized, gendered, sexualized notions of HIV fear and stigma. We examine how media can improve upon the accuracy of information presented in HIV related legal cases, discuss the role of media ideologies found in our study in bolstering an environment of HIV stigma and impede prevention efforts, and examine how media narratives promote ideas of HIV-positive people and Black gay men as deceptive and dangerous to broader society.

Experiences and impacts of homophobia and transphobia

TUPED526

Characterizing experiences of conversion therapy among midlife and older MSM from the Multicenter AIDS Cohort Study (MACS)

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Background: Midlife and older men who have sex with men (MOMSM; 40+ years) in the US came of age during an era when same-sex attractions were stigmatized as pathological disorders amenable to being eliminated by conversion therapies (CT). Leading scientific organizations have denounced CT as harmful to the well-being of sexual minority individuals, yet it remains legally practiced in 41 states in the US. Little data exists regarding the prevalence of lifetime CT (LCT) among MOMSM; therefore, we aimed to describe and characterize LCT experiences in this population. We also examined whether being HIV-serostatus was correlated with LCT.

Methods: 1,238 MOMSM in the Multicenter AIDS Cohort Study (mean age=51.3 ± 10.56 years, 30% racial minority, 49% HIV+) in Baltimore, Chicago, Pittsburgh, and Los Angeles completed survey questions ascertaining LCT type, age initiated, frequency, duration, and whether self-initiated from 2016-2017. We determined the prevalence of LCT and using multivariable logistic regression to estimate the odds of LCT by HIV status, adjusting for age, race/ethnicity, MACS enrollment wave, and education.

Results: (N=219) of participants reported LCT, 58% (N=126) of whom were HIV+. The average age of CT initiation was 22.7 (sd=10.56) years. The most common CT types reported were psychotherapy (39%), group-based therapies (23.1%), and religion-based CT (18.4%). 25.8% reported undergoing CT for 6+ months and 37.7% indicated CT session frequencies of 1+ per week. 35.6% reported having little to no control over the decision to initiate CT. Although being HIV- and older were positively associated with LCT, neither co-factor was statistically significant, however MACS enrollment after 2001 was. There was a statistically significant negative association with being white and having any college education with LCT (See Table).

<table>
<thead>
<tr>
<th>Socio-demographics</th>
<th>Multivariable model Odds Ratio (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, 10-year increase</td>
<td>1.18 (0.95, 1.47)</td>
<td>0.13</td>
</tr>
<tr>
<td>HIV status</td>
<td>1 (reference)</td>
<td>0.41</td>
</tr>
<tr>
<td>Positive</td>
<td>1.14 (0.83, 1.57)</td>
<td>0.54 (0.38, 0.77)</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>1 (reference)</td>
<td>0.0007</td>
</tr>
<tr>
<td>White</td>
<td>0.54 (0.38, 0.77)</td>
<td></td>
</tr>
<tr>
<td>Enrollment Wave</td>
<td>1 (reference)</td>
<td>0.0008</td>
</tr>
<tr>
<td>Pre-1987</td>
<td>1.96 (1.32, 2.90)</td>
<td></td>
</tr>
<tr>
<td>Post-2001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td>1 (reference)</td>
<td>0.024</td>
</tr>
<tr>
<td>High School or Less</td>
<td>0.64 (0.40, 0.94)</td>
<td></td>
</tr>
<tr>
<td>Any College</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Odds ratios with 95% confidence intervals and P values of lifetime conversion therapy estimated with multivariable model)
Conclusions: Lifetime CT was not uncommon among MOMSM in this sample. How CT shapes health and well-being over the life course among MOMSM independent of age, HIV status, race/ethnicity, and education remains unknown, warranting further investigation. Continued legislative efforts prohibiting CT may seek to benefit the well-being of future generations of MOMSM as they age into midlife and older adulthood.

TUPED577
Gender-based violence against men who have sex with men (MSM) and transgender persons in humanitarian settings and its impact on their access to health care

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Background: MSM and transgender persons experience humanitarian crises and engage with humanitarian action differently due to a number of reasons. While they may suffer sexual and gender-based violence ordinarly in their daily lives, their vulnerability is heightened during man-made and natural disasters. In Asia, this vulnerability is exacerbated because of poor legal protections, blind spots in disaster preparedness and response mechanisms, inadequate training of service providers and responders and the unavailability of data related to MSM and transgender persons in these settings.

With an improved understanding, it will become possible to design responsive approaches to reach out to these communities, before, during and after crises and create an enabling environment for them to access services and articulate their needs.

Description: APCOM conducted an online survey called the Asia Pacific Survey on Gender Based Violence in Humanitarian settings. This survey was promoted through social media channels, community list-serves and through word of mouth. 145 respondents answered the survey from across the region. The majority of the respondents were MSM and transgender persons.

Lessons learned: Some of the key lessons learned from this survey are that transgender persons are more likely to suffer from sexual and gender based violence in humanitarian settings than men who have sex with men. Sexual expression and gender identity continue to pose the most risk to vulnerable communities accessing a broad range of services including health care. A majority of the respondents indicates that they were most likely to suffer from sexual and gender based violence from immediate family members and intimate partners during crises.

Conclusions/Next steps: APCOM in partnership with IPPF Humanitarian, UNWomen and EdgeEffect is hosting a Regional Consultation on LGBTIQ inclusion in Humanitarian Action in May 2018 in Bangkok. This consultation will build on the findings of this online survey to develop a broad based consensus among key stakeholders and stimulate dialogue on how inclusion of LGBTIQ communities in the DRR, response and resilience can reduce sexual and gender based violence when these communities access a broad range of services including healthcare.

TUPED528
Implication of punitive law on HIV/AIDS programming for men who have sex with men in Nigeria

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Background: Organizations in homophobic countries with anti-LGBT laws find it extremely difficult to reach an already hard-to-reach population such as men who have sex with men with HIV/AIDS services. In January 2014, the former president of Nigeria signed a same-sex marriage prohibition bill into law, further criminalizing any same-sex amorous relationship with a 14-year imprisonment, and a 10-year prison sentence for organizations who supports same-sex movements/activities. This draconian law made it almost impossible for gay/bisexual men and other men who have sex with men (MSM) to access HIV/AIDS services within the country, and made it particularly challenging for HIV service organizations to reach this key population.

Methods: A qualitative study was conducted to explore the impact of the same-sex marriage prohibition act (SSMPA) on HIV/AIDS programming for MSM in Nigeria. A convenience sampling of two nonprofit organizations working with key populations in Nigeria, and 20 LGBT-identified individuals were selected and interviewed for this study. In-depth interviews were conducted between October to December 2014 with the participants and service organizations, with questions focusing on what has changed since the anti-gay law was enacted. Interviews were transcribed verbatim and assigned into descriptive categories using a coding scheme.

Results: Findings from this study confirmed a significant reduction in HIV/AIDS services for MSM in Nigeria. MSM participants reported concerns to accessing HIV services at healthcare settings for fear of being handed to the police. Reports from the HIV service/LGBT-focused organizations indicate low turn-out of MSM to community events that promote HIV prevention, testing and treatment. Results also confirmed that MSM have been further driven underground, and would rather avoid places and/or services where they could be easily identified as LGBT.

Conclusions: It is pertinent to ensure that key populations regardless of sexual orientation and gender identity have adequate access to HIV/AIDS prevention, treatment and support services. Strategic advocacy is needed towards repealing specific portions of the anti-LGBT law in Nigeria, especially the part that targets MSM organizations, as this will continue to inhibit HIV services to MSM. The UNAIDS goal of go-go-go seems impractical without addressing this issue at the local, national and international levels.

TUPED529
 Experienced homophobia and HIV infection risk among U.S. men who have sex with men

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Background: In the United States, men who have sex with men (MSM) comprise 2% of the population, but they accounted for 70% of HIV infections diagnosed in 2016. Among MSM, HIV disproportionately affects African American and Latino men. Experienced homophobia—negative treatment that MSM encounter due to their sexual orientations—can promote psychosocial stressors that contribute to risk behaviors and antiretroviral therapy nonadherence; which promote HIV infection. Homophobia may be especially harmful for African American and Latino MSM, among whom homophobia interacts with other social factors (e.g., racism) that promote HIV vulnerability. We used meta-analytic techniques to examine experienced homophobia’s association with HIV infection and factors that contribute to infection.

Methods: We searched EMBASE, PubMed, PsycINFO, and Sociological Abstracts to acquire data from U.S. studies published during 1992-2017. Studies examined experienced homophobia in relation to: condomless anal sex (CAS), HIV-discordant CAS, number of sex partners—which we combined into an index of sex risk behavior—antiretroviral therapy adherence, viral suppression, and HIV infection. We coded effects for study samples and separately examined samples containing ≥50% African American, Latino, or white MSM. Random-effects models yielded pooled odds ratios (ORs) and 95% confidence intervals.

Results: Thirty-seven studies provided 146 effect sizes. Experienced homophobia was associated with having CAS (OR=1.21, 1.13-1.28; k=22), HIV-discordant CAS (OR=1.66, 1.29-2.13; k=4), a higher number of sex partners (OR=1.10, 1.00-1.20; k=4), any sex risk behavior (OR=1.32, 1.25-1.40; k=35), and HIV infection (OR=1.34, 1.10-1.61; k=11). Experienced homophobia’s association with having any sex risk behavior was stronger in samples containing ≥50% African American MSM (OR=1.55, 1.28-1.88; k=8) or ≥50% Latino MSM (OR=1.31, 1.16-1.49; k=13) than in samples containing ≥50%
white MSM (OR=1.09, 1.02-1.18; k=7). The number of effect sizes for antiretroviral therapy adherence (k=1) and viral suppression (k=1) was insufficient for analysis.

Conclusions: Experienced homophobia is associated with sex risk behavior and HIV infection among U.S. MSM. Its relationship with sex risk behavior is particularly pronounced among African American and Latino MSM. Future research is needed to understand causality in these relationships, the role of interventions to reduce homophobia, and homophobia’s effect on antiretroviral therapy adherence and viral suppression.

Laws and policies regarding access to HIV treatment and medical devices, including Intellectual property and trade regimes, competition law, price regulation, etc.

TUPED530
Foreign nationals’ access to HIV services in the Republic of Tajikistan: Achievements and challenges

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Background: Tajikistan is country of origin, transit and destination for migrants. While research predominantly focused on Tajik migrants’ access to HIV services abroad, foreign nationals in the country were left out. The study therefore aimed at analyzing the current practice, regulations and possible gaps concerning foreign nationals’ access to HIV services in Tajikistan.

Methods: Data collection and analysis were carried out during 2012 to 2017. Desk research comprised the analysis of official reports, statistical data, international and national legislation, national healthcare programmes, scientific publications, and documents from UN agencies. The findings were supplemented by qualitative interviews with HIV experts, employers, foreign nationals, migration service, NGOs.

Results: Two discriminatory requirements had been abolished from Tajik legislation in the last decade: the deportation of foreign nationals living with HIV were granted access to free antiretroviral therapy (ARVT). The achievement of this policy is that foreign nationals use the services to essential and better medicines in the region. Whilst treatment and medical devices, including IPRs protecting essential medicines have increasingly been highlighted as one of the factors affecting access to essential medicines including the much needed medicines for persons living with HIV. This paper seeks to highlight the current effort in utilizing the available policy space in IPRs for access to medicines.

Description: While the TRIPS Agreement and the EAC Regional Intellectual Property Policy provide an opportunity for flexibilities in which IPRs in pharmaceutical products can be exploited in public interest, there is very little evidence that the EAC countries are exploiting these flexibilities to improve access to essential medicines for people in their countries. Additionally, there is equally little evidence that stakeholders in the region are dialoguing on the issues which affect the use of flexibilities to promote access to pharmaceuticals. This means that while efforts may be going on to promote the use of trips flexibilities, the isolated manner in which they are being implemented has minimized their ability to create an impact both within their countries and their regions.

Lessons learned: Our past advocacy efforts have indeed confirmed the findings of the High-Level Panel on improving access to medicines, that numerous incoherencies and troubling practices have obstructed sovereign freedom of governments in using flexibilities to promote public health in the East-African Countries.

Conclusions/Next steps: This paper concludes that promoting Access to Medicines for PLHIV in East Africa through Using TRIPS Flexibilities has to move from business as usual to business unusual. This requires that EAC countries should urgently implement the EAC Regional Intellectual Property Policy, build consensus and empower stakeholders to advocate for the exploitation of the TRIPS flexibilities to ensure access to essential and better medicines in the region.

TUPED532
Going to law for PrEP: A case study from England

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Background: PrEP implementation has been relatively slow in health systems around the world, with cost being a key consideration. In England the relevant decision-making body to commission the drug to be used for PrEP was understood to be NHS England, who have historically commissioned all anti-retrovirals, including for prevention purposes such as post-exposure prophylaxis.

Description: One reason for the argument in England on responsibility to commission PrEP is the separate organisational responsibilities for prevention and treatment in the English health system. Whilst treatment
services may be relatively well funded, prevention very often is not. PrEP is therefore a challenge - a prevention intervention, but at treatment prices.

After two and a half years considering the case for PrEP, NHS England suddenly abandoned their process, stating that they did not have the legal powers to commission the drug for PrEP because it is prevention rather than treatment. NAT took NHS England to judicial review and won. An essential element in this legal victory was the successful framing of PrEP as not only being a preventive intervention, but also treatment. NHS England were forced to recommence consideration of the case for PrEP. In December 2016 they announced plans for a large-scale implementation trial of PrEP as the first stage towards more general roll-out.

Lessons learned: Litigation was immensely effective in removing obstacles to PrEP implementation, when combined with community activism, political engagement and media work. The court case was a key opportunity to explain the effectiveness of PrEP and rebut opposition and HIV stigma across national media. It resulted in a surge in interest in PrEP uptake, in community and media discussion, and in parliamentary pressure. This activity associated with the court case created a political momentum which meant it was very difficult for NHS England not to agree to provide PrEP in some form or other.

Conclusions/Next steps: Advocacy will continue for a timely move from the trial to full roll-out of PrEP.

**TUPED533**

**Did pattern of court rulings in Sweden regarding HIV as a criminal act change in Sweden since new recommendation from The Public Health Agency of Sweden?**

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**Background:** HIV infected persons are obliged to inform and protect any sexual partner(s). It is a criminal offence to risk infecting someone with HIV, with intent ‘aggravated assault’ and ‘negligence’. In 2004, a ruling by the Supreme Court stated that unprotected sex conducted by an HIV-positive person should not be assessed as an act of intent unless the offender had knowledge of a high probability of transmission and/or reckless behaviour or violence. The Supreme Court also stated that not using a condom should always be regarded as an unacceptable risk.

In 2012 the recommendation from The Public Health Agency of Sweden was published regarding what should be defined as ‘well-treated hiv’ with very low risk for transmission.

**Methods:** Court records for judicial decisions in HIV cases during 2004-2008 were compared with for judicial decisions during 2009-2012 and 2013-2017. We compared the court records from the three time periods with regards to verdict and the courts’ analysis of:

- well-treated HIV as defined in the recommendation from The Public Health Agency of Sweden
- deportation in the verdict
- concrete risk for transmission
- detention

**Results:** During 2004–2017 we identified 33 Court records for judicial decisions in HIV cases: 17 during 2004-2008 (mean: 3.4/year), 8 during 2009-2012 (mean: 2.0/year) and 8 during 2013-2017 (mean: 1.6/year). Twenty-eight were convicted and five where not. Four (26%) verdicts in 2004-2008, one (13%) during 2009-2012 and none during 2013-2017 included deportation. The corresponding figures regarding detention were ten (9%), five (63%) and three (38%). Concrete risk of transmission was discussed during all three time periods (71%, 75% and 88 % respectively).

In two cases (not convicted) during 2013-2017 the defendant was defined as well treated according to the Public Health Agency of Sweden.

**Conclusions:** Our analyses suggest that the recommendation from The Public Health Agency of Sweden regarding ‘well-treated HIV’ has had a clear influence in court rulings after 2012. This also applies to the number of detainees, deported and convictions

**TUPED534**

Safeguarding access to generic treatment: Experience of DNP+ in opposing TRIPS-plus measures in the Regional Comprehensive Economic Partnership Agreement negotiations

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**Background:** Regional Comprehensive Economic Partnership Agreement (RCEP) negotiations are taking place between 16 Asia-Pacific countries. Leaks of the RCEP intellectual property chapter show provisions that would undermine access to generic production and supply of HIV, hepatitis C, TB and other medicines from India.

**Description:** DNP+ has been working on overcoming patent barriers to affordable generic medicines since 2005 including advocacy on trade agreement negotiations such as EU-India FTA. DNP+ followed the RCEP negotiations concerning that it might include provisions in excess of those required by the WTO’s Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). TRIPS-plus measures are known to undermine access to generic medicines. DNP+ worked with legal experts to understand the implications of the leaked text of RCEP. The analysis showed that demands by Japan and South Korea were TRIPS-plus including patent terms longer than 20 years, data exclusivity etc. DNP+ commenced advocacy with law and policy makers and negotiators and sensitisation of general public and media on the implications of RCEP negotiations on access to medicines. In 2017, DNP+ presented their concerns directly to the trade negotiators of RCEP countries at a stakeholder consultation and also courted arrest during a protest at the negotiating venue. The raising of key public health concerns with RCEP resulted in public commitments from the government of India that it would not agree to TRIPS-plus measures that undermine access to medicines.

![RCEP Protests by DNP+](Image 330x86 to 560x243)
**Lessons learned:** People living with HIV are a critical stakeholder in trade agreement discussions as intellectual property demands in such negotiations can undermine access to treatment. Advocacy with law and policy makers is important as they are often unaware of the exact implications of such negotiations. Community advocacy has a strong impact on negotiators. Community literacy on treatment and intellectual property provides a strong foundation for sustained advocacy on trade agreement negotiations that take several years.

**Conclusions/Next steps:** RCEP negotiating countries have stated that they will sign the agreement in 2018. However, the text of the agreement has not been made public to allow for proper analysis and community consultation. Governments should not agree to any TRIPS-plus measures in RCEP to ensure continued generic production and supply.

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**Background:** In 1996, two important legislative changes took place in Brazil: the law 9.313 established universal access to ARVs and the law 9.276 that changed the intellectual property (IP) laws, allowing patents on pharmaceuticals. ABIA/GTPI is a civil society organization working to reduce the impact of monopolies in public health. Issued in 2007, the compulsory license (CL) for the antiretroviral (ARV) efavirenz is a landmark for the pro-access policies. However, from 2008 the Partnerships for Product Development (PDP) offered free of charge ARV medicines for all those in need. Since 2011, PDP and other partners have put TDF in the public domain in Brazil. In 2012, the Brazilian patent office rejected the TDF's patent. In the same year, TDF became part of the new policy to strengthen the Brazilian pharmaceutical industry by the Ministry of Health (MoH). A Partnership for Product Development (PDPs) was set up to reduce the impact of monopolies in public health. Tenofovir (TDF) is a drug to treat HIV, incorporated by the Brazilian government with high prices. ABIA/GTPI was involved in a struggle to reduce the prices.

**Methods:** ABIA/GTPI calculated possible TDF prices, estimating the cost of production with the different API prices. With this, we compared the prices actually acquired by the MoH to the prices that the medicines produced through the PDP should have and the lowest international prices.

**Results:** In 2014, the TDF price paid by the MoH was $580.81 pmp. This was 5.5 times higher than the price projected considering the costs and API price fixed in the FUNED-NORTEC contract: 3.4 times higher than the price calculated using the highest price of national available API in 2014 and 12 times higher than the costs and the international lowest generic API price.

**Conclusions:** The TDF price paid by MoH was at least three times higher than they should be. After all the efforts of civil society and other sectors to put TDF in the public domain in Brazil, even the generic price did not accomplish to contribute to the sustainability of the universal access policies. There is need for further debate on national generic prices from a human rights perspective.

**TUPED536**

**Does Brazil pay a fair price for TDF? Civil society struggle to guarantee the sustainability of access universal policies**

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**Background:** Brazil has a public and universal health care system (SUS), that offers free of charge ARV medicines for all those in need. Since 1996 when Brazil changed its law and complied with TRIPS requirements the universal access policy sustainability is under threat. ABIA/GTPI is a civil society organization working to reduce the impact of monopolies in public health. Issued in 2007, the compulsory license (CL) for the antiretroviral (ARV) efavirenz is a landmark for the pro-access policies. However, from 2008 the Partnerships for Product Development (PDP) was set up to reduce the impact of monopolies in public health. Tenofovir (TDF) is a drug to treat HIV, incorporated by the Brazilian government with high prices. ABIA/GTPI was involved in a struggle to reduce the TDF prices.

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**Conclusions:** The TDF price paid by MoH was at least three times higher than they should be. After all the efforts of civil society and other sectors to put TDF in the public domain in Brazil, even the generic price did not accomplish to contribute to the sustainability of the universal access policies. There is need for further debate on national generic prices from a human rights perspective.

**TUPED537**

**The role of civil society in shaping the political environment for the incorporation of new technologies in Brazil: The cases of dolutegravir and TDF/FTC**

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**Background:** As Brazil has one of the oldest HIV patient cohorts in developing countries, it anticipates the need to access newer technologies as well as related challenges. However, since 2010, the internal political environment has been undermining the human rights perspective and the ability to confront monopoly powers over key technologies. As result, Brazil is unable to keep its protocols updated, in contradiction to its legacy of reducing the gap between rich and poor countries when it comes to access to the best treatment and prevention options. From 2014 onwards, civil society intensified efforts to reverse this scenario by adopting multiple strategies that involved campaigns, protests, events, patent oppositions, consultations, publications and advocacy. Such efforts lead to the successful incorporation of Dolutegravir as first line treatment for over 100,000 people, despite strong opposition by the government initially. Civil society has also ensured the incorporation of TDF/FTC as a prevention tool, including though the public consultation with the highest number of submission in the history of the National Commission for the Incorporation of Technologies (CONITEC).
TUPED539  
Lessons learned from the global fund’s removing legal barriers module in Indonesia  
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**Background:** Key affected populations in Indonesia constantly face human rights violations, creating legal barriers to HIV services. Such barriers discourages and prevents key affected population to access the much needed-health services. Further, it fuels Indonesia AIDS epidemic, of which is already in a high HIV burden. In an effort to remove such barriers, a program was proposed under the Global Fund to Fight AIDS, Tuberculosis and Malaria’s New Funding Model grant for Indonesia in 2016.  

**Description:** The program strategy is to work bottom up - by raising human rights and legal awareness of key affected populations, healthcare workers, and legal apparatus; creating community paralegal system as well as to inform national policy makers and wider relevant actors through some series of research and analysis, and recommendations for policy reform.  

**Lessons learned:** As many as 362 people from key affected populations were trained on legal and human rights issues, where 95% of the participants further trained to be community paralegals. The program also delivered human rights sensitization training for 267 healthcare workers, whom praised the excellence of such initiative. A holistic legal review and documentation on human rights violations against key affected populations were conducted, where it is found that the majority of human rights violations occurred in healthcare settings. Despite its success in delivering program expectations, challenges were present all the way from program development to the implementation. The negotiating process prior to grant signing lacks the understanding of the unique nature of human rights advocacy and programming, resulting in some key rights programming were deleted from the initial proposal. There was not many rooms created to enable community to address urgent legal issues arose throughout program implementation. The program implementation was also unsuccessful in widening national advocacy networks.  

**Conclusions/Next steps:** Holistic understanding of how human rights advocacy works, the ability to integrate human rights programming with broader HIV program, and continuation of ongoing advocacy efforts are utmost important. When human rights programming within AIDS response is treated as business as usual, it would unlikely contribute in removing legal barriers to access to services for key affected populations.
Nairobi Outreach Services Trust collaborate to support persons who use drugs. People who face human rights violations can report violations to the legal team, receive legal assistance and pro-bono representation in court where necessary. Monthly legal aid clinics are provided to people who use drugs in safe spaces, where they will be comfortable to open up and report cases of violence, including at the NOSET premises and drug dens.

Conclusions/Next steps: Establishing a referral mechanism between NOSET and KELIN for the purposes of providing legal services and advice to persons who use drugs strengthens access to justice for people who use drugs in Nairobi. Case examples include:

- Mr. James Kamau, who had been disinheritied by his siblings was able to acquire his rightful inheritance.
- Ms Irene Njeri, who had been assaulted by her neighbour was able to access justice after the perpetrator was arrested.

TUPED541
"I feel so safe": flexible emergency support in Botswana for sex workers in case of violence

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Background: The Emergency Fund aims to provide more flexible financial support to (individual) sex workers in cases of emergency that are related to violence. The fund is part of the Hands Off! programme, aiming to contribute to the reduction of violence against sex workers in Southern Africa. Violence is one of the most significant factors affecting the vulnerability of sex workers to HIV & AIDS. Due to their position in society and criminalizing laws, sex workers are vulnerable to physical, sexual, and emotional violence from clients, police and the community.

Description: The rapid response system focuses on building mechanisms to respond to cases of violence for the protection of the sex worker community as a whole. The Emergency Fund is for individual cases of violence. It provides flexible financial support to sex workers through sex worker-led organisations, like shelter money in case of rape, urgent applications at court, post-trauma counseling, funeral costs as a result of violence or hospital emergency - for example initial consultation during the implementation of previous sex work programmes, sex worker-led organization Sisonke often sent requests to donors for small funding to assist sex workers in need of emergency to no avail. Normally, these are never thought of as possibilities when developing proposals and work plans as they are not predicted. Through the Emergency Fund, 9 sex workers received support.

Lessons learned: We learnt that with the emergency fund system it helps sex workers to be able to report cases as they know they will be helped with certain costs for redress or even help them with their costs at the hospital. This helps with fighting the spread of STIs and they can access services such as PEP. Furthermore it should be promoted more widely so that SW are better aware and less reluctant to report a case.

Conclusions/Next steps: In Botswana violence is aggravated by criminalization, as sex workers lack access to justice. Laws and policies, including those who criminalize sex work, leave sex workers very vulnerable to physical and sexual abuse. Decriminalization of sex work is necessary to increase access to justice for sex workers.

TUPED542
Changing the situation with human rights violations of people who use drugs. What is really needed

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Background: Ukraine has the second-largest HIV epidemic in Eastern Europe and Central Asia. The epidemic is closely associated with injecting drug use. Human rights violations and legal barriers for people who inject drugs are still the case. Ukraine is one of the 9 countries in international advocacy program PITCH: Partnership to inspire, transform and connect HIV.

Methods: To evaluate the actual situation with human rights violations of people who use drugs including those who criminalize sex work, leave sex workers very vulnerable to physical and sexual abuse. Decriminalization of sex work is absolutely necessary component of sex worker interventions (WHO, 2012). According to WHO, community empowerment is an “absolutely necessary component of sex worker interventions (WHO, 2012). Research further shows that empowering the community to take charge of HIV intervention programs can contribute to a reduction in HIV by 32% (Lancet, 2014). However, due to multiple intersecting reasons, it is a constant challenge to get sex workers involved in our community and advocacy work.

Description: We created a 16-session capacity building program after three years of research and one feasibility study. The program ran over four months and topics included Digital Storytelling, HIV & AIDS, Feminism, Racial Justice, Sexual and Mental Health, Drugs, Counselling Skills, Suicide Intervention, Financial Literacy, Law, and Project Management. Each session functioned as a platform for participants to exchange ideas and opinions, as well as to increase their knowledge of the issue at hand.

We received sign-ups from 20 current and former sex workers. The program culminated with participants forming groups to craft a mini project that addresses an issue they are passionate about. These projects were funded by us.
A key feature of this program is that participants were provided a scholarship to attend this program so as to lessen the opportunity costs required to participate.

**Lessons learned:** The scholarship was crucial to enabling our participants to attend the program. The need to provide for family or personal survival should not be underestimated. At the end of the day, participants did not have to make the choice between advocacy or survival.

Most sessions allowed for participants open discussion about the topics and this helped to foster greater understanding between different types of sex workers. The culmination in group work was crucial to ensure the long-term impact of the program as this provided yet another opportunity for people to work together towards a common goal.

**Conclusions/Next steps:** Human rights activism in Singapore is highly frowned upon. It is important to destigmatise human rights work and to show that it is multi-faceted. Advocacy is needed for long term change, and it is important to empower sex workers to be part of the fight. We will be running the program again in 2018.

### TUPED544

**Preserving human rights through involvement of the judicial system and law enforcers**

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**Background:** People who use drugs work and live in complex environments dominated by power structures within family, community, workplace and state. They are highly stigmatized and categorized as immoral and a threat to the moral fabric of society. The Kenyan legal framework and country by laws criminalize behaviours related to pwids exposing them to punishing acts.

**Description:** Mombasa is a drug trafficking route, making heroin readily available. It estimated that Kenya has 18,327 People Who Inject Drugs (PWID) who have 18.5% HIV prevalence. Over 1730 Cases reported since in the county courts are related to drug use 218 cases of violence 10 cases of mob justices were reported at Reachout since 2016 to November 2017. From January 2016 to July 2017, Reach out Centre Trust (RCT) engaged the justice system through a Justice Actors conference where 70 Judge, magistrates, Lawyers, law enforcers, probation and CSOs were brought together under the theme clemency for social justice for people who use drugs. 140 Law enforcers were sensitized on Harm Reduction and social inclusion Health rights. RCT raised awareness through: radio talk shows, 15 religious leaders Muslim Christian, and 230 family members of PWID on Human rights for PWIDs.

**Lessons learned:** Through training and sensitization of law enforcers, judicial system many petty crimes related cases to the PWUDs have been given alternative sentence through the community services from the probation.

Law enforcers have been engaging with the RCT paralegals officers hence MAT clients are released without being taken to court. RCT has been included in the sitting in court users committee where it gives its views and suggestion. All sentenced MAT clients are able to access treatment without hinderance.

**Conclusions/Next steps:** There is a need to advance legal protection of people who inject drugs and this can only be achieved through the support of the judiciary. Members of the judiciary should assert their crucial role in advancing justice through use of evidence-based judgments towards the said population. In putting into consideration, there is a need to have a common understanding of people who inject drugs by the judiciary hence the need to have a continuous engagement with the judiciary.

### TUPED545

**Collaborative efforts of partners through small grants to key population-led organisations on human rights protection**

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**Background:** Legislations in general, particularly in Africa, strongly condemn the activities of Key Population - sex workers, men who have sex with men, and drug users. In the context of HIV, punitive laws in Nigeria penalize these groups, thus creating barriers to access to HIV/AIDS services which impedes effective HIV/AIDS response in the country. Three decades of experience has shown that promoting and protecting human rights are essential for preventing HIV transmission and reducing the impact of HIV/AIDS. Thus, a meaningful partnership and collaboration among partners such as the National Agency for the Control of AIDS (NACA), UNDP Country Office and ENDA Sante, a regional NGO to support KP in defending their rights and improve their access to adequate information and health services is a key strategy to ending AIDS by 2030.

**Description:** In 2017, the Africa Regional HIV Grant was provided to three rigorously selected national key populations-led organizations (YouthRise, COALiHR and ICARH). These organizations organized capacity building meetings for sex workers, men who have sex with Men and persons who inject drug and other key stakeholders on issues related to HIV/TB and human rights. Issues harnessed were quite different as the different populations had their specific peculiarities and human right issues affecting them from accessing HIV services. Group discussions were used to identify issues under different contexts areas, how it affect their human rights, access to HIV services and proposed advocacy strategies to address the issues.

**Lessons learned:** The capacity building meetings which used nationally standardized tools were instructive for strengthening key populations associations, documentation and reporting of human rights violations. The support also produced an evidence-based policy brief for advocacy on current quality of service provision, barriers to HIV services and strategies to address them for key and vulnerable populations.

**Conclusions/Next steps:** The collaboration of development partners and government institutions is a strategy that could positively be harnessed and expanded. This would provide the much-needed civil society institutional strengthening for key population led and focused institutions for a human rights responsive HIV programmes towards ending AIDS by 2030.

### Legal advocacy tools and strategies

**TUPED546**

**The activities of the patients’ community to improve access to treatment of HIV-positive patients: The role of communications in legal advocacy**

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**Background:** It is estimated that 238 000 people live with HIV (PLWH) in Ukraine; 88 270 PLWH receive ARV therapy, and 42 150 of them are treated at the state expense. About 40% of the state budget is spent only for the Lopinavir/Ritonavir (LPV/R) drug which has a 13-year monopolistic position in the market. The abolition of the patent for LPV/R will open access to generic versions of the drug and give the state up to $ 13 million in savings. This will allow additionally 125 000 people to be treated.

Ukrainian courts are reluctant to hear cases against one of the largest pharmaceutical companies AbbVie, that is why and the risk of corrupt decisions always exists.
Description: In May 2015, the Network created a precedent by filing a patent opposition to recognize the LPV/R patent as invalid as not novel and obvious. The court refused to examine the patent, and a number of high-profile actions were held to follow each court session during 2017. These judges and the AbbVie management were the target audience of these actions. The largest online media (Ucranita.Provda, Corson.net, and RBC-Ukraine) published the Network’s experts’ blogs on case progress, and the Network’s website has all related information in Ukrainian, Russian, and English. The information was also distributed to the English-speaking audience through the Make Medicines Affordable partnership coalition.

Lessons learned: Correct media messages for judges in combination with vivid and effective promotion campaigns allowed keeping media attention to the trial during a year. The maximum publicity did not allow the court to delay the hearings further and contributed to reducing the influence of the pharmacy’s lobby. The court delivered a judgment in favour of the patients’ organization under public pressure and appointed patent re-examination in 2018.

Conclusions/Next steps: The milestone of the patent re-examination is achieved. The first such a precedent in Ukraine provides the basis for future demands to increase access to treatment. Challenges related to patent oppositions initiated by patient’s organizations could be successfully overcome by bringing public attention using media instruments.

TUPED547
David against Goliath: How concerted action among stakeholders in Brazil overturned a draft bill that aimed to classify HIV transmission as heinous crime

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Background: Amidst political turmoil, the legislature of 2015 initiated bringing back to vote the text of a bill dated 1999, re-packaged into what was named PL198/2015. It stated that ‘the intentional transmission of HIV is a heinous crime’. If the bill became law, all efforts of the country to classify HIV transmission as heinous would have been in vain. Simultaneously, news outlets were pouring fake news of PLHIV gathering in clubs to infect others on purpose. Therefore, concerted action was key to put pressure in Congress and retract the bill.

Description: By virtue of an active partnership, the Ministry of Health (MoH), UNAIDS and civil society, were expedient in setting-up a strategy to target parliamentarians to bring down the PL198/2015. The strategy was composed of:

(i) production of well-argumented documentation against the bill. Two technical notes were produced by UNAIDS and MoH. They were presented in conjunction with a repudiation note from civil society (ANAIDS) to the President of the Constitution and Justice Committee;

(ii) usage of mechanisms of the legislative process to stall the vote: members of the Parliamentary Front against AIDS were mobilized to comment the bill and adjourn the vote. The Family and Social Security Committee also presented a motion to reject the bill;

(iii) Mobilization of media outlets and counter argumentation: UNAIDS and partners launched an active social media campaign against the text to influence public opinion;

(iv) use of personal networks to reach out to key parliamentarians: members of civil society sensitized Congressmen to finally have the bill retracted.

Lessons learned: It is arduous to break barriers. It is easier to stop them from being built.

The whole process took two years, amidst the impeachment of President Rousseff. Despite the political turmoil, attempts to reduce the rights of PLHIV did not stop. Building on the strength of each partner was the key to success.

Conclusions/Next steps: A permanent legislative watch has been put in place by UNAIDS to monitor closely proposed bills that can affect negatively and positively the rights of people living with HIV and other key populations. Today, more than 190 bills are being monitored on a weekly basis.

TUPED548
Dangerous desires: The criminalisation of HIV transmission in Victoria, Australia

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Background: The criminalisation of HIV transmission and exposure represents a controversial expansion of the scope of the criminal law to encompass disease transmission as a criminal subject. In the state of Victoria, Australia, the principal mechanism for HIV criminalisation has been via reckless endangerment laws, however their application to HIV has not been extensively studied.

Methods: A series of HIV-related criminal cases employing the endangerment laws were identified, and access to court records was sought from the County Court of Victoria. The Court granted access to five of the six cases requested. A review of academic and judicial commentary on the endangerment laws was undertaken, as well as a doctrinal analysis of the application of the laws to people with HIV over two decades. The Court-provided materials were analysed to critically examine the practical application of the laws in HIV cases.

Results: This analysis shows that general endangerment laws have been used as a ‘proxy charge’ in HIV transmission cases; that highly prejudicial evidence about HIV transmission is routinely put before juries despite not being a fact in issue; and that in some cases, defendants appear to have been sentenced as if they were on trial for causing another’s HIV infection rather than endangering it. This represents a significant departure from the scope and intent of the endangerment laws as they were passed.

Moreover, the broad scope of Victoria’s endangerment law has resulted in an unreasonably high rate of criminalisation of HIV compared to equivalent jurisdictions without similar laws.

Conclusions: The use of laws criminalising reckless endangerment in cases where HIV transmission is alleged represents a problematic exercise of prosecutorial discretion which has the potential to lead to greater
The Tribunal has endeavored to:
- Enhance access to justice for PLHIV;
- Interpret the Kenyan law in line with the international best practices; and
- Provide a flexible and friendly forum for resolution of HIV and AIDS disputes.

In 2016 KELIN, with support from UNDP Kenya, embarked on documentation of cases decided by this Tribunal, resulting in a first ever compendium of cases. KELIN, has over the years, through its pro bono lawyers, supported clients with cases at the Tribunal.

**Description:** This Compendium was produced with an aim of supporting lawyers, judges, legal researchers, students, and the general public in understanding and appreciating how the law has been applied and interpreted to protect and promote the rights of PLHIV. It aimed at igniting legal discourse on HIV and AIDS laws and policies in Kenya.

**Lessons learned:** Cognizant of the fact that HIV stigma, discrimination, bastardization and other forms of rights violations pose the greatest threat to the fight against HIV and AIDS, the tribunal has committed itself to addressing these challenges, and has endeavored to develop and improve HIV jurisprudence in Kenya taking into account the development of HIV law worldwide. This is reflected in the decisions it has made as documented in this compendium of cases.

**Conclusions/Next steps:** The compendium will be useful in advancing the human rights agenda of PLHIV in Kenya and beyond and can help eradicate the rampant HIV related stigma and discrimination.

**TUPED551**

**Aristotle was right - the sum is greater than the whole of its parts:** How collaboration increased capacity in the fight against HIV criminalisation

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**HIV Justice Network, Amsterdam, Netherlands**

**Background:** HIV criminalisation is the unjust application of criminal law to people living with HIV based solely on HIV status - either via HIV-specific criminal statutes or by applying general criminal laws that allow for prosecution of unintentional HIV transmission, potential or perceived exposure, and/or non-disclosure of known HIV-positive status. Despite recommendations from global normative agencies to severely limit the use of the criminal law to rare cases of malicious, intentional transmission, the overly broad and unjust use of the criminal law to control and punish people living with HIV is a growing, global phenomenon that has been generally overlooked and under-funded.

**Description:** In 2016, seven civil society networks, funded by the Robert Carr Fund, formed the HIV Justice Worldwide coalition to shape the global discourse on HIV criminalisation, share information and resources, build capacity, mobilise advocacy, and cultivate a community of transparency and collaboration. Today, HIV Justice Worldwide includes more than 70 partners globally and is led by a ten-agency steering committee. HIV Justice Network serves as its secretariat.

**Lessons learned:** Collaboration between civil society and other key stakeholders has delivered a diverse range of strategies to address HIV criminalisation including: stronger civil society relationships with international agencies and representative bodies of HIV scientists and clinicians; the reporting and analysis of more accurate global data on HIV laws; and prosecutions; development of a centralised online advocacy resource consolidating all current HIV criminalisation resources; development of a compendium of legal precedents listing all known HIV criminalisation cases where a successful legal defence was mounted; development of shared communication strategy to promote expert scientific opinions on HIV transmission risk and harms; large-scale training events for community leaders, defence lawyers and media; and sharing of cross-jurisdictional legal expertise to mount successful legal challenges including constitutional challenges to amend laws or acquit those unjustly accused of HIV-related crimes.

**Conclusions/Next steps:** Funding international collaboration on HIV criminalisation for the first time has increased capacity and galvanised agencies and NGOs to develop evidence-based advocacy and undertake targeted interventions to improve the legal environment and increase access to justice for people living with HIV.

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**TUPED549**

**Intimate conviction: The role of churches in the (de)criminalization of sodomy**

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**Background:** Despite advances for LGBTIQ rights in some countries, 73 states still criminalize consensual same-sex activity. 36 of these countries are in the Commonwealth of Nations; former British colonies, many in Africa and the Caribbean, where anti-sodomy laws were mostly imposed during the period of British colonial rule. Despite decades of independence, the statutes have been difficult to dislodge and contribute to the overwhelmingly disproportionate HIV burden in Africa and the Caribbean.

**Description:** The British anti-sodomy law reflected Victorian morality based on narrow Church of England theology. While the Church of England played a significant role in decriminalizing same-sex activity in the UK, a similar process has not occurred in the Commonwealth. With the support of local and international partners, the Canadian HIV/AIDS Legal Network hosted “Intimate Conviction” — the first-ever discussion of the role (past, present and future) of the church in the decriminalization of sodomy.

From October 12-13, 2017, 25 Christian leaders (12 women and 13 men), including many senior clergy and academics from former British colonies, met in Jamaica. The sessions were all open to the public, and although some local conservative church pastors called for a boycott, there were significant interventions by Christians opposed to decriminalization who attended and took opposing views.

**Lessons learned:** Topics covered included the distinction between Global North and Global South churches regarding decriminalization, the role of criminalization on the church’s response to HIV, and the impact of criminalization on women. There was also a rich discussion of the history of church involvement in criminalization and the challenge for church leaders to support decriminalization. Most participants reported that the conference was timely, as the issues of religion and homosexuality were topical in Jamaica after two local senior preachers made public calls for decriminalization.

**Conclusions/Next steps:** The conference concluded with recommendations on how to encourage more churches to endorse decriminalization, including holding similar dialogues in criminalized contexts, and encouraging more Global South participation in these exchanges. An edited volume of the conference presentations will be produced for use and research by Commonwealth lawyers working on decriminalization, as well as NGOs seeking to engage and partner with faith leaders.

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**TUPED550**

**Using the HIV and AIDS tribunal in Kenya to protect rights of PLHIV: A compendium of cases**

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**Background:** The HIV & AIDS Tribunal in Kenya was established in 2009. The Tribunal was established to adjudicate and give appropriate redress in cases on HIV violations; and prevent an irrational, panic and fear-driven response to HIV. The Tribunal adjudicates cases on breach of privacy and confidentiality; testing without consent; disclosure of status; stigma and discrimination; loss of employment due to status, among others.

The Tribunal has endeavored to:
- Enhance access to justice for PLHIV;
- Interpret the Kenyan law in line with the international best practices; and
- Provide a flexible and friendly forum for resolution of HIV and AIDS disputes.

In 2016 KELIN, with support from UNDP Kenya, embarked on documentation of cases decided by this Tribunal, resulting in a first ever compendium of cases. KELIN, has over the years, through its pro bono lawyers, supported clients with cases at the Tribunal.

**Description:** This Compendium was produced with an aim of supporting lawyers, judges, legal researchers, students, and the general public in understanding and appreciating how the law has been applied and interpreted to protect and promote the rights of PLHIV. It aimed at igniting legal discourse on HIV and AIDS laws and policies in Kenya.

**Lessons learned:** Cognizant of the fact that HIV stigma, discrimination, bastardization and other forms of rights violations pose the greatest threat to the fight against HIV and AIDS, the tribunal has committed itself to addressing these challenges, and has endeavored to develop and improve HIV jurisprudence in Kenya taking into account the development of HIV law worldwide. This is reflected in the decisions it has made as documented in this compendium of cases.

**Conclusions/Next steps:** The compendium will be useful in advancing the human rights agenda of PLHIV in Kenya and beyond and can help eradicate the rampant HIV related stigma and discrimination.
TUPED552
HIV related cognitive impairments and criminal law - barriers accessing justice for people living with HIV and HIV-associated neurocognitive disorder

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Background: The HIV/AIDS Legal Centre has recognised an increase in the need for legal representation in criminal law matters for people with HIV with HIV-associated neurocognitive disorder (HAND). Many clients do not even have a recollection of having committed any offence and/or are in denial of their actions as their HAND has directly resulted in their offending behaviour.

The Mental Health (Forensic Provisions) Act in the Australian state of New South Wales allows for the dismissal of some criminal offences where the person has a cognitive impairment, case law requires that the defendant also enter into a treatment plan as proposed by an appropriately qualified physician. The application of the case law and legislation poses challenges for those facing criminal charges as a result of HAND.

Description: Representation of people with HIV with HAND in criminal law requires competent counsel to ensure that: clients remain empowered and engaged; the judiciary and the prosecution are educated on HIV and HAND, and people with HIV are not stigmatised and that the public do not form a view that all people with HIV will develop HAND.

Lessons learned: Case studies revealed that it is difficult to assist clients with HAND to have charges dismissed under the mental health legislation. The first challenge is establishing whether the client has sufficient legal capacity to provide instructions. Secondly the judiciary and the prosecution need to have the condition explained to them in a sensitive and non-stigmatising manner. The result of the challenges mean that appeals processes are often utilised and/or people with HAND faces criminal penalties in circumstance where the mental health legislation should have been applied.

Conclusions/Next steps: Representation of people with HIV with HAND assists to ensure that the individual is not subject to criminal law penalties where it is not appropriate, but also educates the judiciary on the challenges faced by people living with HIV.

Outcomes achieved in the courtroom demonstrate that judicial and prosecutorial training is necessary to ensure greater success and greater sensitivity to protect not only the individual before the court but all people with HIV.

TUPED554
Working with parliamentarians on rights of PLHIV: Safeguarding access to treatment in the HIV/AIDS Act 2017

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1The Delhi Network of Positive People (DNP+); Study Group
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Background: PLHIV networks have been advocating for the adoption of an HIV anti-discrimination law drafted through community consultations in India since 2003. Since the Bill was submitted to the government in 2007, DNP+ being the network of PLHIV in Delhi where the Indian Parliament meets, met members of Parliament (MPs) to advocate for the Bill. In 2014 an amended version of the Bill was presented in Parliament without a legal commitment to provide HIV treatment.

Methods: Between 2015-2017, DNP+ worked with MPs on the treatment clause in the HIV/AIDS bill which stated that government would provide treatment „as far as possible“; a vague phrase according to legal experts. DNP+ with other PLHIV networks and legal experts commenced a legislative advocacy campaign including:

(1) Submissions, testimony and evidence to Parliament Standing Committees
(2) One-to-one advocacy with MPs from the ruling and opposition parties
(3) Public/media sensitisation and advocacy: Direct actions like protests in front of Minister of Health residence, press releases and press conferences were also held.

Results: As a result of the strong advocacy of PLHIV networks, during the debate on the HIV Bill several MPs including from the ruling coalition requested the government to remove the vague clause on treatment.

TUPED553
Community health advocates championing realization of the right to health in Kenya

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Background: Realization of the universal health coverage, achievement of the Sustainable Development Goals and the global targets of 90:90:90 in HIV interventions will remain a pipe dream if the community level health care systems are not adequately addressed. Every year, TB kills 1.4 million people and is the number one killer opportunistic infection amongst persons living with HIV. This is largely due to various social, legal and structural factors such as stigma and discrimination, inadequate drug regimens, poor drugs adherence to treatment and a large proportion of people with active TB disease who are missed by health systems.

Article 27 of the Constitution of Kenya 2010 has provisions that outlaw discrimination on the basis of one’s health status. Many affected communities are not aware about the useful provisions in the Constitution.

Description: KELIN, with support from ARASA, has engaged 30 Community Health Advocates (CHAs) from five counties in Kenya to raise awareness on HIV and TB rights, increase treatment literacy, and demand for quality health care services contributing to strengthening community health facility linkages.

The CHAs have documented and reported cases of health human rights violation, the most recent is detention of lactating mothers in a public health facility for nonpayment of maternity fees. With KELIN’s intervention, the mothers were release from the facility without paying a cent. The CHAs hold regular feedback meetings and conduct community outreach by leveraging on existing community platforms including chiefs barazas, religious gatherings, and in health facilities. They receive technical support from KELIN, who has linked them to local partners working on HIV and Human Rights.

Lessons learned: Community health advocates, adequately trained, supported and motivated, are better champions of health rights in their respective communities. This kind of intervention has proved necessary, useful and easy to implement and can be replicated in other areas of similar and comparable settings to yield positive results.

Conclusions/Next steps: The CHAs will continue with the community based outreachs to increase awareness and document cases of rights violations to ensure that communities enjoy their health rights.
Despite these efforts, as far as possible remains in the HIV/AIDS Act. However, not only did the pressure from PLHIV networks result in raising this issue in Parliament, it also resulted in a clear commitment from the Health Minister on providing treatment and his announcement of ‘Test and Treat’ as the new policy of the government.

Conclusions: With the Bill being passed with the vague treatment clause still in it, DNP+ and other positive networks are committed to continuing advocacy for its proper implementation, to raise awareness among the community on their rights and to ensure comprehensive access to treatment for PLHIV. As the Act requires rules and regulations and guidelines on access to treatment for implementation, PLHIV networks are continuing their advocacy with Members of Parliament, the Ministry of Health and the National AIDS Control Organisation on these processes to ensure that the government continues to provide and expand access to HIV treatment.

**TUPED556**

My body, my right! The power of women’s advocacy in defeating HIV criminalisation in Malawi’s HIV Bill

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Background: Based on a 2008 Law Commission report, Malawi’s HIV (Prevention and Management) Bill was tabled in mid-2017. It combined coercive and punitive approaches on the management of HIV with crucial administrative provisions to institutionalise the National AIDS Commission. This paper describes key interventions by civil society, activities and, prominently, the role of women living with HIV, in ensuring the removal of criminalising and rights-infringing provisions from the law.

Description: In 2017 Malawian and regional civil society organisations (CSOs) conducted joint advocacy, raising human rights and public health concerns on coercive and punitive provisions in the draft HIV law. This joint, cumulative advocacy resulted in Parliament’s HIV Committee proposing a range of amendments. Their amendment report addressed many civil society concerns but retained section 43, criminalising the “deliberate transmission” of HIV. In weeks before the Bill went to vote, Malawian women activists, led by women living with HIV, directly engaged Parliamentarians, protested and delivered statements condemning section 43 as a threat to human rights. On 28 November 2017, Parliament passed the Bill into law, adopting the HIV Committee’s amendment report in full and going further to exclude section 43, thus comprehensively rejecting criminalisation of HIV.

Lessons learned: Manufactured urgency to enact the law left little space for meaningful engagement with affected communities. Adopting the slogan, “My body, my right”, women activists, led by women living with HIV, achieved a fundamental shift in the understanding of and attitude towards HIV criminalisation by lawmakers and the executive. The technical objections and support of lawyers and human rights CSOs were effective in a supporting capacity, legally empowering the affected community with the language to implicate the proposed law in their lived realities. This grounded the discourse and powerfully challenged the abiding patriarchal and stigmatising underpinnings of the law’s purported protections. Ultimately, the ability of “ordinary” women living with HIV to articulate what the law meant in real terms directed Parliament’s response.

Conclusions/Next steps: The feminisation of HIV criminalisation in Africa demands a response led by women living with HIV. This requires the active engagement, participation and full legal empowerment of affected communities.
Ethical aspects and standards in research, including clinical trials

TUPE557
Ethical considerations in HIV phylogenetic research


On behalf of the Ethics in Phylogenetics Working Group

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Description:
Phylogenetic analysis applied to pathogen genetics is a powerful tool with the potential to help reduce the spread of epidemics, including HIV. Phylogenetics allows the deduction of historical relationships between groups of organisms based on their pathogen genomes, which can be used to help infer transmission chains among infected individuals. The application of phylogenetic approaches to public health programmes has rapidly increased in the last five years and presents unique ethical, legal, and social issues which are not well addressed by the existing bioethics literature.

Background:
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Description:
A multidisciplinary meeting was convened to explore the issues arising from the design, conduct and use of results from HIV phylogenetic studies, and additionally to propose recommendations to minimize the associated risks both to individuals and groups. The meeting focused on phylogenetic studies of HIV in Africa, the epicentre of the global HIV pandemic.

Lessons learned:
We identified eight critical ethical domains which provide a framework through which to consider the issues:
(i) risk-benefit assessment;
(ii) protection of the rights and interests of study participants in pursuit of scientific progress;
(iii) local social and legal context, including human rights violations;
(iv) risk mitigation strategies;
(v) valid informed consent and other safeguards;
(vi) community engagement;
(vii) communication and
(viii) equitable data sharing.

Within each domain, we highlighted factors that make phylogenetic research unique, such as the fact that both individuals who participate in studies as well as social and geographic groups are linked in phylogenetic networks.

Conclusions/Next steps:
We endeavoured to provide a framework to assist researchers, public health practitioners, and funding institutions to ensure that HIV phylogenetic studies are designed, conducted and disseminated in an ethical manner.

TUPE558
PLHIV data sovereignty in research: Empowerment and inclusion in the Australian context

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Background:
Research conducted by academic institutions is rarely directed, owned or controlled by PLHIV, and university research agendas do not always align with the PLHIV community’s need to research issues in a timely and targeted manner, influencing policy and service systems. To redress these issues Positive Life NSW has increasingly turned to community driven, owned, and promoted electronic surveys (Anal Cancer Awareness Survey, Immediate Start to HIV Treatments Survey) to provide a more effective mechanism to consult with community. We have demonstrated that our surveys are faster, more in depth data in greater quantities, and more responsive to emerging PLHIV concerns and needs. This data and PLHIV representative advice adds to and compliments the research published by universities and clinical services.

Description:
Produced by Positive Life on behalf of the national Australian HIV peer-led organisational grouping, Poz Action, the document establishing the principles, objectives and guidelines of the PLHIV-led human research ethics committee (HREC) was drawn from local and international examples. The guiding document will now enable Australian HIV peer organisations to include PLHIV at all stages of the research process and inform the HIV research agenda.

Lessons learned:
Not all jurisdictions have a dedicated PLHIV-led organisation and varied levels of skills and resources to dedicate to development; however, the desire to progress this project has led to stronger ties, skill development and knowledge transfer between PLHIV community organisations throughout the collaboration stages. As PLHIV become more involved and the issue of data sovereignty, coordination and participation impact researchers and clinicians, a culture shift in management process and education will need to occur.

Conclusions/Next steps:
Formal establishment of the HREC. Engagement with all Australian HIV researchers and research facilities and jurisdictional/national health agencies. As per Australian Aboriginal research precedent, seeking State/Territory legislation requiring HIV research to be reviewed by a PLHIV-led HREC. Funded by VIV Healthcare Australia.

TUPE559
A study of violations of human rights of PWUD and PLHIV in Kazakhstan resulted from an unethical governmental research

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Background:
Among post-Soviet states, Kazakhstan has one of the biggest populations of people who inject drugs (PWID), which amounts to 128700 persons, 8.2% of them living with HIV. Around 98,000 of Kazakhstan PWID are opiate users, which means that the spread of HIV can be substantially decreased through opioid substitution treatment (OST). However, OST programs in Kazakhstan are available to only 2.69% of those in need, and even these treatment slots are currently under the threat of being closed. In 2017 Kazakhstan government initiated an assessment of the effectiveness of OST programs. The study explored human rights violations among PWID and PLHIV resulted from the governmental assessment.

Methods:
In November - December 2017 three group interviews with 30 OST patients (most of them PLHIV) in Pavlodar and Temirtau were conducted. The study was organised by an independent international group. Local PLHIV community groups were involved as gatekeepers and in interpreting the study results.
Results: Analysis of interviews revealed the following violations of research participants’ and patients’ rights:

1. Patients participated in the assessment on non-voluntary basis and under threat of termination of the OST program.
2. Patients were not provided with full information on research to participants.
3. Patients were forced to provide urine for non-anonymous drug testing.
4. No single patient gave informed consent to medical doctors to disclose information about their diagnosis to any assessment group members or other government bodies.
5. Assessment group members often spoke to patients in a disrespectful, loud tone, and were present when male and female patients collected urine samples without permission.
6. Former patients were approached at their homes by police to provide details about the reasons they had quit the OST program.

Conclusions: The governmental assessment of OST was organised with rude noncompliance with international bioethical standards. It is recommended that the governments of Kazakhstan reject the results of the assessments as of poor quality and ensures that in future any research with the involvement of PLHIV and PWUD is organised according to international bioethical standards.

TUPED560
Identifying ethical issues in HIV positive adolescents research: Zimbabwe National Ethics Committee experiences
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Background: There remains reluctance to involve adolescents in clinical trials. In general, yet they remain at high risk of the HIV disease. When such a protocol is submitted to an Ethics Committee for review, contradictory legal and ethical requirements remain a challenge. Because of this myriad of challenges, it is necessary for Ethics Committees to identify, during protocol review, as much as possible, ethical issues that might arise during research involving HIV positive adolescents. We share our experiences as the National Ethics Committee on ethical issues raised during review of research protocols involving HIV positive adolescents.

Methods: Monthly protocol review meetings were held in order to cope with the review workload. Protocols involving HIV positive adolescents are never reviewed through the expedited process as per Standard Operating Procedures. This allows a wide range of face-to-face opinions from committee members. Stipulations and recommendations raised are communicated to the researcher through written letters and these are addressed before protocol approval.

Results: In 2017, a total of 54 HIV research protocols were reviewed, clinical trials and social sciences research inclusive. Out of the 54, fifteen protocols involved recruiting HIV positive adolescents research participants. Some of the ethical issues identified during review included, when adolescent child can consent independently, logistic challenges of child and parent/guardian consent, confidentiality issues on the side of the child, justice not done to the child whose parents/guardian refuses their participation when they can benefit, principle of autonomy not honored, adolescents treated as vulnerable patients, and that protectionist attitude impedes human rights.

Conclusions: Protocols involving HIV positive adolescents need attention to detail when reviewing. It is prudent to adopt and adapt to localized context-dependent strategies. There is need for flexibility in reviewing HIV positive adolescent research so as to meet community needs, thereby ensuring ethical research practices.

TUPED561
“Free testing and PrEP without outing myself to parents,” barriers and facilitators for oral and injectable PrEP clinical trial participation among adolescent men who have sex with men
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Background: Adolescent men who have sex with men (AMSM) account for high numbers of new HIV diagnoses. Non-adherence to daily use limiting the effectiveness of oral PrEP (Truvada) has led to current trials with adult MSM testing Cabotegravir, a long-term injectable medication. AMSM trials will begin once adult studies have established relative safety and efficacy of these medications. Recruitment of AMSM under 18 has been a barrier in prior HIV prevention research due in part to guardian permission requirements. This has created pressures to waive guardian consent and develop alternative research protections. This study examined factors influencing AMSM attitudes toward participation in oral/ injectable PrEP RCTs to inform protections of youth’s rights and welfare in future studies.

Methods: We administered a 198 ethnically diverse U.S. AMSM, 14 - 17 years, a web-based survey including demographic and sexual health questions, description of a year-long oral versus injectable PrEP RCT and 20 Likert-type and open-ended items assessing motivations for and against participation including: perceived benefits and risks of PrEP and HIV/STI testing; benefit to others; random assignment; and confidentiality concerns.

Results: Sixty-two percent indicated they were likely to participate in the study. Over 80% endorsed daily HIV protection, HIV/STI testing, sexual health counseling, not having to rely on partner’s condom use, and altruism as reasons to participate. Reasons against participation included medication side effects (48%), fear of learning they had HIV (42.5%) and concern taking the pill daily would reveal their sexual orientation to parents (61%). Many (60%) erroneously assumed they would be assigned to the condition best for them and 53% indicated free access to services would lead them to participate even if they did not want to. Multiple regression indicated these factors accounted for 55% of the variance in participation choice. Neither age or ethnicity yielded significance.

Conclusions: Results suggest future biomedical HIV prevention research will need to address AMSM’s confidentiality concerns and develop procedures to enhance youth’s understanding of random assignment, the continued importance of partner condom use during trial participation, and availability of alternative sexual health services to avoid the potentially undue influence of access to free sexual health services.

TUPED562
Participating in biomedical HIV prevention trials while pregnant: Women’s views about enrolling in Pre-Exposure Prophylaxis (PrEP), vaginal ring, and randomized comparison trials
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Background: Despite the significant need for effective HIV prevention during pregnancy, the widespread exclusion of pregnant women from clinical trials has resulted in limited data on biomedical HIV prevention
methods in pregnancy. Failing to study these methods in pregnancy has important implications for equitable access to prevention modalities and their safe and effective use. The PHASES project is developing engagement-driven guidance on how to responsibly expand the HIV evidence base for pregnant women. Pregnant women’s views on participation in research are critical to informing the development of this guidance, which must be responsive to pregnant women’s needs and values.

Methods: Seventy semi-structured, in-depth interviews were conducted with pregnant or recently pregnant women at risk for HIV, 35 in the U.S. and 35 in Malawi. Questions explored decision-making around enrolment while pregnant in 3 hypothetical HIV prevention clinical trial vignettes testing (1) PrEP, (2) a vaginal ring, and (3) a randomized trial comparing the two.

Thematic analysis informed the analytic approach. Interviews were transcribed, translated when necessary, coded and emergent themes identified.

Results: The majority of women in Malawi reported willingness to join at least one trial. Reasons included the potential benefit of preventing HIV in themselves and their offspring, access to enhanced medical care, helping other women in the future, and low perceived risk of the medications during pregnancy. Overall, U.S. women were more reluctant to participate, citing general avoidance of medications during pregnancy, unwillingness to assume potential risk to offspring, and low perceived personal risk for HIV exposure, with some exceptions.

Conclusions: We identified diverse considerations shaping decision making around potential participation in HIV prevention trials during pregnancy. Perceptions of HIV risk and the safety of medications in pregnancy were significant drivers of women’s decisions and appear to be influenced by underlying epidemiological and cultural contexts. These findings indicate that the current HIV research agenda, which largely excludes pregnant women, is misaligned with the views of some of these women; consideration of such views, situated within cultural contexts, may lead to a more ethically responsible and inclusive approach.

**TUPED563**

Ethical research with indigenous populations: Translating standard ethical guidelines to strengthen indigenous community involvement in research

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Background: American Indian and Alaska Native (AIAN) community partner informed engagement in the review of HIV/AIDS research protocols helps ensure community-based research (CBPR) serves community interest, enhances recruitment and study retention and avoids cultural misunderstandings, stigmatization, or culturally inappropriate, irrelevant, and disrespectful science. Although review boards and researchers are trained to minimize risks to participants, all parties must also know how to apply research ethics principles that are culturally responsive, at a community level, and weigh studies’ potential pathologizing effects for entire social groups. Traditional ethics training curricula have yet to keep pace with the rapid expansion of CBPR and have failed to address the unique situations across AIAN communities. We brought together national panels of AIAN community members, AIAN academic scholars and allies, and policy leaders to co-design and evaluate a culturally tailored online human subjects training curriculum.

Methods: We convened 11 general PLWH population survey respondents expressed willingness to donate (73.6% after death and 62.1% as living donors). However, only 21% were registered organ donors. Interviews with six transplant recipients revealed general satisfaction with the consent process and absence of regret over their decision to undergo transplantation, but some were concerned about stigma. Nine independent recipient advocate interviews revealed marked variability in practice among medical institutions and a desire for additional information and specification of their roles. We developed a draft PROM based on these results and existing scales. After cognitive and pilot testing with 27 PLWH it includes 29 items in five domains: emotions, trust, decision-making, process and absence of regret over their decision to undergo transplantation, but some were concerned about stigma. Nine independent recipient advocate interviews revealed marked variability in practice among medical institutions and a desire for additional information and specification of their roles. We developed a draft PROM based on these results and existing scales. After cognitive and pilot testing with 27 PLWH it includes 29 items in five domains: emotions, trust, decision-making, process and absence of regret over their decision to undergo transplantation, but some were concerned about stigma. Nine independent recipient advocate interviews revealed marked variability in practice among medical institutions and a desire for additional information and specification of their roles. We developed a draft PROM based on these results and existing scales. After cognitive and pilot testing with 27 PLWH it includes 29 items in five domains: emotions, trust, decision-making, process and absence of regret over their decision to undergo transplantation, but some were concerned about stigma. 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Ethical aspects and standards in prevention programmes

TUPED565
Ethical pitfalls of phylogenetic approaches to HIV prevention

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Background: Advances in molecular network analysis are providing unprecedented levels of granular insight into HIV transmission patterns. Through sequence similarity or phylogenetics, analysis of these molecular data can reveal potential transmission patterns among HIV-infected people. Although they cannot prove direct transmission, use of these methods to inform prevention targeting can inadvertently confer greater epidemiological significance to these data, raising ethical questions regarding the appropriate balance of personal risk and public health benefit.

Methods: We conducted a review of six known studies taking place in Europe, North America, and sub-Saharan Africa that are utilizing molecular data to identify and target individuals with elevated HIV transmission risk. Data were gathered through direct communication with investigators and attendance at an international conference on this topic organized by the Bill and Melinda Gates Foundation in May 2017. This review focuses on study design, risks, benefits, and informed consent procedures used in these interventions.

Results: By targeting people or groups who are not only HIV-infected but also identified as having higher transmission risk, molecular and network-driven prevention approaches may introduce new risks to already vulnerable populations. These interventions could also backfire if fear of criminalization, stigma, or other harms cause people to withdraw from studies or the HIV care continuum. Consent procedures that convey appropriate amounts of scientific complexity and uncertainty for lay audiences pose significant implementation challenges. The ethical implications of these methods will continually evolve as technologies and analytical techniques develop.

Conclusions: Public health ethics dictate that any tool capable of more rapid or effective HIV control be utilized. Yet decisions on whether and how to implement molecular and network tools must carefully consider tradeoffs between population benefit and individual-level risks. Community-wide input will be necessary to ensure that indications of transmission risk (e.g. cluster membership, network centrality, etc.) are not conflated with evidence of a transmission, particularly in settings that criminalize HIV transmission. Design of acceptable and sustainable interventions will need to involve communities from the most formative stages. Lastly, better methodological consensus can be expected as our understanding of their particular limitations improves.

Supporting patient rights and informed consent in the context of HIV testing and treatment scale-up: Experiences of female sex workers living with HIV in Bali, Indonesia

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Background: Access and coverage of combination prevention strategies for key populations continues to lag behind/remains sub-optimal. The role of HIV testing and treatment scale up for key populations as part “Treatment as Prevention” (TasP) has drawn criticism and concern by community groups, with fear that patient rights and informed consent may be compromised. In a setting with government-sponsored HIV TasP roll-out, this study sought to capture female sex workers (FSW) experiences around informed consent (i.e., information, comprehension, voluntariness).

Methods: Data were drawn from ETHICS (2016-2017), a community-based qualitative study aimed at exploring a broad range of ethical questions surrounding HIV service scale-up in Bali, Indonesia. In-depth interviews with 25 female SWs living with HIV were conducted by a trained Peer Research Associate and analyzed using participatory coding techniques.

Results: Informed consent around HIV testing varied widely by venue, with most SWs who were tested at Yayasan Kerti Praja, a non-profit HIV clinic serving marginalized communities, indicating they were able to make an informed decision to test. In contrast, many SWs who were tested for HIV via outreach to sex work venues (e.g., by government-sponsored mobile health clinics) described having their blood ‘stolen’; many were not informed; did not understand the purpose of the test and felt unable to refuse authority figures; or in the presence of managers/co-workers. Overall, SWs were satisfied and comprehended the information received around ART, though some described having been sold on the idea of one-pill-per-day, only to have the pill burden increase (3 or 4 pills/day) months later. Peer navigators (SWs living with HIV) and support groups were suggested to help support patient rights and the ethical scale-up of HIV services.

Conclusions: Our findings highlight a need for services, developed and delivered together with SWs themselves (including peer navigators), that better support SWs’ right to informed consent. Aligned with WHO/UNAIDS sex work guidelines; consideration of laws, confidentiality and labour rights of workers must be considered before rolling out venue-based HIV services and supports (e.g., housing & work environments), and must be in partnership with SWs.

Investing in the HIV Workforce: Government Capacity and Willingness to Increase HRH Spending in Response to Increased Needs for HIV in Uganda

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Background: Uganda may need additional human resources for health (HRH) to achieve national HIV goals, yet the country faces HRH constraints, including inadequate skills mix, maldistribution, and a 36% vacancy rate in public facilities. As a result, the HRH2030 program, funded by USAID, through PEPFAR, assessed the capacity and willingness of the government to make more strategic investments in facility- and community-based HRH for HIV.

Methods: We projected HIV workforce salary costs and fiscal space and conducted a political economy analysis involving literature review and interviews with 52 stakeholders. The cost analysis estimated how many facility- and community-based health workers are needed and the corresponding salary/stipend costs for reaching national HIV targets, including 90-90-90. We analyzed costs for HIV treatment under two service delivery model scenarios: status quo versus national role-out of differentiated care models (DCMs). The fiscal space analysis estimated how much funding may be available for HIV HRH salaries from the government and PEPFAR from 2016 to 2020.

Results: An estimated $20.3 million is needed in 2020 for select facility- and community-based HRH salaries to reach national HIV targets under 2016 HIV treatment models. The HIV HRH funding gap under this scenario could be as high as $6 million in 2020, even if the government increases HRH salary spending in line with its national recruitment plan - which may not be feasible due to macroeconomic projections and limited political will to invest in HRH - and PEPFAR’s salary support for
TUPEE568
Mobilizing domestic financing for HIV through health insurance
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Background: Integrating HIV services into health insurance schemes can sustainably increase domestic resources available for HIV, through regulatory and financial mechanisms must be in place. A package of HIV services must be in the minimum benefits package of the insurance scheme. Results from select countries can illuminate options applicable for both generalized and concentrated epidemics.

Methods: In Tanzania and Indonesia, the PEPFAR- and USAID-funded Health Policy Plus project (HP+) assessed these options. Based on basic vs. comprehensive packages of HIV services, HP+ projected utilization rates through insurance. This involved analyses of the current proportion of people living with HIV (PLHIV) enrolled in schemes. Costs to the scheme of selected HIV services were estimated based on underlying unit costs to project the scheme’s total annual expenditure on HIV. This additional liability was compared to scheme revenues and expenditures, to assess sustainability. Sensitivity analyses considered variations in enrolment, utilization, reimbursement mechanisms and service delivery efficiency.

Results: In Tanzania, a basic package (excluding commodity costs) of ART, PMTCT, and HTC is estimated to cost an additional $23 million in Year 1 ($33 million with commodities). A comprehensive package of HIV services (including HIV support services and VMMC) would cost $34 million ($45 million with commodities). In Indonesia, a basic package may only include opportunistic infection prophylaxis, screening and treatment; while a comprehensive one includes ART, PMTCT and HTC. These packages would decrease projected scheme surpluses by 26%-34% in Year 1.

Conclusions: Based on the current cost of HIV services, our results suggest the financial impact on insurance schemes is manageable within the scope of existing pooled resources or through minor premium increases. While insurance schemes differ in design and implementation, this approach to analyzing integration of HIV services can be consistently applied in countries with established health insurance schemes and declining external resources for HIV. A key requirement is ensuring PLHIV are adequately covered and served by insurance schemes, especially key populations. The governments of Tanzania and Indonesia should adopt a two pronged approach - concurrently integrating HIV services into and scaling up enrolment of PLHIV in their major insurance schemes.

TUPEE569
Optimal allocation of resources for HIV services in Ukraine: Findings from a model-based study
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Background: Ukraine has one of the most severe HIV epidemics in the region, with an estimated 238,000 infected persons (prevalence ~1.0%) in 2017. Globally, Ukraine is among 30 fast-track-strategy countries, which generated more than 85% of new HIV infections in 2014. To investigate the most efficient way to achieve the UNAIDS 90-90-90 HIV eradication goals, a forecasting and resource allocation analysis was conducted.

Methods: A secondary analysis of data from a study of HIV expenditures among selected facilities in three regions (Mykolayiv, Poltava, and Zhytomyr) of Ukraine was conducted. First, sample data were interpolated to all facilities in study regions. The Optima HIV model was then applied to determine allocative efficiency across regions. This model estimates how changes in funding allocations to individual programs impact overall epidemic outcomes. The effects of multiple funding scenarios on disease progression through 2030 were explored: baseline, each oblast optimized independently (with C&T services either unconstrained or constrained), and geospatial optimized between oblasts.

Results: Over the past 10 years, both new incidence cases and HIV-related deaths have decreased sharply among all key populations, a trend that is expected to continue, albeit at a slower rate, until 2030. Compared to the current mix of funding, Ukraine can achieve a more cost-effective impact by shifting a greater portion of funding to ART and NSP programs, as well as increasing funding in Mykolayiv and Poltava. At current funding levels the total cost of services will be $115.1M in 2016-2030, resulting in 5,800 deaths, 5,300 infections, and 91,500 DALYs averted. To achieve 90-90-90 goals by 2020 and sustain the current funding mix is estimated to cost $134.5 M by 2030. Applying a more cost-effective funding mix, 90-90-90 goals can be achieved for $155.9 M (a cost savings of $28.6 M, resulting in additional decreases in new infections (12,200 to 8,300) and deaths (10,800 to 7,800) by 2030.

Conclusions: With the anticipated reduction in donor funding, Ukraine may consider reallocating available resources to more cost-effective interventions. Reallocation more funding towards ART has the greatest impact on new infections and deaths averted and will play a crucial role in achieving the 90-90-90 benchmarks.

TUPEE570
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Background: Development assistance provided by donors to combat HIV/AIDS in low- and middle-income countries decreased by 6.6% between 2012 and 2017, following a decade of 19.6% in annual growth. These decreases are concerning because little is known about the magnitude of domestic resources spent on HIV/AIDS across the globe and within each country. There is also little evidence about whether declines in funding threaten the reductions in HIV/AIDS incidence and mortality achieved since 2000. We addressed this critical knowledge gap by quantifying HIV/AIDS spending, identifying the source of these funds, and measuring HIV/AIDS spending on prevention, care and treatment, prevention of mother-to-child transmission of HIV/AIDS (PMTCT), and antiretroviral therapy (ART).

Methods: We collected and extracted data from five main sources: the AIDSinfo online database, Global Fund proposals, National AIDS Spending Assessments, National Health sub-Accounts, and the AIDS
TUPEE571
Domestic financing of HIV prevention programs for key populations in Thailand

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Background: Between 2015 and 2019, over 70% of new HIV infections in Thailand are projected to occur among key populations, including men who have sex with men, transgender women, people who inject drugs, and female sex workers. Civil society organizations (CSOs), reliant on international donor support, have played an important role in ensuring access to HIV services among key populations. However, declines in international funding threaten the sustainability of CSO engagement in HIV prevention in Thailand.

Description: Starting in 2015, Thailand established the THB200 million (6.4% of national AIDS budget) HIV Prevention Fund, a national program aiming to fund CSOs working in HIV prevention and to overcome dependence on international donors. Under this program, CSOs work to reach key populations, recruit them into HIV testing and treatment, and retain them in the continuum of care.

Lessons learned: In the first year of implementation (2015-2016) of the HIV Prevention Fund, only 38% of targeted key population individuals (27,157/72,280) were reached with HIV prevention services. CSOs reported many challenges in accessing funding under this program: 1) Legislative frameworks, which had only allowed for government health funds to be provided to hospitals, had to be revised to allow funding to be directly allocated to CSOs. 2) The cost of reaching and providing HIV services to hard-to-reach key population communities was not fully accounted for by the initial compensation packages offered to CSOs. Despite these difficulties, open communication between government and CSOs, and key population communities allowed for identification of key challenges and gradual reform in the second year of implementation.

Conclusions/Next steps: Integrating CSO participation into the national AIDS program may require restructuring of health financing channels that traditionally support hospital-based care alone. Global Fund and PEPFAR exit strategies must include tailored discussions between government and civil society to identify feasible options for domestic financing.

TUPEE572
Funding for HIV/AIDS and TB: Producing evidence for a successful donor transition in Cambodia

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Background: In Cambodia HIV/AIDS and TB have historically been financed by donors, the Ministry of Health, and out-of-pocket spending. However, in recent years donor funding has been declining and upcoming social health protection reforms may increase the likelihood that the National Social Security Fund (NSSF) might cover HIV/AIDS and TB services. In this context, the objective of this study was to estimate unit costs/cost components and identify the sources of funding for HIV/AIDS and TB services. Such information help to aim at better understand the financing of these services to prepare for donor transition; and help the NSSF shape future purchasing mechanisms and inform reimbursement rates.

Methods: Cost data were collected for the year 2016 from a sample of 21 health facilities in four high burden provinces in Cambodia. Total and unit costs were calculated using a step-down approach. Additionally, the sources of financing were tracked, and a variance analysis was performed to identify cost-drivers.

Results: The cost per VCCT visit ranged from $8.79 to $14.03. For first-line ART it ranged from under $214 to more than $323 per patient per year and for second line from just over $500 to over $716 per patient per year. The cost of TB diagnosis, inclusive of all visits and laboratory testing ranged from $28.17 to $44.12 and the cost per diagnostosed sputum smear positive patient ranged from $39.32 to $119.59. The Global Fund and the US Government provided the financing for about 20% to 25% of the costs, depending on the type of facility: mostly paying for commodities and staff salaries. Cost for ART was driven by drug costs, while staff was the largest cost category for most other services.

Conclusions: The relatively large range found in unit costs may indicate inefficiencies in the delivery of services and can make it harder to design accurate reimbursement rates. As funding for HIV/AIDS and TB is transitioning from donors to local government in Cambodia, additional financial and technical resources need to be secured to maintain commodities procurement as well as staff positions previously supported by donors.

TUPEE573

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Background: Achieving fast-track results of ending HIV will need an increased participation from government’s resources for HIV/AIDS. Domestic spending on HIV from public sources is reported by countries to UNAIDS during the annual reporting process. While more than 55 countries report on average, many countries have not been regularly reporting these data. Other countries, even while not reporting regularly to UNAIDS perform in-depth HIV resource tracking, e.g. National AIDS Spending Assessments (NASA). Understanding the predictors of domestic public spending on HIV helps in estimating aggregates by income level of countries or regions and serve as input to project it for sustainability and transition analyses.

Methods: Country reported domestic public spending data from Global AIDS Progress Reporting and existing published NASA reports were considered. A panel data from 2005-2016 from 112 low-and-middle-income countries were used for the analysis including 933 country/year data points. Estimates result from panel data random effects models.

Results: There are significant positive relations between the GDP per capita of a country (0.082), ART coverage (0.59) and HIV prevalence (0.063) with the domestic public spending on HIV on current US dollars.

TUPEE572 Funding for HIV/AIDS and TB: Producing evidence for a successful donor transition in Cambodia
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Results: There are significant positive relations between the GDP per capita of a country (0.082), ART coverage (0.59) and HIV prevalence (0.063) with the domestic public spending on HIV on current US dollars.
The overall R-squared for the model was 0.68. The domestic public spending by income level of countries has increased from $211 MN, $234 MN and $2415 MN for Low, Lower-Middle and Upper-Middle Income countries (LMICs, UMICs and UMICs respectively) in 2006 to $256 MN, $968 MN and $6887 MN in 2016. The domestic public spending has increased 60% between 2010 and 2016. Almost all regions increased their domestic resources. Asia Pacific region witnessed 132% increase in domestic resources between 2010 and 2016 while Eastern & Southern Africa increased by 57%. At 33%, Eastern Europe and Central Asia witnessed the lowest increase among regions.

Conclusions: Domestic resources currently constitute 57% of the global AIDS response, mainly public. With the flat lining or decrease of international resources, sustained increase in domestic public spending will be key in achieving fast-track targets to end AIDS as a global public health threat by 2030. Trends and projections of domestic public spending will be of significant use in projecting trends for transition and financial sustainability.

TUPEE574
Improving domestic funding for HIV/AIDS using a resource tracking methodology: Lagos State Experience

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Background: Lagos State with a population of over 23 million people is ranked as one of the high HIV burden States in Nigeria with a prevalence rate of 2.2% among the general population. Due to low Government spending on HIV and AIDS services in the State coupled with the ongoing transition of donor supported services to the Government, the USAID funded Health Finance and Governance Project embarked to support the State to generate evidence to be used in making a case for more money for HIV/AIDS by conducting the State AIDS Spending Assessment (SASA) 2014-2015.

Description: The Lagos State AIDS spending assessment (SASA) 2013-2015 was conducted in 2016. This exercise utilized a resource tracking approach which tracked the magnitude of all funds allocated to HIV from all sources. The report was used as an advocacy tool by the Lagos State Agency for the Control of AIDS (LSACA) to mobilize more domestic funding from the Government for HIV/AIDS response in the State.

Lessons learned: The SASA study revealed a reliance on external funding for HIV/AIDS service delivery with 86% of total spending on HIV/AIDS coming from international sources in 2015 and public spending 9.3%, and the remainder from other sources. The results were presented to the multi-sectoral Domestic Resource Mobilization Technical Working Group (TWGi) on HIV/AIDS which brings together the central budget MDAs (Ministry of Budget, Finance etc.) and other stakeholders who have implications for budgetary allocations and releases. These results were then synthesized and presented alongside multidimensional benefits of spending more on HIV/AIDS. Leveraging on our understanding of the political economy landscape, these results were presented to targeted policy makers during the 2017 budget preparation process in the State. The outcome was that the HIV/AIDS budget for 2017 experienced a 450% year on year increase from 2016.

Conclusions/Next steps: There was a significant increase in budgetary allocation to the state HIV and AIDS response with about 82% of the funds released till date. This result accentuates the importance of the use of evidence, a multi-sectoral approach and an understanding of the political economy landscape to improve domestic resource mobilization for HIV/AIDS.

TUPEE575
Domestic government spending on HIV: Three scenarios assessing decreased donor support

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Background: Recent reports of declining donor financing for HIV underscore the need to mobilize increased domestic government spending. At the same time, countries vary significantly in their ability to absorb such cuts, making it critical for donors to carefully assess the vulnerability of countries to declines and scale transitions accordingly. However, to date, data needed to make such assessments have been quite limited. This study uses a new dataset to begin to answer these questions.

Methods: Using IHME’s new global dataset on estimated 2015 HIV spending by country, we identified spending by domestic governments, relative to other financing sources. We ran three scenarios of decreased donor support (2%, 5%, and 10% cuts) to assess implications for domestic government spending. Finally, we developed a “country vulnerability” scale based on the share of financing provided by domestic governments.

Results: In 2015, of the estimated $33.3 billion spent on HIV in low- and middle-income countries, half ($16.7 billion) was provided by domestic governments. This varied significantly, ranging from 10% in low-income countries to 84% in upper middle-income countries. Conversely, donor financing comprised only 11% of financing in upper middle-income countries. But 86% in low-income countries. The three scenarios highlight the differential impact of donor cuts. For example, a 5% decline in donor financing in low-income countries represents $342 million, or almost half of what those governments are spending on HIV ($780 million). A 10% decline represents $684 million, or 88% of what they are spending. At the same time, many middle-income countries, particularly upper middle-income countries, could offset cuts more easily, though there may be other barriers to doing so (e.g., equity, human rights and political concerns).

Conclusions: The ability to identify and track domestic government resources for HIV is essential for understanding the full HIV financing envelope and carefully managing country transitions. As this analysis shows, for some countries, even modest declines in donor financing would create significant challenges for governments. For others, absorbing such declines would be more feasible. The findings here provide a new tool for donors and others to help make such assessments.

TUPEE576
A tale of two cities: A comparison of district level analysis of HIV budgets in Bandung and Semarang, Indonesia

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Background: As the Government of Indonesia takes on increasing financial responsibility for its HIV response, the country will face several challenges, namely that budgetary analysis will become the responsibility of individual districts because of Indonesia’s decentralised system of government. Meanwhile, district-level government processes are obscure and otherwise inaccessible to most local civil society organisations (CSOs).

Methods: From September - November 2017, as part of the Sustainable HIV Financing in Transition (SHIFT) program, the Indonesian AIDS Coalition (IAC) worked with the Indonesian Forum for Budget Transparency (Seknas FITRA) to analyze district level HIV budgets in Bandung and Semarang City. Under this collaboration, Seknas FITRA performed a structured review of key 2017 district-level government planning and budgeting documents to assess the extent in which each of the two districts include key population HIV interventions. Seknas FITRA then con-
Transitional financing

TUPEE578
Late presenters drive the non-ART cost of HIV-care

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Background: In Europe, as many as 50% of HIV-infected individuals present late to care. Late presentation is associated with high morbidity from AIDS-defining malignancies and opportunistic infections which may substantially increase the cost of care. The cost associated with late presentation has not been comprehensively assessed in the treat-all era. Our aim was to assess the additional cost of late presentation and factors contributing to high non-ART costs in a treat-all era.

Methods: The ATHENA cohort prospectively captures data of >98% of patients in HIV-care in the 26 treatment centres in the Netherlands. For this analysis data is used from individuals who first initiated ART between 1 July 2012 and 1 July 2013. We assessed the cost of late presentation (CD4 < 350 cells/μL and/or AIDS) and presentation with advanced HIV disease (CD4 < 200 cells/μL) in the first year on ART. Costs of ART, hospitalization, outpatient visits, co-medication and HIV-laboratory tests were calculated. Factors independently associated with non-ART costs, were determined by multivariable logistic regression analysis including parameters with P < 0.1 from the univariable analysis.

Results: A total of 1,149 individuals were included with a median age of 40 years (IQR 30-47) and median CD4-nadir of 330 cells/μL (IQR 239-420). 639 (57.1%) patients were late presenters and 226 (20.1%) presented with advanced disease. Nearly half (42.5%) of patients with advanced disease were of non-Dutch origin, compared to 32% in the total cohort. The mean cost per patient was €13,919 (standard deviation (SD) €8,301) of which €11,208 (SD €4,258) represented ART cost and €2,711 (SD €7,188) non-ART costs. Higher non-ART cost was calculated in individuals with advanced disease. €6,403 (SD €4,631) ascribed to more hospitalization and, to a lesser extent, comedication (figure). Few patients drive the non-ART cost resulting in a high SD. The ART cost was similar regardless of infection stage at entry into care. Factors that contributed independently to higher non-ART cost include CD4-cell count, AIDS-defining illness, regimen switching, and malignancies (table 1).

Conclusions: Late presentation is associated with high cost in the first year on ART. Efforts toward earlier diagnosis, linkage to care and start of ART will not only improve individuals’ clinical prognosis and contribute to HIV prevention, but also reduce short-term costs.
TUPEE579
Advocating for new forms of national funding of HIV and TB interventions as a response to mitigate the impact of donor retreat in Georgia

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Background: The research implemented by the Georgian NGO “Tanadgoma” aimed at developing models of sustainable Tbilisi/Capital City response to HIV and TB in key affected populations (KAPs) and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate lacking city-level data and contributing to achieving 90-90-90 HIV/TB targets for key populations. Primary research objective was to elaborate missing in TB cascade.

Results: As a result of the research for the first time in Georgia HIV/TB Tbilisi cascades were developed. Where possible the cascades address each key population for HIV/TB, including estimate of population size & estimated level of access. Comparing levels of access with key targets from national level. the main findings indicate that on Tbilisi level the most significant gap is in diagnosing HIV, but once diagnosed, linkage and retention indicators are almost reaching the desired target. As for TB, treatment success rate among MDR TB cases including known HIV needs significant improvement as since 2012 it has never exceeded 45% and 30%, respectively. Tbilisi HIV cascade includes data on KAPs while these are missing in TB cascade.

Conclusions: Creation of city level HIV/TB data baseline and respective analyses is the first of its kind. Implications of such analysis include refining HIV/TB programming, improving diagnostics, service linkages and intersectional data management system, including data on KAPs. During transitional period in Georgia, the research data help identifying financial insufficiency, respectively plan and define city specific interventions/ budgets, and provide evidence for advocacy to establish funding mechanism for HIV/TB interventions for KAPs in the city from municipal level.

TUPEE580
Musrenbang: An involvement the HIV community in the budget cycle process to strengthen the country role for HIV responses in Indonesia

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Background: External funding for HIV prevention programs in Indonesia is coming to an end. Therefore, it takes effort to plan a funding transition from external funding into domestic. As part of the Sustainable HIV Financing in Transition (SHIFT) program run in four countries (Indonesia, Malaysia, Thailand, Philippines) funded by the Global Fund, Indonesia AIDS Coalition (IAC) is implementing a two year program in Indonesia focusing in transitioning HIV funding from external into domestic.

Description: A key activity under SHIFT is to strengthen the HIV community to be involved in the budget cycle process, called Musrenbang, in two districts where the program operates. Bandung and Semarang Musrenbang includes the full budget cycle from district to national level and is held from January - December to determine the next year budget. It has become an important process to encourage and incorporate health issues, especially HIV/ AIDS prevention, as priority issues in budgeting. The process of strengthening the HIV community in the two districts was achieved by improving basic advocacy skills and budget advocacy by studying the budget cycle and budgetary analysis.

Lessons learned: Musrenbang is a new area of engagement for the HIV community in Bandung and Semarang. Strengthening the HIV community to realize that this is an important opportunity for engagement takes a long time, they need ongoing technical assistance to be involved in this process. Moreover, the budget cycle process runs for a full year which requires an explicit commitment on the parts of the space for negotiation and budget advocacy for HIV programs in district was actually opened after understand the mechanism and budget cycle process.

Conclusions/Next steps: Involvement of HIV Community in the Musrenbang process is important and urgently needed to encourage and optimize the role of the country from the ground level through the budget that support the HIV responses in creating the sustainability. In addition, the presence and involvement HIV community emphasize that HIV response is a shared responsibility that need to be support and re-inforced by the funding and government participation from the ground.

TUPEE581
Transitioning from international donor funded to government funded HIV/AIDS treatment and prevention programme in Nigeria

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Background: The estimated population of Nigeria in 2016 was more than 190 million. Despite the relatively low HIV prevalence of 2.9 per cent, because of its large population, an estimated 3.2 million people were living with HIV in 2016. Ninety percent of the one million persons on treatment in Nigeria receive treatment through donors - President's
Emergency Plan for AIDS Relief (PEPFAR) and Global Fund. International donors have been supporting the HIV response in Nigeria for many years and created systems for administration, program implementation, laboratory services, monitoring and evaluation, financial management, and reporting. With the donor envelope shrinking, the National Agency for AIDS Control (NACA) began the transition to a country-led, sustainable, and resource-appropriate model of HIV prevention and treatment.

**Description:** The transition process began in early 2014 with NACA requesting the transition of two states (Abia and Taraba) from the International Donor to the Government of Nigeria (GoN). Currently on treatment in these two states are 60,795 persons.

In both states, PEPFAR through the International Non-Governmental Organization (INGO) began its programs by jointly implementing HIV prevention and treatment activities with local transition in mind. Co-location offered the INGO and their respective State Implementation Planning Units (SIPUs) for HIV the opportunity to teach and learn from each other in planning, implementing, monitoring, and evaluating the programs. While INGO had a more robust complement of staff in all service areas, the few staff provided by the SIPUs were well trained and oriented, and engaged with INGO staff daily in conducting activities.

**Lessons learned:**

- Petroleum Subsidy Reinvestment and Empowerment Program Funds were made available to implement the President’s Comprehensive Response Plan (ICPRP). Transition from International donor funded HIV comprehensive treatment programme to Government ownership is seamless when recipients are involved in joint planning and implementation. With sufficient and regular funding, the transition proceeds smoothly.

**Conclusions/Next steps:**

1. HIV prevention and treatment activities at the state level will be led by the existing State Management Teams (SMTs), with implementation carried out by the SIPUs. International donators should support Nigeria’s effort to indigenize its operations and to get the best value for its money.

2. Some innovations require additional assistance in ensuring alignment with the UNAIDS/PEPFAR HIV prevention frameworks, given many sub-grantees have never received USG funding in the past. The gap between technical requirements and sub-grantees’ capabilities requires adequate time to bridge.

3. Adequate time should be planned for integration of USG regulations within organizations new to USG funding, particularly given various levels of management and coordinating structures.

**TUEE583**

Aid politics, developmental assistance for health and learned helplessness-narratives of evolving health systems in global south


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**Background:** Globally, past three decades are marked by an increased and steady interest in global partnership, and collaboration by the developed world in furthering the welfare and wellbeing of resource-constrained societies and economies. Overseas investment in terms of Developmental Assistance steadily evolved with the passage of HIV/AIDS era in early 1980’s, and a decline by 2015, as most developed nations retracted/reduced their commitment to invest in global health movement.

**Methods:** The paper builds on a reflexive thematic analysis using Global Burden of Disease Data focused around Developmental Assistance for Health and critiques its role in the posited health systems strengthening framework. With a focus on Global South (South Asia-India and Bangladesh), East Asia (China, Asia and Pacific (Philippines), and African continent, we analyzed the impact of Developmental Assistance for Health (DAH) in terms of 3 parameters: Improvement in Health and Wellbeing, Scale of Impact, and Changes in health systems.

**Results:** The study converged on some paradoxical insights, built around the nexus of aid politics, and how it unwinds with passage of depleting aid-box. Consensus was on critical and instrumental role of DAH in reshaping, and revamping HIV/AIDS care. By significant investments in monetary, and in-kind contributions, DAH has contributed enormously by investing in global health, and thereby helped shape these economies improve their overall stature.

However, the study also indicated that, DAH and the aid politics has significantly weakened these nations by a process of systemic dependency, may be have induced a state of Learned Helplessness, unconsciously so. This systemic dependency, and increased expectation (and resultant disappointment post 2015), have shook the spine of the health systems.

**Conclusions:** This illusory entrapment in such a state, with lessened resilience calls for an increased engagement of the developed nations, and their re-orientation in terms of investments not just in capital commitment, but in altruistically engage to develop the health systems by infusing and enhancing knowledge economies. Similarly, it also indicates that Governments and policy makers of these nations need to recognize the need, and respond effectively with increased efforts at health systems strengthening, by adopting holistic strategies focused around social drivers of health and wellbeing.

**International assistance, frameworks, and funding mechanisms**

**TUEE582**

Innovation for an AIDS-free generation: Successes and challenges of a funds manager model to engage new partners for HIV prevention among adolescent girls and young women

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**Background:** The DREAMS Innovation Challenge (DREAMS-IC) was established by the US Department of State (DOS)/PEPFAR in 2010 to aid in reducing HIV infections among adolescent girls and young women (AGYW). JSI Research & Training Institute, Inc. (JSI) supports 65 organizations’ programs across 10 DREAMS African countries. These organizations differ in their level of institutional maturity, gender-responsive HIV programming, and knowledge of U.S. Government (USG) regulations.

**Description:** DREAMS-IC uses a Funds Manager (FM) model to engage new organizations to implement innovative solutions for HIV prevention for an AIDS-free generation. As the DREAMS IC FM, JSI’s responsibilities include: (1) management and monitoring of sub-awards for innovative HIV prevention programs, (2) capacity building to support sub-grantees’ innovations targeting AGYW, (3) navigation of program alignment with technical requirements and sub-grantees’ capabilities, and (4) technical assistance, contributing to sustainable local partners capable of leveraging international funding for the health and empowerment of girls.

**Lessons learned:**

1. Addressing the need to achieve evidence-based results and working with grantees to develop their organizational systems to facilitate better management of USG funds as well as strengthen the pool of local HIV implementers.
TUPEE584
Where does the buck stop?: Analysis of HIV prevention research and development (R&D) direct and country focused investments in sub-Saharan Africa

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Background: The Resource Tracking for HIV Prevention R&D Working Group report documented for 2016 the decade’s lowest funding for HIV prevention research. This declining investment imperils the currently donor-dependent research landscape in sub-Saharan Africa - home to 81 percent of HIV prevention trial volunteers and two-thirds of people living with HIV globally. The magnitude of foreign investment in HIV prevention R&D for specific countries has remained unclear. Addressing this gap is central to understanding how HIV research supports African researchers.

Methods: To assess HIV prevention R&D investments in sub-Saharan Africa for the calendar year 2016, data was collected via annual surveys and direct disbursements by public, private and philanthropic funders. Grants were allocated to countries if they were either directly awarded to African researchers, or clinical or implementation science research geographically focused in sub-Saharan Africa. Where grants did not delineate between countries, the amounts were split equally. Investment trends were analyzed by country and prevention modality.

Results: Of the overall US$1.17 billion allotted to HIV prevention research in 2016, this analysis identified 68 grants totaling US$47 million awarded to researchers or trials in sub-Saharan Africa. Huge variance existed in investments, with four countries (South Africa, Botswana, Uganda and Zambia) receiving 81 percent of all funding. South African research institutions received the greatest amount of direct funding at US$11.6 million, while Botswana had the largest single grant (US$10.7 million) for a treatment as prevention (TasP) trial. Microbicides, TasP, preventive vaccines, voluntary male medical circumcision, pre-exposure prophylaxis and prevention of vertical transmission received 23 percent, 20 percent, 16 percent and 4 percent of total funding, respectively. Investment trends were analyzed by country and prevention modality.

Conclusions: Direct funder investment in African researchers and institutions is critical to supporting national efforts to create a sustainable and robust HIV prevention research enterprise. Only 4 percent of biomedical HIV prevention research in 2016 was awarded directly to researchers or trials in sub-Saharan Africa. Yet, this investment in African researchers is critical to building sustainability and making the case for greater domestic investment in the region in the face of shifting donor priorities.

TUPEE585
Applying the Global fund allocation formula - are the data driving allocations?

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Background: Global Fund (GF) allocates funding to countries on the basis of a two-stage Formula: a quantitatively-measured raw allocation is qualitatively adjusted for contextual indicators, including HIV prevalence among key populations (KP). However, availability of KP data is limited, possibly diverting funds from concentrated epidemics. By modeling funding allocations, we identify the major drivers of allocations and qualitative adjustments and the impact of data availability.

Methods: We applied the Formula to available data across 101 recipient countries. HIV allocations (2017-2019) were linearly regressed on the raw allocation (per the Formula, number of people living with HIV and economic capacity, adjusted for minimum/maximum shares and external funding sources) and data reportedly used in qualitative adjustments: domestic spending on HIV, past grant rating, ART coverage, World Bank income category, smoothing of changes in 2014-2016 allocation to current raw allocation, and HIV prevalence data among KPs.

Results: Total allocations from the GF declined by 34% for 2017-2019 relative to 2014-2016. For individual countries, the strongest predictor of final allocation was raw allocation (adjusted R² = 0.713), with 88% of variation captured in a parsimonious model of raw allocation, domestic spending, ART coverage, and smoothing in allocation changes relative to 2014-2016. Qualitative adjustments were primarily driven by smoothing to account for sharp declines in HIV allocations relative to 2014-2016; in addition, countries with higher domestic investments and lower ART coverage had greater proportional adjustments (< 0.05). After controlling for other factors, KP prevalence data did not significantly predict allocation nor qualitative adjustments, although only 40% of countries had data for all KPs.

Conclusions: Country allocations were largely captured by public data, with remaining variation likely due to indicators described in the Formula but not publicly available. Qualitative adjustments to allocations were driven by the significant drop in HIV allocations relative to 2014-2016, possibly obscuring adjustments made for KP prevalence. Reducing year-to-year fluctuations in budget is needed to ensure Global Fund’s ability to make epidemiologically appropriate allocations and ensure programmatic continuity. Greater transparency in methodology is needed to clarify how KP data are used in allocation decision-making.

TUPEE586
A quarter for prevention? Global fund investments in HIV prevention interventions in generalized African epidemics

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Background: In July 2016, the Joint United Nations Programme on HIV/AIDS (UNAIDS) announced that global efforts to reach fewer than 500,000 new HIV infections by 2020 are off track. UNAIDS estimates that ending AIDS by 2030 will cost $26 billion a year. About a quarter (26%) of this amount is required for prevention. The Global Fund to Fight AIDS, Tuberculosis and Malaria is a major funder of African HIV responses and a vital source of prevention investments.

Methods: A search was performed for Global Fund funding requests and signed grants from a sample of 25 African countries over the 2014-2016 funding cycle. Funding requests were accessed for 23 countries and signed grant agreements were accessed for 15 countries. Some documents were not publicly available. The budgets of the funding requests and grant agreements were examined to determine levels of HIV pre-
vention funding. Epidemiological and structural variables were explored to help explain the results.

Results: Of the funding requests examined, an average of 16% was dedicated to HIV prevention. Ten countries requested at least a quarter for prevention. Mauritius' request for prevention was the largest (67%) and Mozambique's was the smallest (15%). A significant correlation was found between the number of new HIV infections in a country and the amount of prevention funding requested (r = -0.747, p < .01), suggesting that funding requests are aligned to disease burden. A significant correlation was also found between GDP/capita and the proportion of prevention funding requested (r = -0.676, p < .01) likely because poorer countries are more dependent on the Global Fund for treatment. Of the grant agreements examined, an average of 15% was dedicated to HIV prevention. Only Botswana and Liberia had at least 26% of their grant budgets allocated to HIV prevention.

Conclusions: In order for the Global Fund to achieve its HIV prevention targets in its new strategy, there is a need to increase Global Fund investments in HIV prevention in Africa from current levels (16%) towards the UNAIDS benchmark (26%). Advocacy from civil society and communities is absolutely vital, particularly in urging countries to request greater HIV prevention funding for key populations and adolescent girls and young women.

TUPEE587
Review of strengthening integrated delivery of HIV/AIDS project (SIDHAS) accountability framework of HIV/AIDS financing with civil society organizations, government agencies and private institutions in Nigeria

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Background: HIV care and treatment in Nigeria is largely managed by a combination of public and private health facilities. Although these institutions have experienced declines in funding from government/private owners over the years, they still account for the majority of patients in care. To bridge the funding gap, the USAID-funded SIDHAS project introduced different types of grants financing approaches and accountability frameworks to support scale up of HIV prevention, care and treatment services in 13 states in Nigeria. We share experiences from the various accountability frameworks applied on the project.

Description: From inception of SIDHAS project in 2011, FHI360 Nigeria conducted thorough pre-award assessments, after which 76 sub-awards were executed in 13 states between SIDHAS and State government for public health, faith-based, civil society organization, and private health facilities. Capacity building through trainings and mentoring was conducted. Accounting practices such as system enhancement, compliance audits, quarterly grant modification, expenditure analysis, scorecard audit, fund request review, documentation and reporting was mandated for each implementing agency (IA) routinely. A qualitative content analysis of the IAs’ accounting practices, frameworks, reports and HIV prevention, care and treatment services delivered was conducted between October 2016 and September 2017.

Lessons learned: From the monthly expenditure analysis, sub-award monitoring reports and HIV program data reported across the 76 IAs showed that 100% of the IAs were compliant with submission of financial and program reports for the period of assessment. HIV testing, initiation of client on treatment and provision of care services were not interrupted at those sites within the period. An analysis of this result further shows that the combination of capacity building and use of accounting frameworks was instrumental to the results. About 82% improvement in quality of program and financial reports received was recorded within the year demonstrating improved technical, institutional and financial domains of sustainability.

Conclusions/Next steps: A combination of accountability approaches resulted in improved ability of IAS to provide HIV services, manage, and account for donor resources. Providing a combination of accountability frameworks was instrumental to the results. About 82% Improvement in shows that the combination of capacity building and use of accounting frameworks was instrumental to the results. About 82% Improvement in

TUPEE588
Innovative Grant Fund: A lifeline for small community-based organizations

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Background: In response to a lack of funding for smaller HIV/AIDS community service organizations around the world, in 2012 we created a Grant Fund which has funded 389 projects totaling $7.4 million over the past six years. The fund focuses on providing small, short-term grants to organizations whose activities advance HIV awareness, prevention, treatment and the elimination of stigma.

Description: Funding for the Grant Fund is generated through social enterprises in the United States, such as second-hand stores and pharmacies. The Grant Fund encourages innovation by funding pilot projects and programs that would not necessarily be eligible for traditional grants, such as advocacy campaigns and art exhibits. Additionally, the Grant Fund application is kept short with minimal jargon, as many small organizations may not have access to professional grant writers. Each month, the Grant Fund Committee reviews grants, funding organizations within 2-6 weeks of a little over half (.0%) of the organization’s total budget and 70% of the program budget. Approximately one fourth of applications were for pilot projects or independent programs with no other funding sources.

Conclusions/Next steps: From the growing interest in the Grant Fund, it is evident that there is a need for more innovative funding structures, especially those that don’t always favor larger and more established organizations. Small community-based organizations are the lifeblood of prevention many communities, and it is important for them to find sustainable paths for growth. As HIV service providers we strive to address the needs of clients “where they are.” Unfortunately, the funding structures for HIV prevention services do not follow a similar philosophy to meet organizations where they are.

Financing HIV within UHC frameworks

TUPEE589
Financial feasibility of delivering HIV/AIDS services through health insurance schemes

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Background: HIV/AIDS is of a great burden in Nigeria with high reliance on donor funding. One of the ways to improve domestic funding for HIV/AIDS is its inclusion in health insurance benefit packages in order to ensure stable, predictable and sustainable financing. The National Health Insurance Scheme has decentralized health insurance to states and Lagos state is one of the early states to design their state health insurance scheme (SHIS). HIV/AIDS is often excluded in many health insurance packages and classified as a pre-existing condition. A primary concern for HIV inclusion in the SHIS is its potential negative impact on financial sustainability of the scheme.

Methods: This study was conducted in August 2017 to assess the financial impact and feasibility of providing HIV/AIDS services through the Lagos SHIS. An actuarial analysis was conducted and modular pricing for priority HIV services including HCT, PMTCT, and ART was done adopting historical data on population. HIV incidence, service utilization rates from routine health data, and projected costs from Global fund HIV
Quantification data. Additional risk premium for HIV/AIDS cover in the scheme was analyzed and a sensitivity analysis was done to compare input assumptions with probable situations.

Results: Additional risk premium of HIV/AIDS cover under the SHIS is N209.40 (68cents) per person per year, assuming 100% enrolment and a 30% contingency margin. Further sensitivity tests considering enrolment of 50%, 20% and 10% of the population produced variations with additional risk premium of N295.66, N394.81 and N1160.00 respectively. Varying incidence rate, service utilization, medical inflation and increase in exchange rates based on previous cycles, the additional risk premium is N102.81 ($0.1): values much lower than expected.

Conclusions: Findings showed that HIV service provision in the SHIS is financially feasible, but requires high insurance coverage levels to minimize costs. These findings will embolden HIV advocates to use similar financial evidence to make adequate cases to policy makers for HIV services inclusion in health insurance schemes; creating additional and sustainable financing for closing HIV treatment gaps. Donor efforts may be directed at strengthening systems for HIV service provision through systemic structures for reduced fragmentation, improved efficiency and sustainability.

**Approaches to achieving sustainability**

**TUPEE950**

Financing HIV/AIDS services through Health Insurance schemes - the Lagos state experience

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Background: Funding for HIV/AIDS remains a problem in most low and middle income countries, including Nigeria. In an effort to introduce a more sustainable means of financing for HIV in Lagos State, the Sustainable Financing Initiative executed by the Abt Associates led USAID Health Finance and Governance (HFG) Project together with HIV stakeholders in the State sought to integrate HIV services within the newly introduced Health Insurance Scheme known as the Lagos State Health Scheme (LSHS).

Description: HFG supported HIV stakeholders in the Lagos State HIV Domestic Resource Mobilization Technical Working Group (DRM TWG), which comprises of both State, private, implementing partners, and CSOs to devise strategies for integrating vertical programmes providing HIV services within the Lagos State Health Scheme and include the full complement of HIV services (HTS, PMTCT, ARVs) on the benefit package of the scheme.

Lessons learned: Three main strategies were employed looking at the financial feasibility, technical feasibility and operational feasibility of integrating HIV services on the scheme. For the financial feasibility, an actuarial analysis was conducted to determine the financial implications of having HIV/AIDS services on the LSHS benefit package. This amounted to an additional NGN20940 per person per year on the premium at a point estimate of 100% coverage of the population. At lower levels of population coverage i.e 10% the cost could rise up to NGN1,360.07. On the technical feasibility, a service availability mapping was conducted to identify the health facilities within the provider network with capacity to deliver HIV/AIDS services and address other technical aspects of integration. On the operational feasibility, an integration framework and implementation plan was developed on the key integration areas along the lines of service delivery arrangements. Human Resources for Health/capacity building, Logistics and supply chain management systems and monitoring and evaluation.

Conclusions/Next steps: Findings from the actuarial study and the technical and operational plans for service integration strengthened the inclusion of comprehensive HIV and AIDS services as part of the Lagos State Health Scheme benefit package. This will help ensure financial sustainability of HIV services in the State and improve access for HIV services for People living with HIV.

**TUPEE952**

Filling in the gaps: Extrapolating VMMC unit costs using aggregated primary data from several studies


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Background: The policy-relevance of cost information hinges on it being provided in a timely fashion. But cost studies are expensive and slow to implement, meaning this type of evidence is not available at moments of critical decision-making. The objective of this work is to combine data on costs of VMMC services from several independent studies, to identify determinants of VMMC costs and extrapolate costs to areas where there is absence of information.

Methods: We identified high-quality VMMC cost studies through a literature review. Authors were contacted to share their data on costs and service delivery characteristics. We standardized the disparate datasets into an aggregated database which included 228 facilities in eight countries. We estimated VMMC unit costs (on average cost per circumcision). We conducted OLS regression models to estimate the effect of the determinants of unit cost variation across sites. Based on cluster analysis, we extrapolated unit cost to different implementing scenarios, including countries out of our sample and different levels of scale.

Results: The average unit cost was 73 USD (IQR: 28.3, 100.7). South Africa showed the highest within-country cost variation, as well as the highest mean unit cost (135 USD). Uganda and Namibia had minimal within-country cost variation, and Uganda had the lowest mean VMMC unit cost (22 USD). Our results showed evidence consistent with economies of scale. Private ownership and Hospitals were significant determinants of higher unit costs. By clustering countries with similar economic, epidemiologic and demographic indicators, and through multivariate extrapolations, we extrapolated unit cost to countries without available cost data.

Conclusions: Our results showed large variation in VMMC unit costs across and within countries. We identified several facility-level characteristics significantly associated with VMMC unit costs across implementation and country contexts. Our findings contribute to improving the availability of cost evidence, even for those countries with no previous studies, in order to increase the efficiency of service delivery.

**TUPEE959**

Integration of sexual reproductive health rights and sustainable development

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Background: Kenya like other countries in Africa is facing the risks of climate change and this is anticipated to affect the country’s sustainable development efforts. Integration on the other hand links sectors and supports cross-sectoral collaboration and coordination. The world is working towards the sustainable development goals. SRHR and Sustainable development project is a 3-year project being implemented by Family Health Options Kenya, an affiliate of IPPF together with two other partners in Kisumu and Siaya county. It focuses on improving resilience of the vulnerable communities through the integration of reproductive health and rights into sustainable development programs through promotion of adaptation practices that help community members improve their level of resilience. The objective of the project is to increase the capacity of vulnerable communities to apply an integrated approach to SRHR. The project works with structured community groups comprising of women, men and the youth.

Description: Capacity building: Awareness creation on the importance of integration and sustainable development, training on adaptation practices for sustainability.
Service provision: Comprehensive sexual and reproductive health services through community outreach services, integration of SRHR services, especially HIV/AIDS and family planning with other practices such as kitchen gardening for nutritional foods.

Reach out strategy: The structured groups reaching out to fellow community members and creating a ripple effect and a resilient community.

Networking and linkages: Working closely with extension officers in the communities, the Community Health Volunteers and agricultural extension officers and this solely for continuity of service provision. The extension officers offer skills, information, such as importance of HIV testing and community-based trainings regularly to the community members.

Advocacy: Advocacy on scale up and resource allocation for more communities to benefit from the integration.

Lessons learned: Cross-sectoral collaboration is important in development and it maximizes on the resources available hence sustainability.

Results: 16206 women of reproductive age reached with SRHR services among these 6719 women were tested and 102 linked to care.

Conclusions/Next steps: Scale up and resource allocation to reach more communities and advocacy for community members to continue getting quality SRHR services as they work towards sustainable development.

TUPEE594
A novel approach to enhance the sustainability of national HIV/AIDS programs: PEPFAR’s incorporation of sustainability tools within business processes

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Background: Despite the enormous strides made towards controlling HIV/AIDS, there is still much work left to be done. Country-led efforts to accelerate viral suppression through “test and treat” must simultaneously lay the groundwork that sustains current and future achievements in controlling the epidemic.

Description: PEPFAR developed an HIV/AIDS Sustainability Index and Dashboard (SID) to sharpen the understanding of each country’s sustainability landscape, and has mandated its use for investment planning and to inform and monitor progress. The SID process supports a common view of where efforts and investments must be focused.

Lessons learned: SID implementation has proven to be a successful model for transparent engagement of diverse stakeholders in strategic planning discussions. Sustainability at PEPFAR is now hardwired into its investment planning and monitoring processes. During COP development, SID results inform the identification of critical barriers to reaching 95-95-95 through the formulation of a “Table 6” for each country. The Table 6 completion process requires planners to identify systems investments and establish clear benchmarks and outcomes needed to address critical systems barriers. The aggregated table below demonstrates the level of systems investments in PEPFAR-supported countries in FY 2018.

A review of the relationship between targeted investments and interventions selected through the Table 6 completion process reveals clear evidence of improvements across health systems that support sustained epidemic control. An analysis of country-specific data that triangulates SID results, systems investments, and achievement of outcomes shows improvement across many SID elements in most PEPFAR partner countries—particularly in areas such as laboratory systems, policy and planning, domestic resource mobilization, and quality management.

Conclusions/Next steps: PEPFAR’s establishment of a means to measure sustainability that is directly linked to its planning and monitoring processes is strongly influencing sustainability investments and
TUPEE595
Supporting evidence-based planning for HIV counseling and testing and opioid substitution therapy services: Results from a cost study in 7 high-burden PEPFAR-supported regions in Ukraine
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Background: As of today, HIV Counseling and Testing services (HCT) and Opioid Substitution Therapy (OST) services in Ukraine are provided without proper estimation of their real costs. As country strives to achieve 90-90-90 targets, understanding costs of key elements in HIV prevention and care continuum, such as HCT and OST, becomes critically important. This is further relevant as Ukraine aims to introduce pay-for-performance approach through the health financing reform. The USAID HIV Reform in Action project conducted analyzed costs per HCT and OST service using a costing model and identified facility-level cost drivers in a sample of facilities in 7 high-burden PEPFAR-supported regions.

Methods: We used a “bottom-up” method to estimate HCT and OST costs, using an electronic costing tool. Cost data, including direct, administrative, and overhead unit costs, were collected from facility budgets, procurement records, and medical providers’ self-assessments. For each cost item, we specified quantity, technical specifications, purchasing price, and level of use. We also separately calculated costs of pre- and post-counseling and testing (rapid tests) in case of HCT services.

Results: We found variation in per person HCT and OST service costs across different types of facilities. The highest per person HCT cost was observed at a Primary Healthcare Center in Dnipropetrovsk oblast - 12.96 USD, the lowest - at the TB dispensary in Odessa oblast - 4.27 USD. In case of OST - the highest cost was observed at the hospital in Mykolayiv oblast - 2.44 USD; the lowest at TB dispensaries in Odessa Oblast - 1.16 USD. Factors affecting HCT and OST costs vary substantially and depend on a type of a facility: composition of personnel providing services (one or two nurses and doctor for HTC services; one doctor and one nurse for OST service); time spent for each service, procurement methods and utility costs.

Conclusions: Understanding the costs of providing HTC and OST services can optimize the allocation of resources, and support effective decision-making at a facility level, thereby increasing efficiency. As the health reform seeks to decentralize planning and funding processes, local-level data is instrumental for effective planning, service delivery, and attracting additional funding.

TUPEE596
Are users willing to pay for condoms in sub-Saharan Africa? Surveys in five countries: Kenya, Nigeria, South Africa, Zambia, and Zimbabwe
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Background: The condom market in many sub-Saharan countries is dominated by subsidized condoms—free brands from the public sector and socially marketed (SM) brands from social marketing organizations (SMOs). The commercial sector share of the total market is often small. Freeing up resources devoted to subsidized condoms for use with other urgent priorities requires answering the following questions:

(1) are users of free condoms willing to pay for them?,
(2) are SM users willing to pay commercial prices? and
(3) if commercial brands were to reduce their prices, could they attract SM users?

Methods: Study countries were selected in consultation with government counterparts, condom manufacturers, SMOs, and donors, based on their potential for an increased role of commercial condom brands. The USAID-funded AIDSFree Project conducted cross-sectional household surveys with more than 6,500 adult male condom users in 2017 in Kenya, Nigeria, South Africa, Zambia, and Zimbabwe. Surveys used multiple price determination approaches—bidding game, discrete choice model, and Van Westendorp price sensitivity measure—to estimate consumers’ willingness to pay for condoms. Analyses included price sensitivity simulations and secondary source consultation (i.e., demographic health surveys and condom market assessments).

Results: Free condom supplies exceed demand in all countries except South Africa, where recent demand data were unavailable for comparison. In Kenya, Nigeria, and South Africa, free and SM users are willing to pay substantially more than what they currently do for condoms. Yet decreasing the price of commercial brands is unlikely to attract SM users. In Zambia and Zimbabwe, free and SM users are willing to pay marginally more than what they currently do.

Conclusions: Our assessment calls for greater alignment between levels of supply and demand for free condoms. In Zambia and Zimbabwe, abrupt funding reductions for free and SM brands would likely prompt a substantial proportion of users to cease using condoms; a gradual, phased approach is recommended. In Kenya, Nigeria, and South Africa, the condom markets possess the right conditions for transition to more commercially sustainable models. However, this does not negate the need for targeted distribution of condoms to vulnerable populations or initiatives that promote condom use.

TUPEE597
Strengthening African civil society organizations for sustainable community-driven HIV programs: The Blood:Water model pairing grants and community system strengthening
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Background: Structural HIV-interventions are increasingly recognized as gatekeepers to accelerate and sustain progress towards the 90-90-90 goal. Local civil society organizations (CSOs) emerge as the critical link between community and facility contexts: ensuring a continuum of HIV-treatment, support and prevention. However, sector-wide funding constraints saw a decline in resourcing CSOs and their community-extension programs. Restrictions further inhibit CSO’s abilities to invest in operational health and longevity.

Description: In response, Blood:Water developed a framework complementing bilateral funding mechanisms by positioning flexible private philanthropy towards African CSOs responding to HIV/AIDS in concert with programmatic grants is an Organizational Strengthening (OSI) process that provides 10,000 USD of supplemental and restricted funding for organizational investments. A participatory self-assessment is applied using the Institutional Development Framework (IDF). CSOs are scored across 4 developmental stages: Beginning, Developing, Expanding, Sustaining (0.0-4.0). Quantitative and qualitative metrics are used to identify priorities for investment which are then executed, over two-year cycles for up to 8 years.

Lessons learned: 7 CSOs in 6 African countries have undergone the first cycle of the IDF process. Average scores place CSOs as Developing (2.3), considered vulnerable. Strengths across CSOs were technical resources (2.53) demonstrating mastery in programs and service delivery. Lowest scores were financial (2.25) and human resources (1.88). Factors attributing to this include limited diversity of funding sources and heavy restrictions on use. Lack of formal staff recruitment, compensation and development systems leaves CSOs vulnerable to high workforce at-
Triton. CSOs invested their 1st funding cycle into solutions addressing policy, systems and skills gaps. Solutions were CSO-driven using local expertise exclusively. Results are monitored longitudinally with reassessments anticipated in 2019 to ascertain impact on overall stability and mission-oriented efficacy.

Conclusions/Next steps: To date, this framework demonstrates the feasibility of strengthening African CSOs to sustain community HIV-interventions with limited resources. Strengthened organizations directly reinforce program quality and impact. When applied deliberately to complement the formal health sector, the anticipated outcome is a strengthened and resourced civil society organization implementing programs that create demand for and reinforce clinical models while championing their communities before government. These synergies will more efficiently resource comprehensive coverage of African-led and locally sustained HIV/AIDS responses.

**TUPEE598**

**Community driven affordable and sustainable health service model for MSM and TG in Mumbai, India**

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**Background:** HIV interventions in India have traditionally been government-funded. While the approach has always aimed to provide holistic services for key populations, the efforts often encounter barriers and challenges that limit these initiatives. Sustenance of a holistic approach was further impacted after 2014 due to down-scaling of HIV interventions. The Humsafar Trust (HST) a CBO in Mumbai, India, adopted a unique approach to continue providing HIV care and treatment services to MSM/TG communities.

**Description:** To ensure sustainability in and provision of health services, HST introduced a “Free-to-Fee” model in December 2015, by introducing Blue and Green health cards that would reduce reliance on funded interventions by introducing an annual fee of INR 1000 (USD 30) for clients earning over INR 15000/month (USD 250) entitling them to a Blue Health card. The card provided holders quarterly HIV/Syphilis tests as well as unlimited consultations with physicians, mental health professionals, nutritionists, and legal/crisis support. These services would be offered at no cost to individuals (green card holders) earning less than INR 15000/month thus allowing free services being cross subsidized for those who can’t afford to pay. Self-reporting of income was adequate while assigning card to a client. Initially we faced challenges as the community had only received services for free till then, the approach received gradual acceptance in 2016-2017. Since its inception, HST has generated INR140000 (USD11666) as a revenue along with providing services for HIV care and treatment services to MSM/TG communities.

**Lessons learned:** While efforts to improve HIV care and treatment services will remain, HIV interventions implemented by CBOs must focus on sustainability by introducing “Free to Fee” models as a way to cross-subsidize services. This would ensure that the most-at-need communities continue receiving services for free while those who can afford to pay can contribute toward sustainability. This model also ensures that no one will be lost as far as HIV prevention is concerned.

**Conclusions/Next steps:** Upscaling the “Free to Fee” model will be crucial along with including additional services to make the model as holistic as possible. Scaling and strengthening this model will further reduce reliance on external funding mechanisms for communities’ health needs.

**TUPEE599**

**Swa-Shakt - leveraging the power of communities: Member led local crowd funding model**

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**Background:** Community Organisations (COs) of marginalized populations infected and affected by HIV/AIDS in India are witnessing a substantial decrease in funding from Government and donor agencies. The uncertainty stems from various reasons, including change in priorities of the Government, shift in focus of donor agencies and growing competition between local NGOs and COs for limited funding opportunities. Long term sustainability of COs and the community’s agenda is possible only if they are enabled to raise resources locally. The core of the Swa-shakt fundraising campaign lies in the direct involvement of the community to sustain their organizations while also empowering them, ensuring ownership and hugely reducing external dependencies. Swa-Shakt, derived from the Sanskrit word swashakti, blends two characters of ‘swa’ meaning self and shakti meaning power. Swa-Shakt stands for being self sufficient.

**Description:** Between May 2016 and Sep 2017, Swa-shakt campaign was rolled out on a pilot basis in 25 Community Organizations across 5 states of India as part of the Avahan program funded by Gates Foundation and implemented by Vrutti in partnership with VSNI and CMS. Swa-shakt receives support from Swasti on strategic guidance, capacity building, communication materials, technology solutions, management of donations and overall coordination. A mobile cum web application called mCollect was used for data collection and monitoring during the process which tracked individual donations received and sends receipts to donors and receivers besides generating individual member and CO wise reports.

**Lessons learned:** USD 153,846 was raised involving 12000+ community members. Average collection per organisation is USD 2100 and average collection per member is USD 25. Through this campaign, COs raised 35-40% of total funds required yearly to run their organisation.

**Conclusions/Next steps:** Swa-shakt is a sheer example of grit and determination of the communities to realise their rights and stand on their own feet. Members are seen as beneficiaries and not as change agents. Swa-Shakt shifts the center of the organisation from being dependent on external funding to being self sustained.

**TUPEE600**

**Decentralized approach to achieving sustainable HIV financing: Experience from Kenya’s transition into devolved government**

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**Background:** In Kenya, HIV programming is heavily dependent on foreign aid. By 2015, HIV prevalence reduced to 5.5% from 14% in the 1990s. As a lower-middle income country, foreign aid will be less accessible: this calls for innovative local financing approaches. Fortunately, devolution of this responsibility to counties has increased local decision-making, creating an opportunity for more targeted responses and investments for HIV. Success is heavily dependent on counties’ capacity to mobilize, accumulate, and allocate funds to health priorities. Through the USAID-funded Health Policy Plus (HP+), project and with Ministry of Health support, counties employed better planning and budgeting strategies by focusing on ways to generate local revenue for sustainable financing for HIV.

**Description:** To mobilize domestic resources, HP+ used a three-pronged approach: building capacity of 26 counties’ planning and budgeting units through: training and mentorship on program-based-budgeting (PBB); PBB focused on identifying key programmes and sub-programmes necessary for achieving proposed health outcomes. While programmes were the same across all counties, counties were able to prioritize funding for key sub-programmes to include HIV. All 26 counties that received HP+ capacity building adopted the PBB approach and created a budget line item for HIV financing. Domestic resources mobilized amounted to US$7 million between fiscal years 2016/17 and 2017/18.

**Conclusions/Next steps:** This study points to the importance of domestic resource mobilization in greater sustainability for HIV financing within the uncertain context of donor funding. Enhanced capacity of county planning and budgeting units is critical in ensuring more domestic resources are mobilized and allocated to health, with devolved units...
serving as a critical entry point for domestic resource mobilization activities, in addition to the national government.

**Keywords:** Devolution, Sustainability, HIV/AIDS Financing, Domestic Resource Mobilization, Capacity Building, Planning and Budgeting.

**TUPEE601**

**IVE, much more than just a sustainable condoms socially-marketed brand**

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**Background:** In response to the HIV epidemic in Central America, Population Services International (PSI) created in Central America, its affiliate, the Pan American Social Marketing Organization (PASMO) in 1996. PASMO’s inception project was to launch a regional socially-marketed condom brand, “VIVE,” to improve availability of and access to high-quality condoms. Sustainability of the brand and growth of the total market were core principles from the start of the project.

**Description:** To achieve brand sustainability, PASMO developed a tiered sustainability strategy, starting with cost recovery of commodities through product sales (achieved in 2000), cost recovery of commodities and marketing costs (achieved in 2010), and finally cost recovery of commodities, marketing and the bulk of operating costs (achieved in 2012). PASMO’s strategy for growing the overall condom market was to implement a total market approach to ensure openness within the market for both public sector and fully commercial-sector brands to serve appropriate consumer segments. This strategy was coupled with highly targeted combination prevention programs to reach populations most affected by HIV and limiting drastic price increases.

**Lessons learned:** Today, PASMO’s VIVE brand is the leading condom brand in Central America, both in terms of sales and brand image having 50.4% of regional market share. The use of marketing research tools has informed VIVE’s marketing strategies and ensured that the brand remained aligned with changing consumer preferences by applying multiple brand extensions, rebranding campaigns and new products. Through deliberate strategies to spark controversy and debate, VIVE mass media campaigns raised awareness about condoms and contributed to lower stigma associated with condom purchase and use. All these efforts have contributed to grow the Central American condom market from nearly 31 million in 2000 to over 100 million in 2016, and with behavioral data indicating that 48.4% FSW and 54.2% MSM are frequent users of the brand.

**TUPEE602**

**Community-led HIV prevention and care and harm reduction in Northern Myanmar**

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**Background:** Kachin state has been heavily affected by over 60 years of armed conflict between the Myanmar Army and the Kachin Independence Army (KIA). The situation in the region is characterised by insecurity, chronic under- spending in the health sector, and endemic corruption. Heroin is widely available and economic activity revolves mostly around the exploitation of natural resources. HIV prevalence is well above national average, with nearly 1 in every 2 People Who Inject Drugs (PWID). The provision of Harm Reduction services is largely insufficient and severely curtailed by a repressive legal framework, as well as strong opposition by a powerful anti-drug movement led by local Churches.

**Description:** From 2006 to 2012, Metta Development Foundation implemented a “Community-based HIV Intervention Project”, which aimed at empowering People Living with HIV (PLH) and reducing stigma and discrimination in the wider community. A network of 68 Local AIDS committees (LAC’s), composed of village administrators, elders, religious, women and youth leaders, and PLH were established to support HIV prevention and care activities. In 2014 and 2016, a similar approach was replicated to support the provision of Harm Reduction services in 7 locations, reviving LAC’s and directly involving local community leaders, alongside PWID. The project main objective is to increase access to Harm Reduction services for PWID, while improving the acceptance of such services by local communities.

**Lessons learned:** Numerous Local AIDS committees created between 2006 and 2012 are fully autonomous and continue to be active, and stigma towards PLH has significantly reduced in concerned communities. Efforts to support Harm Reduction in 7 locations, where communities were initially hostile to these services, have allowed the provision of 454,592 sterile Needles and Syringes, 623 HIV Tests and 244 referrals for OST in 2017. The project will be extended to a new location in 2018.

**Conclusions/Next steps:** The project shows that the involvement of community leaders in HIV and Harm Reduction programming in sensitive environments can contribute to the scale up of HIV and Harm Reduction services, improve community acceptance towards such services, and reduce stigma and discrimination.
TUPEE603
Optimizing clients’ retention on antiretroviral treatment using an “Out-of-facility health care worker group differentiated model” in Nigeria: Experiences and challenges

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Background: Monthly ARV drug refill is a known factor contributing to poor retention in care and treatment even for stable ART clients. In addition stigma and long distance from a treatment center deters clients from regularly accessing drug refills. Sustainable means are required in this donor fatigue era. This retrospective study was done to find out the impact of an out-of-facility ARV drug delivery program to community groups over a twelve-month period between March 2016 and February 2017.

Description: General Hospital (GH) New Bussa in Niger State in Nigeria had 3,678 on ART as at March 2016. The USAID-funded and MSH-led CaTSS project carried out a two-monthly ARV drug delivery to GH Bdana, a spoke health facility serving hard-to-reach communities three hours’ drive from the hub GH New Bussa. There were 2 focus group discussions (5-8 persons) with HCWs and PLHIV. Optional choices for the spoke refills were given. Stable clients were clustered and mapped based on geographical location. We designed and deployed retention calendar, this simple M&E tool synchronizes individual PLHIV's refills, provides real time flagging of PLHIV expected for refills and who missed appointments. This ensured proper forecasting, immediate tracking and follow-up. Governmental staffs were involved throughout the implementation.

Lessons learned: There was an increased facility retention rate from 42% (March 2016) to 83% (February 2017). Retention rate in the cohort accessing out-of-facility drug delivery/refills was 92% (252/283). There were fewer missed appointments and LTTF at the spoke MH that were easily tracked and returned to treatment. HCWs appreciated the improved clients’ satisfaction and quality of care. The clustered stable clients although fewer had improved health outcome and 100% suppression rate.

Conclusions/Next steps: This reduced clients’ traffic, stigma and provided clinicians better opportunity and time to attend to the unstable clients at the hub creating clients satisfaction. This has strengthened collaboration with the government and sustainability of this implementation. The state government currently supports the transportation logistics for HCWs. This has also improved system performance, reduced workload and cost during tracking. Thus, recommended that it should be adopted across all facilities where sustainability is required if distance is a major barrier.

TUPEE604
Learning about the sustainability of pediatric and adolescent HIV programs in sub-Saharan Africa - how can qualitative methods help us get there?

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Background: The joint Children's Investment Fund Foundation (CIF) and U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) Accelerating Children’s HIV/AIDS Treatment (ACT) Initiative aimed to double the number of children receiving antiretroviral treatment (ART) in nine sub-Saharan African countries over two years. CIF invested in an independent evaluation of the sustainability of their investments in Kenya, Malawi, Tanzania, and Zimbabwe which asked:

- Are the essential domains of CIFF-funded pediatric and adolescent HIV programming sustainable once main program funding has concluded?
- What is needed to ensure the sustainability of CIFF-funded pediatric and adolescent HIV programming?

Methods: Sustainability can be complex to conceptualize and measure. This evaluation was rooted in a health systems approach and designed to provide a timely assessment of care cascade gains as well as pathways towards future sustainability. Building on examples from peer-reviewed sustainability literature, the PEPFAR Sustainability Index and Dashboard (SID) tool, ACT investment documents, CIFF and PEPFAR input, ACT grantee workplans, and field testing in Tanzania and Malawi, we developed a new pediatric and adolescent HIV sustainability heuristic. It aimed to assess inputs along three core domains: (i) government, accountability, and leadership; (ii) financing, and (iii) program capacity, and outputs along the HIV care cascade.

Purposefully sampled, semi-structured qualitative interviews (n=66) with government, donor, UN, NGO, and facility respondents in each country were used to evaluate inputs. NVivo 11 was used for analysis. Sustainability outputs were assessed using quantitative HIV care cascade data collected during and after the ACT initiative.

Results: Our approach enabled us to identify and comparatively assess sustainability pathways for ACT pediatric and adolescent HIV programming, despite the small-n nature of the study. These pathways are sufficiently nuanced to inform improvement of ACT sustainability within each country beyond the investment period.

Conclusions: This sustainability heuristic and its focus on qualitative methods can provide donors, advocates, and decision-makers focused on pediatric and adolescent HIV with a practical and nuanced assessment of program and investment sustainability. We believe this approach could be extended to develop sustainability pathways for other donor-funded programs in pediatric and adolescent HIV and beyond, delivering durable returns for donors and recipients alike.
TUPEE607

Active budget advocacy as a way to ensure sustainability of service provision to the communities and key populations on the regional level

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Background: There are around 4,000 PLHIV in Lviv. Until 2016 social services for PLHIV were funded by donors without participation of the state, and only 2,000 PLHIV could be provided with the services. According to Lviv regional ‘Strategy for ensuring a sustainable response to the TB epidemic, including chemoresistant TB and HIV / AIDS till 2020’, which was approved in September 2017, the total transition from the donors’ funding to the local budgets should take place by 2020.

Description: At the beginning of 2016 the working group with representatives of AIDS Center, NGOs and regional authorities for justification of financial needs was formed. The group prepared a proposal for financing of social services for the funds of local budget in total amount of $ 5,800.

The proposal was introduced into the Integrative program of provision of medical care to the residents of Lviv region, however, it was removed by deputy corps. After this, an organized picket of the deputy meeting and media coverage of the event took place. As a result, funds for social support of the region residents in the amount of $ 5,570 for provision of social services for HIV-positive children, was secured in the Program of provision of medical services to the region residents for the 2014-2017, amendments to which were approved on March 1 of 2016.

Lessons learned: In 2016 budget advocacy allowed to cover 70% of the needs for social services for HIV-positive children in the region. Due to further activities and strengthening of partnership with local authorities, in 2018 funding increased by 75% and reached $ 21,000. It will ensure 100% coverage of HIV-positive children by the needed social services and 30% coverage of HIV-positive adults, who are not reached by GF projects. The transparency of spending is ensured by the e-procurement system ‘ProZorro’.

Conclusions / Next steps:
1. Engagement of the HIV-positive community to the rights-protection actions is an effective tool in achieving positive changes.
2. Budget advocacy is a key for total transition to the funding of social services from the local state budgets.
3. Budget advocacy is more effective with the engagement of media for highlighting the process.

Economic evaluation and affordability assessments

TUPEE608

Casting of voluntary medical male circumcision in South Africa’s private sector

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Background: A previous study of the costs of providing a comprehensive set of services for surgical VMMC in South Africa at Government and PEPFAR-supported facilities noted that the lack of sufficient data from the private sector represented a gap in knowledge concerning the overall cost of scaling up VMMC services in South Africa.

Methods: VMMC Service delivery cost data were collected at 13 private for profit facilities in three provinces in South Africa: Gauteng, KwaZulu-Natal and Mpumalanga. Unit costs were calculated using a bottom-up
TUPEE610
Cost evaluation of HIV-1 viral load testing: A comparative case study on open polyvalent platform versus integrated platform performed in CEDRES, Abidjan, Côte d’Ivoire (OOPera project)

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Background: Monitoring of HIV patients receiving ART through viral load (VL) testing is now recommended by WHO. Various technologies exist, however, cost evaluation data per VL test are scarce. We evaluated and compared the cost of VL performed on two different types of equipment: Open Polyvalent Platforms (OPP) vs. Integrated Platforms (IP) in CEDRES laboratory in Abidjan, Côte d’Ivoire.

Methods: Data collection covered the period from March 2013 to July 2016. Costs of VL performed on an OPP with Bioanatic Generic HIV-1 VL reagents and on an IP with Roche COBAS® Ampliprep/COBAS® TaqMan® HIV-1 V2.0) were evaluated. The costs were calculated using a “micro-costing” method, which includes the value of all resources consumed (time, goods and services) by the laboratory. Seven cost categories were identified: human resources costs, training costs, laboratory costs, VL reagent costs, small non-medical equipment costs, investment costs, overhead costs. The value of resources was estimated from the relevant quantities and corresponding unit price. All costs, both direct (i.e., resources used only by the VL laboratory) and joint, included both variable and fixed costs (depreciation of the equipment) and were expressed in euros and discount at 4%.

Results: A total of 12,771 VL tests were performed on OPP and 4,877 on IP. The overall cost of VL was €507.170 on OPP and €356.396 on IP. The unit cost was respectively €33.71 and €74.92. Overall, the main costs were reagents (respectively 68% and 55%), followed by single use and multiple use laboratory consumables (17% and 36%) and OPP equipment maintenance (5.3%). Human resources represented respectively 4.3% and 5.3%. Medical and non-medical equipment represented together 12.4% on OPP and 9.6% on IP.

Conclusions: This analysis showed that the unit cost of a VL test is much less expensive using OPP than IP in a West African country conditions. Further studies with other types of platforms would be important to draw a more complete picture of VL cost testing and allow decision-makers to optimize their choices in resource-limited countries.

TUPEE609
Out-of-pocket costs for patients receiving HIV care and treatment in Mozambique

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Background: As of 2016, the Mozambique HIV prevalence among those aged 15-49 was estimated at 12.3%, with an estimated 1.6 million Mozambicans adults living with HIV/AIDS. In 2016 approximately 900,000 adults and 76,000 children were receiving antiretroviral therapy. Many HIV patients receive care and treatment funded by the government and donors, such as PEPFAR. Although services are largely free, HIV patients do incur costs to access treatment, potentially limiting uptake for some groups. This study quantified costs that different patient groups incurred while receiving publicly funded HIV treatment in Mozambique.

Methods: In April 2017, a sample of 396 randomly selected adult patients (>18 years) receiving HIV care and treatment, with at least one prior appointment, was selected from 37 health facilities across 11 provinces in Mozambique. The survey assessed patients’ costs associated with their access to HIV services.

Results: Results indicate that approximately 70% of respondents were female, and 21% lived in urban areas. The average age was 38 years (females, 37 years; males, 40 years). The findings indicated that 47% of respondents incurred some costs. Patients spent an average of US$39.57/ year (2017) on costs to access treatment; more than 88% was for travel expenses (93% in Females and 75% in males). Patients living in rural and urban areas had average annual costs of US$17.81 and US$20.41, respectively. Males and females spent similar per year, US$18.24 and US$19.35, respectively. Patients’ annual opportunity cost of the total time spent for treatment was $16.43 for male patients and $16.49 for female patients, approximately 4.3% of the per capita GDP in 2016.

Conclusions: Although HIV treatment was largely provided free, the study’s findings suggest that (i) out-of-pocket costs to access this treatment are common and (ii) patients spent a substantial amount of time at the HIV clinic. Results are similar to those found in similar studies in Tanzania, Kenya, and Swaziland.

TUPEE612
Evaluating HIV service expenditures in Ukraine: Results from a cost analysis study

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Background: Ukraine has one of the most severe HIV epidemics in the region, with an estimated 238,000 people living with HIV in 2017. As funding for HIV services in Ukraine is provided from domestic and international sources, and with support from donors and international aid agencies decreasing significantly in the near future, a better understanding of how monies for HIV services are spent will help inform resource allocation and programming decisions.

Methods: A two-staged stratified sampling method was used to select study regions and facilities to evaluate funding spent by the government on HIV services. In total, three oblasts with high, medium and low prevalence rates (Mykolayiv, Poltava, and Zhytomyr) and 57 facilities (from

approach by cost components and disaggregated by the type and level of urbanization of the facility. Supply chain, VMMC demand creation, and higher-level management and program support costs were not collected and therefore not included.

Results: The unit cost including the cost of training and continuous quality improvement to provide VMMC at private facilities was $137, which was comparable to public and PEPFAR-supported nonprofit facilities. The largest cost components were consumables (40%) and direct labor (35%). Eleven out of the 13 surveyed facilities were fixed sites ($142), while the remaining were a fixed site with outreach services ($156) and a fixed site with outreach and mobile services ($123). The unit cost was not substantially different based on the level of urbanization: respectively $141, $129 and $143 at urban, peri-urban and rural facilities.

Conclusions: Private sector VMMC unit cost ($137) did not differ substantially from the costs at government and nonprofit. PEPFAR-supported facilities ($132). Consumables and direct labor accounted for 75% of total cost at for-profit facilities compared to 67% at public and nonprofit facilities. Results from this study complement unit cost data necessary to make informed decisions regarding the funding and scale-up of VMMC services in South Africa in both the private and public sectors.

Tanzania, Kenya, and Swaziland.
TUPEE613

Systematic literature review of critical gaps in costs and cost-effectiveness analyses (CEA) of HIV testing services in sub-Saharan Africa


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Background: HIV testing services (HTS) have undergone dramatic changes in recent years, and the most recent and the most innovative one is HIV self-testing. To date, there has been no systemic assessment of the evidence around the costs and cost-effectiveness of the broad HIV testing alternatives in sub-Saharan Africa.

Methods: We conducted a systematic literature review of costs and cost-effectiveness of HTS in sub-Saharan Africa between 2006 and 2017 following accepted guidelines (the CHEERS statement). We assessed study methodology, including primary or secondary costings, outcomes reporting as generic (QALYs), DALYs, HIV infection averted or life years gained or HTS specific). We analysed variations in unit costs per person tested ($ppositive) and per positive case identified ($ppositive), cost-effectiveness, and identified cost drivers. All costs are presented in US$ 2016.

Results: Ninety-five studies met the eligibility criteria. Twenty-percent conducted primary costing exercises and applied it to perform CEA of alternative HTS. FBT, home-based and mobile-testing, costs were presented in 73%, 12% and 7% of studies, respectively. Only 15% reported generic health outcomes. More than 50% assessed for uncertainty in parameters and reported cost drivers. The reported unit costs for HTS varied widely. FBT $ppositive ranged from $4.24 to $49.61 and $ppositive from $25.69 to $11,147. For mobile outreach, the $ppositive was $6.35 to $34.15 and $ppositive was $9.65 to $303. Home-based HIV testing $ppositive ranged from $9.68 to $20.74 and $ppositive ranged from $14.14 to $576.

Conclusion: The observed unit costs and cost-effectiveness varied widely, attributable both to real differences in scale of implementation, uptake and HIV prevalence, and variation in study methodology. It is vital to understand costs as well as estimate ultimate CEA using generic health outcomes to allow optimisation across health budgets and scaling-up of HIV interventions to improve population health, even more so as the financing of HIV programs increasingly falls on national governments.

TUPEE614

The effect of universal test and treat on average cost per ART patient-year: Evidence from a health systems implementation trial in Swaziland

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Background: As Swaziland and many other countries in sub-Saharan Africa are adopting 2015 World Health Organization (WHO) antiretroviral therapy (ART) guidelines and introducing universal test-and-treat (UTT) strategy, it is critical to understand the cost implications of this change to inform long-term financial planning. We present results from one of the first empirical costing studies of UTT under the “real world” conditions of scale-up in public-sector primary-care clinics.

Methods: From September 2014 through August 2017, we collected comprehensive data on facility-level ART costs from 14 facilities transitioning from standard of care (SOC) to UTT as part of a large-scale stepped-wedge health systems implementation trial. We take the perspective of the public-sector and use a “bottom-up costing” approach extracting data from facility budgets, expenditure reports, and patient...
TUPEE615

Health care costs and deaths prevented by ACTA trial treatments for cryptococcal meningitis: A comparison between 5 induction strategies in sub Saharan Africa


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Background: Mortality from cryptococcal meningitis remains high. The ACTA trial demonstrated that 1 week of amphotericin B (AmB) plus fluconazole (FLU) was associated with lower mortality, and 2 weeks of oral fluconazole (FLU) plus 5FC combination was non-inferior compared with 2 weeks of AmB+5FC (gold standard) 2 weeks of AmB+FLU, or 1 week of AmB+FLU. We assess health service resource use and related costs in relation to health outcomes for the 4 alternative treatments compared with 2 weeks AmB+5FC.

Methods: Participants were randomised in a ratio of 2:1:1:1:1 to oral 5FC+FLU, 1 week AmB+FLU, 1 week AmB+5FC, 2 weeks AmB+FLU or 2 weeks AmB+5FC between 2013 and November 2016 in Malawi, Zambia, Cameroon and Tanzania. Data on individual resource use and health outcomes were collected from everyone. A costing study from the provider’s perspective was done in Zambia.

Total health service costs for each treatment were estimated using the ingredient approach. The primary health outcome was health care cost per deaths prevented per 100 patients. Non-parametric bootstrapping was used with 1000 samples of 678 participants and 95% CI calculated using the 2.5th and 97.5th percentiles of the bootstrap samples.

Results: 678 participants were enrolled. Mean total costs per patient were US$1648 for oral FLU+5FC, $1936 for 1 week AmB+FLU, $2070 for 1 week AmB+5FC, $2321 for 2 weeks AmB+FLU, and $2481 for 2 weeks AmB+5FC. Hospitalization cost was the major component of total service costs. Differences between arms were driven by costs related to the component drugs and related complications, in particular AmB.

One week AmB+5FC was less costly as well as more effective than 2 dominated 2 weeks AmB+5FC. Oral FLU+5FC was less costly than 2 weeks AmB+5FC and at least as effective as 2 weeks AmB+5FC. If the mortality for 1 week AmB+5FC was varied to the upper 95% CI, 1 week AmB+5FC still dominated 2 weeks AmB+5FC. The incremental cost effectiveness ratio for 1 week AmB+5FC versus oral FLU+5FC was US $53 ($56 CI 15-185) per death averted.

Conclusions: 1-week AmB+5FC and 2-weeks oral FLU+5FC are suitable for implementation in resource-limited settings. 5FC needs to be made available widely.

TUPEE616

Financial mobilization for antiretroviral therapy program: Multi-level predictors of willingness to pay among patients with HIV/AIDS in Vietnam

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Background: In Vietnam, significant progress has been made in increasing the number of patients receiving anti-retroviral therapy (ART) in the last number of years. As this number increases and international aid and funding for HIV services declines, a greater proportion of ART funding will need to be provided by the government budget, health insurance or by the patients themselves. This study aims to assess the willingness of HIV patients to pay for ART.

Methods: A cross-sectional study which included 1133 HIV-positive patients was conducted across 8 outpatient centres in Hanoi and Nam Binh in Northern Vietnam in 2013. Participants were asked if they were willing to pay for ART to treat HIV using contingent valuation method.

Results: Over 90% of the patients were willing to pay for ART for an average amount of 197 USD per month. Regression models showed that the willingness of patients to pay for ART was influenced by factors such as employment, income, quality of life and social factors. The amount patients were willing to pay was also associated with gender, living place and level of HIV service administration.

Conclusions: By establishing these factors which influence the amount of willingness to pay for ART, plans for the future can be effectively designed and patient groups at risk can be appropriately managed.

Supporting sustainable financing for civil society

TUPEE617

How to build consortium of different key communities for effective advocacy to insure sustainable funding of HIV response

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Background: Highly stigmatised and criminalised key populations/communitys in EECA excluded from the continuum of HIV care due to legal, institutional, social and other barriers being key drivers of the epidemic. In last year’s funding of services for key populations more depends on national governmental officials who stigmatising key populations and are not ready to invest into services. Having the same advocacy targets on
Financing HIV drug access: the economics of generics and differential pricing structures

TUPEE618
Estimated cost-based generic prices for treatments of opportunistic infections

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Background: Medicines used to treat opportunistic diseases are mostly off-patent, but there have nevertheless been concerns with price changes and unaffordability. For example, the fluconazole market is dominated by an originator-run donation programme, which excludes countries with large HIV burden such as Ukraine, Russia, Brazil, China, and Thailand. Pyrimethamine has recently been the subject of a 55-fold price hike in the US, and is not publicly procured in South Africa. Methods: Current unit prices in the UK, South Africa (SA), and India were collected for medicines used in major opportunistic diseases from publicly available databases. Data on per-kilogram cost of exported active pharmaceutical ingredient (API) were retrieved from an online database of Indian export-import logs. Per-dose API costs were calculated, to which $0.41 per tablet or $0.70 per vial, as applicable, were added to estimate the cost of production. A 27% margin was then added to account for tax, and a 10% margin for profit. For liposomal amphotericin B, as API data were unavailable, we give the cost-based estimated price as the range of observed prices for formulated vials exported in bulk from India. Results: Prices were highly variable between countries compared. In all cases for the UK, and all but one for SA, prices were substantially higher than estimated cost-based prices. In most cases, Indian prices were below estimated cost-based prices, likely reflecting conservative assumptions in estimation. Comparison of estimated cost-based price to current prices identified two cases worthy of further investigation: treatment for CMV retinitis, for which SA price was >12x and Indian price >11x the estimated cost-based price, and treatment for disseminated mycobacterium avium complex, for which SA price was more than two times estimated cost-based price. The price of liposomal amphotericin B was 14 times lower than in SA.

Conclusions: The current prices of valganciclovir in the SA, the UK, and India, are substantially higher than estimated cost-based generic price. In addition, the price of liposomal amphotericin B is higher in SA and the UK than in India Estimation of cost-based generic prices can identify cases in which there may be suboptimal market competition.

TUPEE619
Reigniting the fight for access to medicines: Outcomes and recommendations from the 2018 global summit on intellectual property and access to medicines (GSIPa2M2018)

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Background: It has been 24 years since the adoption of the TRIPS agreement by all WTO members in Marrakech. The agreement required countries to amend their national laws and grant 20-year product patents on pharmaceuticals. Since 2005, the true scope and negative impact of this Agreement on access to medicines have become evident. The extent of work and expertise of CSOs and the critical role they play in balancing WTO mandated IP rules with public interest and public health while also resisting the onslaught of TRIPS-plus measures is under-recognised and under-resourced. Methods: In January 2018, 134 experts, treatment advocates and community advocates from 34 countries gathered in Marrakech at the initiative of iTPC for the first Global Summit on IP and Access to Medicines planned as a return to Marrakesh to reflect, discuss and strategize on over two decades of the implementation of the TRIPS Agreement, its impact on health and access to medicines and to both imagine and re-imagine what the next two decades of TRIPS implementation will (or could) bring. Results: The summit highlighted the critical role played by PLHIV, patient groups, NGOs in the implementation of TRIPS flexibilities since 1995 and identified key factors in enabling environment to sustain the work of CSOs in this area. Participants collectively brainstormed on a more radical agenda for the interpretation and implementation of TRIPS flexibilities and identify key opportunities for this agenda and expand access to medicines. The summit provided a platform to discuss success-
HIV and universal health coverage

TUPEE621
Out-of-pocket spending by the pregnant women attending antenatal care/ prevention of mother-to-child HIV transmission services in Ethiopia, and its implication for universal health coverage: Applying econometric model

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Background: Universal health coverage (UHC) aims to provide health care access for those in need, including pregnant women attending antenatal care (ANC)/ prevention of mother-to-child HIV transmission (PMTCT) service, without any financial barriers. However, out-of-pocket fees affect ANC/PMTCT service access, coverage and utilization among pregnant women. This paper aims to assess possible explanatory factors for direct medical out-of-pocket spending and their effect on UHC.

Methods: A random sample of 484 pregnant women attending twelve health facilities was interviewed across six regions in Ethiopia. Six health facilities from urban and six health facilities from rural settings were selected from the latest 2012 ANC sentinel HIV prevalence report (EPHI, 2014). Ordinary least square econometric model was employed. The dependent variable was the total direct medical out-of-pocket spending by the pregnant women. Direct medical costs consisted of consultation fees, laboratory tests and drug purchase. Normality distribution, linearity and homoscedasticity were tested.

Results: A pregnant woman incurring direct medical costs of Ethiopian birr/ ETB 119 (United States dollar/ USD 6) and ETB 6 (USD < 0.5) in urban and rural settings, respectively (<p 0.001). ANC/PMTCT visits and locations were the statistically significant factors related to the dependent variable (<p 0.05). Holding other factors constant, a unit increase in ANC visit is related to 33% increase in the direct medical expense for the care fees, laboratory tests and drug costs at the public health facilities. A pregnant woman from an urban setting incurred five times higher out-of-pocket spending when compared to a rural counterpart, ceteris paribus.

Conclusions: A pregnant woman from an urban setting experienced higher out-of-pocket spending when compared to a pregnant woman in a rural setting. An increase in ANC/PMTCT visits is directly related to an increase in medical expense, which may have a negative spillover effect on the path towards UHC.

TUPEE622
Do people living with HIV in Thailand with different health schemes have equitable access and receive equal quality services on their HIV treatment?

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Background: Thailand is currently categorized as an upper-middle income country by the World Bank since 2011 and has geared towards universal health coverage since 2002 as steered by the World Health Organization. The country is implementing four health policies, including the National Health Security Scheme (NHSS), Social Security Scheme (SSS), Civil Servant Medical Benefit Scheme (ICSMBS) and Migrant Security Fund (MSF) with an attempt to provide access to quality health-care services for all, which include HIV treatment. However, the country is struggling in policy implementation, raising concerns whether people are actually receiving equitable HIV services due to different schemes.

Methods: This study is a document research with key informant interviews, specializing HIV from the international development, civil society and community sectors. The four policies are different in nodality, au-
thority, treasure and organization, hence are analyzed using a compara-
tive public policy method.

**Results:** Of all Thai nationals, the CSMBS started in 1980, covering 77% and all are civil servants. It provides the greatest benefits but with the highest spending in healthcare. The SSS started in 1990, covering 77% among those in the private sector. It is the only trilateral co-payment but has less benefits than CMBS and NHSS. The NHSS started in 2007, covering 75.3% among those besides CMBS and SSS but clients are ex-
periencing stigma and discrimination due to perceived low socioeco-

<table>
<thead>
<tr>
<th>Civil Servant-Medical Benefit Scheme (CSMBS)</th>
<th>Social Security Scheme (SSS)</th>
<th>National Health Security Scheme (NHSS)</th>
<th>Migrant Security Fund (MSF)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year of commencement</strong></td>
<td>1980</td>
<td>1990</td>
<td>2007</td>
</tr>
<tr>
<td><strong>Coverage</strong></td>
<td>7.7% of Thai nationals (Approx. 10 million persons)</td>
<td>16-59 years old Thai nationals (Approx. 10.5 million persons)</td>
<td>Approx. 107.0 million (Targets: 1.24 million persons)</td>
</tr>
<tr>
<td><strong>Beneficiaries</strong></td>
<td>Government civil servants and families with less than 3 children under 20 years of age</td>
<td>All citizens including CSMBS and SSS coverage</td>
<td>Documented and undocumented foreign vagrants</td>
</tr>
<tr>
<td><strong>Approximate annual budget</strong></td>
<td>USD1.818.1M</td>
<td>USD713.1M</td>
<td>USD2,972.3M</td>
</tr>
<tr>
<td><strong>Source of Budgets</strong></td>
<td>Government</td>
<td>Trilateral cost-sharing (govt., employers and employees)</td>
<td>Government</td>
</tr>
<tr>
<td><strong>Cost per person</strong></td>
<td>USD415.4</td>
<td>USD130.5</td>
<td>USD129.1</td>
</tr>
<tr>
<td><strong>HIV and other Service coverage and exception</strong></td>
<td>All covered</td>
<td>All diseases except medical checkups</td>
<td>All diseases except medical checkups</td>
</tr>
<tr>
<td><strong>Authority</strong></td>
<td>Ministry of Finance Department of Comptrollers’ General</td>
<td>Ministry of Labor Social Security Office</td>
<td>Ministry of Public Health Office of the Permanent Secretary-General</td>
</tr>
</tbody>
</table>

**Losses**
- National Health Security Act 2018
- Public Health Ministerial Ordinance on Healthcare and Health Security (dated 30 March 2015)

**Conclusions:** Thailand is still striving to achieve equitable health-

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**TUPEE623**

The financial feasibility of inclusion of HIV/AIDS in the benefit package of Lagos State Health Scheme

O.K. Ogundapo1, S. Akande1, U.H. Edumoh1, A. Dadu1, O. Fisher2


**Background:** An actuarial analysis was conducted for Lagos State in order to ascertain the financial implication on the premium cost of adding comprehensive HIV and AIDS services (PMTCT, HTC & ART) to the benefit package of the Lagos State Health Scheme (LSHS). A previous benefit package had been costed that included only the testing component of PMTCT as part of services to be offered on the scheme. This was due to the fact that many stakeholders were concerned about the affordability and sustainability of a benefit package with comprehensive HIV/AIDS services.

**To support the state in taking a decision, the USAID funded Health Finance and Governance (HFG) Project supported the Lagos State Government to answer the financial feasibility question using an evidence based approach of actuarial analysis.**

**Description:** An actuarial study was undertaken to estimate the modular costing of HIV services using State validated data as encounter data, weighing of different ARV regimen and costing data from the State ICAR references. Sensitivity analysis using the incidence rates, medical inflation and coverage estimates were included in the analysis.

**Lessons learned:** The additional risk premium for adding comprehensive HIV services on the benefit package is estimated to be NGN809.40 ($0.68) per enrollee per year. This pricing includes the cost of a viral load test done once a year) assuming a 100% coverage of all Lagos residents. Further stress tests at 10% and 20% coverage puts the cost at NGN1,260 and NGN1,690 respectively. The modular break down is shown in the table below. From the sensitivity analysis conducted, the most important risk factor affecting this cost was the utilization of HIV services within the health scheme.

**Conclusions/Next steps:** The additional cost on the premium of integ-

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**TUPEE624**

Loss to follow-up and associated factors of patients through the National AIDS Program in Thailand

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**Background:** Loss to follow-up (LTFU) before (pre-ART) and after start-
ing ART (ART-patients) are factors that prevent countries from meeting the UNAIDS 90-90-90 targets.
Methods: We studied LTFU in Thai HIV patients aged ≥15 years enrolled in the National AIDS Program (NAP) from 2008 to 2014, a period when linkage with the death registry was complete. LTFU was defined as not attending clinic within 12 months (pre-ART), or within 6 months (ART-patients), irrespective of whether they later returned to the program. Follow-up was based on CD4 count or ART prescription visits. Competing risk models were used to calculate the adjusted sub-distribution hazards (aSHR) for LTFU, with death as a competing risk.

Results: 137,431 pre-ART patients registered to the program, with median age 36 (interquartile range (IQR) 30-43) years and median CD4 count of 115 (IQR 34-269) cells/mm³. In pre-ART patients, 8,697 (6%) were LTFU over 78,185 person-years (pys): a crude LTFU rate of 11.1 per 100 pys (95% Confidence Interval (CI) 10.9-11.4). In 141,117 ART patients, median age at ART initiation was 37 (IQR 31-43) years with median baseline CD4 count of 93 (IQR 30-220) cells/mm³. Over 353,480 pys, 30,752 (8.6%) were lost: a crude LTFU rate of 8.7 per 100 pys (95%CI 8.6-8.8). Cumulative LTFU incidence in pre-ART patients was 5.3% at 6 months and 10.2% at 1 year, whereas in ART patients it was 4.0% and 12.8% respectively (Figure 1). Among pre-ART patients, younger age (< 30 vs age ≥45, aSHR 1.60, 95%CI 1.59-1.61) and baseline CD4 count of 93 (IQR 30-220) cells/mm³. Over 353,480 pys, 30,752 (8.6%) were lost: a crude LTFU rate of 8.7 per 100 pys (95%CI 8.6-8.8). Cumulative LTFU incidence in pre-ART patients was 5.3% at 6 months and 10.2% at 1 year, whereas in ART patients it was 4.0% and 12.8% respectively (Figure 1).

Conclusions: High LTFU rates occur in both pre-ART and ART patients in the Thai NAP and hinder progression towards reaching 90:90:90 targets. Strategies need to address improving retention in all patients, especially those with higher CD4 counts, now that Thai guidelines recommend commencing ART at any CD4 count.

Figure 1. Cumulative incidence of LTFU and death between pre-ART and ART patients.

TUPEE625
A community perspective of Indonesian universal health care (Jaminan Kesehatan Nasional)
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Background: Jaminan Kesehatan Nasional (JKN) is the national insurance scheme under the auspices of the Indonesian government providing Universal Health Coverage (UHC). It has been implemented since 2014. JKN is touted by the government as being available for all levels of Indonesian society and it is the only insurance that covers HIV-related treatment.

A study was conducted by Indonesian AIDS Coalition (IAC) to evaluate the level of understanding of key populations (KPs) in relation to health insurance and JKN assessing the level of coverage by key population groups and their utilization of the scheme.

Methods: The qualitative case study was carried out through focus group discussions (FGDs) with the KPs (MSM, PWUD, sex workers and women living with HIV) in Jakarta in 2015. An additional FGD was conducted with people living with HIV (PLHIV) in November 2017 with representatives from 10 provinces in Indonesia carried out under the Sustainable HIV Financing in Transition (SHIFT) program.

Results: There are variations in the knowledge of JKN among providers related to HIV services and hierarchical referral system. The MSM participants feel that preponderance of perceived lower quality of JKN in coverage, ease of access on a cover, and in the variety of medications or treatments prescribed rather than previous one. The PWUD participants mentioned that they don’t face any barriers to access the JKN services, however, there was an impression that decision to cover the services hinge largely on the discretionary power of the health care providers, and favorable initial diagnosis that stated no drug services is a key aspect to successful claims. Sex worker participants raised domicile issue as a barrier to access the JKN, thereby reducing its universality. Those barriers impact to the low uptake of the JKN coverage and utilization by PLHIV and KP.

Conclusions: It is agreed that JKN offers benefits for KP and PLHIV but at the same time it should coincide with strengthening the health services. In the future, capacity building and improved information relating to JKN are important to better sensitize the community. Recommendations include the development of additional educational materials and resource intended for peer educators and clients.

TUPEE626
Crossing the country boundary: ART service linkages between two countries-India and Nepal contributed to uninterrupted supply
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Background: Nepal has identified the labor migration to India is a common and increasing phenomenon. HIV infection in major cities in India (Delhi, Mumbai & Calcutta) and transmission to their families in Western Nepal. Nepal spoilered one major HIV/AIDS strategy to work with India to prevent HIV infection and to work together to provide treatment. A 5 years project (2012-2016) implemented in Nepal and India explored many possibilities to work together.

Description: A 5 years’ research project (IEMPHASSI) implemented in Nepal and India engaging local partners, PLHIV organizations and government organizations. Local partners and PLHIV organizations (6 NGOs and 70 staff, 5 PLHIV organizations, 300 volunteers, 16 health facilities) worked with Nepalese people in India and Nepal worked with Indian citizens in Nepal. In both countries similar strategies were adopted to reach, test and treat. The communication, experience sharing and developing interventions were made by two country teams together. This has provided to reach both country’s Apex body of HIV/AIDS, facilitated to hold bilateral meeting and the efforts could make an understanding to provide ART services (treatment) to Nepalese in India and Indians in Nepal.

The same was communicated to all the sites by India and Nepal both. The effort supported 6500 PLHIV from Nepal to get ART in India and 700 Indians to get ART from Nepal. ART adherence, follow up and ultimately interrupted ART supply is possible in two countries.

Lessons learned: Evidences, created through the program implementation can influence the local government and health facility. Sharing progress and impact with the concern stakeholders can have greater impact that can influence the governments. Tireless advocacy with the documentation, voice of people and impact showing clips can influence the governments. Engaging government staff at all level of program implementation can be a good strategy to influence the governments.

Conclusions/Next steps: Uninterrupted ART treatment to the people will contribute to reduce the risk of drug resistance as well as the cost to get treatment. Providing ART to the people irrespective of the country will contribute to the overall health goal to make the world healthy.
Evidence from integration of health services

TUPEE628
The relationship between efficiency and quality in health facilities providing HIV testing and counseling and prevention of mother-to-child transmission: Evidence from Kenya, Nigeria, Rwanda, South Africa and Zambia

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Background: Given constrained funding for HIV programs across Sub-Saharan Africa, delivering services efficiently is vital. It has not yet been studied, however, what managerial factors may contribute to the efficient and high-quality execution of HIV prevention programs. The objectives of this study are to describe the levels of efficiency and quality of health facilities providing HIV testing and counseling (HTC) to analyze the trade-off between efficiency and quality in these facilities; to examine the management characteristics associated with efficiency and quality.

Methods: We used data from 338 facilities in Kenya, Nigeria, Rwanda, South Africa, and Zambia covering 2011, 2012 or 2013. We estimated and adjusted efficiency scores using Data Envelopment Analysis (DEA) and estimated quality scores using factor analysis. We mapped the relationship between the efficiency and quality of care. Finally, we used seemingly-unrelated regression analysis (SUR) to examine the relationship between quality and efficiency scores and management characteristics at facility level.

Results: Facilities in South Africa and Rwanda were quite efficient while facilities in Nigeria and Zambia were relatively inefficient. Quality of services were rather poor across countries and between 24% and 27% of facilities had either high efficiency/low quality or low efficiency/high quality indicating some trade-off between efficiency and quality. Number of managerial meetings, frequency of HIV-related supervisions, and provision of HIV staff rewards for performance were all associated with better performance. Existence of a community advisory council monitoring facility performance and funding subject to management of inputs also indicated some trade-off. Quality of service delivery was needed and further investigation of management practices associated with efficiency and quality of care is required.

TUPEE629
Integrating HIV testing services (HTS) into household vulnerability assessments (HHVAs): A window to meeting the first 90 among children and adolescents in Nigeria

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Background: Undiagnosed HIV-infection is more common among children and adolescents, who are harder to reach than adults, hence a high priority target for HIV testing services (HTS). HTS is the critical first step to accessing HIV services, therefore an integral part of the HIV/AIDS response to prevent spread and improve health outcomes for those already infected. Orphans and Vulnerable Children (OVC) programs reach large numbers of children and adolescents in the community, so we decided to take advantage of this to reach them with HTS. This paper describes HTS uptake when offered as part of household vulnerability assessments (HHVAs) for OVC/households reached on a PEPFAR/USAID-funded project - Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS) implemented in 13 Nigerian states. We also examined HIV-positivity prevalence by vulnerability categorization of assessed households.

Methods: Trained case-managers, supervised by project-supported community based organizations were engaged to provide community-based HTS to children and adolescents (0-19 years) enrolled in the SIDHAS OVC Program. Caregiver permission was obtained before testing for children ages < 18 years, except emancipated minors ages 15-17 years who provided consent for themselves. HTS and linkages of positive beneficiaries were integrated into HHVAs between January and March 2016, in 124 local government areas in Nigeria. Using the National ‘HHVA Tool’, households were assessed, scored and categorized into 3-levels - ‘Most-Vulnerable’, ‘More-Vulnerable’ and ‘Vulnerable’ based on the following criteria: household headship, health, education level of the household head, shelter/housing, food security/nutrition, means of livelihood and household income.

Results: A total of 31,510 households with 71,442 children (36,596 males, 34,956 females) were assessed. Forty percent of children (n=28,771) were tested for HIV. Among those tested, 33% (n=1,127) tested positive. 7.3% (n=81) of HIV+ children were from ‘Vulnerable’ households, 73.3% (n=826) were from ‘More-vulnerable’ households and 19.8% (n=212) were from ‘Most-vulnerable’ households. HIV-prevalence was similar across vulnerability levels (range 3.6% to 4.2%), but increased slightly with increased vulnerability.

Conclusions: Offering HTS during community-based HHVA affords care-providers the opportunity to reach the most-vulnerable children and adolescents who may not otherwise be reached, thus reducing the numbers who remain undiagnosed and increasing linkages to critical services for those who test HIV-positive.

TUPEE630
Does integration of HIV and sexual and reproductive health (SRH) services improve the patient’s experience? Results from a cluster randomized trial in Zimbabwe

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Background: It is assumed that integrating Human Immunodeficiency Virus (HIV) services with sexual and reproductive health (SRH) services improves programmatic efficiency. Yet, it is unclear how integration may affect patient satisfaction and patient’s burden to access care. We therefore aim to assess impact of the Government of Zimbabwe’s 2016 HIV-SRH integration program on patient satisfaction and on the patient’s burden to access care.

Description: 15 districts were randomly allocated to treatment and 13 to control group. The sample of facilities included all 31 district hospitals (DHS), within which 34 out-patient departments (OPDs) and 149 randomly selected primary health centers (PHCs). The study used linear models on facility-level endline data separately for the PHC, DHS and OPDs.

Lessons learned: Patient satisfaction was not affected by the intervention in PHCs. In DHS, however, satisfaction was found to be significantly higher in patients receiving care from treated facilities compared to controls, according to both an arithmetically-derived Satisfaction Score and a Principal Component Analysis-computed Satisfaction Component (p< 0.05). This higher satisfaction was mostly found in the subgroup of patients receiving SRH compared to controls (p< 0.05). In treated OPDs, overall satisfaction was higher (p< 0.05) than in controls. In particular, satisfaction scores reveal that patients receiving both HIV and SRH care
Evidence from cross-sectoral programming

TUPEE631
HIV prevention and SRH education on the football pitch: Results from a mixed-methods evaluation of an HIV prevention programme delivered to adolescent boys by football coaches

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Background: Little is known about effective approaches to address the unique HIV and SRH needs of adolescent boys. In 2016 Grassroot Soccer (GRS) conducted a mixed methods evaluation of an HIV prevention and life skills programme (SKILLZ) delivered to adolescent boys by coaches from local football associations (LFAs) within the South African Football Association (SAFA). The objective was to assess the effectiveness of SKILLZ at improving knowledge of HIV risk factors and prevention; gender equitable beliefs; and positive self-image among participants.

Methods: LFA coaches conducted the SKILLZ intervention (seven 1.5-hour sessions) in the peri-urban communities of Alexandra and Soweto in Johannesburg, and Khayelitsha in Cape Town. Participants (mean age = 13.8) completed a 17-item questionnaire at baseline (September-December 2016, n=974) and immediately after the intervention (March-May 2017, n=974). Focus group discussions (FGDs) were conducted with participants (n=11) and coaches (n=1) and in-depth interviews (IDIs) were conducted with GRS staff (n=2) and LFA administrators (n=1). Quantitative data was analysed using Wilcoxon Signed Rank Test. Qualitative data was analysed using an inductive coding approach to identify emergent process and outcome themes.

Results: All 17 questionnaire items showed significant improvements pre- to post-intervention as shown in Table 1. The largest changes were seen in items about communication about HIV with friends, gender equitable decision-making responsibility in relationships, and drinking alcohol increasing HIV risk. Larger changes were seen in older participants (ages 14-17) in items pertaining to decision-making responsibility in relationships and attitude toward people living with HIV. Qualitative data found demand for more support and training among LFA coaches and unanticipated improvements to communication and discipline on the football pitch.

Conclusions: These findings suggest that local football structures may be under-utilised in reaching adolescent boys, showing that SKILLZ is an effective intervention for short-term improvements to HIV knowledge and attitudes toward gender equality and health. Greater positive change was seen among older youth in several items, indicating that the intervention could be more effective for older adolescents. Both the intervention (SKILLZ) and delivery channel (LFAs) present opportunities for scale and merit more rigorous, longer-term evaluation.

Approaches to financing across sectors

TUPEE632
Alignment in HIV programming and funding by key donors is critical for achieving epidemic control - an example from Kenya

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Background: In most developing countries, HIV programs are heavily donor funded. Donors have different priorities and requirements, and most host country governments do not have full understanding or control of those requirements. As a result, duplication and funding overlaps are commonplace. With proper coordination and alignment, epidemic control could be achieved at a much faster rate.

Description: An example is the PEPFAR and Global Fund (GF) collaboration in Kenya. Before 2015, PEPFAR and GF were working almost independently with little or no information moving across the two key donors. Though efforts were made to share information for planning, funding applications, and program implementation, there were no structured ways of engagement or proper guidelines. In 2015, deliberate efforts were made both at headquarters and in-country for PEPFAR to engage with GF in all its processes. This included engagement with GF on the Country Operational Plan (COP) guidance, in-country dialogue and approval meetings; recruitment of PEPFAR-GF Liaison Officers; and commitment to host countries through Geneva-based leadership consultations to eliminate duplicative programming.

Lessons learned: As a result, the PEPFAR Kenya COP 2016-2017 as well as the GF New Concept Note 2015-2017 and GF New Funding Request 2017-2019 demonstrated better alignment in funding allocation, geographic prioritization, commodity procurement, human resource support, target setting, program monitoring strategies, and oversight. Key achievements include: 1) GF’s allocation to care and treatment reduced and expires. These are critical factors in attainment of 90/90/90 UNAIDS targets.

Conclusions: When donors work in a well-coordinated manner, there will be increased program coverage for critical interventions with a resultant faster attainment of epidemic control.

<table>
<thead>
<tr>
<th>Q Statement Pre Post Change p-value*</th>
</tr>
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<tbody>
<tr>
<td>1 I have talked about HIV with an adult in the past two months (outside SKILLZ).</td>
</tr>
<tr>
<td>2 I have talked about HIV with a friend in the past two months (outside SKILLZ).</td>
</tr>
<tr>
<td>3 I can tell if someone has HIV by looking at him or her.</td>
</tr>
<tr>
<td>4 I would say no to playing sport with someone who has HIV.</td>
</tr>
<tr>
<td>5 Unequal power in relationships can contribute to the spread of HIV.</td>
</tr>
<tr>
<td>6 It is the male’s responsibility to make decisions in a relationship.</td>
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<tr>
<td>7 Drinking alcohol can increase my risk of getting HIV.</td>
</tr>
<tr>
<td>8 Drinking alcohol is a choice.</td>
</tr>
<tr>
<td>9 Male circumcision reduces a male’s risk of getting HIV.</td>
</tr>
</tbody>
</table>

*Assessed via Wilcoxon signed rank test; n=974 from 29 teams

(Table 1: Selected Pre/post intervention survey outcomes, all participants; "Assessed via Wilcoxon signed rank test; n=974 from 29 teams"
**Combination programming on social drivers of HIV (including education; violence; & workplaces)**

**TUPEE633 Building synergies between health and health sector:**

**Labour inspectors can play a key role**

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**Background:** Labour inspectors advise workplaces as well as ensure compliance. In both of these functions, they can play a key role in ensuring non-discrimination, enhancing access to HIV information and services for workers. The ILO has developed a Handbook on HIV and AIDS for Labour Inspectors. The purpose of the handbook is to strengthen the capacity of Labour Inspectors to effectively address HIV-related issues in the workplace. Labour Inspectors were trained by the ILO in four selected countries, including Botswana, Lesotho, South Africa and Zambia.

**Description:** Trainings of Labour Inspectors were conducted at national level. The methodology focused on five sequential steps: A pre-and post-assessment on the knowledge of Labour Inspectors regarding HIV and AIDS; development of a customized Labour Inspection Checklist/Form on HIV and AIDS by inspectors; conducting HIV and AIDS focussed labour inspections using the Labour Inspection Checklist/Form; a one-day Feedback session to allow the Labour Inspectors to report on their findings; and analysing the data/reports submitted by labour inspectors in collaboration with Ministries of Health and Labour, National AIDS Councils/Commissions; Employers and Workers’ Organizations. The ILO trained more than 130 Labour Inspectors, majority of whom were women.

**Lessons learned:** The Labour Inspectors reached more than 300 workplaces employing more than 10,000 working women and men in different sectors. Labour Inspectors are a critical resource in facilitating access to the world of work in order to revolutionize prevention to HIV and AIDS. The workplaces where Labour Inspections were conducted employ a significant number of populations that are regarded to be left behind, including young people and men.

**Conclusions/Next steps:** Majority of the workplaces reached did not have workplace policies on HIV and AIDS even though located in areas with high HIV prevalence. Some of the workers have never been exposed to HIV related services, and therefore would welcome workplace programmes that include HIV and AIDS. Collaboration with the National AIDS Authorities to agree on a plan of action will be considered. The workplace remains part of the communities that could reach men in order to facilitate increased access to HIV/AIDS and other health services.

**TUPEE634 Scaling up HIV services for workers in the agriculture sector through an integrated approach**

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**Background:** According to the Economic Survey 2017, there are 336,700 people on wage employment within the agricultural sector in Kenya. The mobile nature of agricultural sector workers, many of whom are seasonal workers, increases their vulnerability to HIV. They are often excluded from community-based initiatives and support systems, isolated in large plantations and farms with limited access to health and HIV services. The Central Organization of Trade Unions in Kenya (COTU-K) through its affiliate the Kenya Plantation and Agricultural Workers’ Union (KPAWU) has up-scaled its efforts to improve working conditions for workers in the sector in partnership with the International Labour Organization (ILO) through a HIV, Tuberculosis, social protection, Sexual and Gender Based Violence (SGBV), integrated service approach.

**Description:** The ILO/COTU-K/KPAWU partnership collaborated with AIDS Healthcare Foundation, Stop TB Partnership, National Hospital Insurance Fund and the county governments to reach workers in tea, sisal and flower plantations (some subscribed to Fair Trade Certification) in Baringo, Naivasha, Kajiado, Kilifi, and Nakuru. This partnership managed to enhance knowledge on HIV, non-discrimination and promote an enabling work environment, reaching 3831 male and 2349 female workers who were also sensitized on SGBV and importance of enrolling with social protection schemes.

The six months initiative resulted in 1415 male and 1287 female workers knowing their HIV status with 14 male and 11 female who tested positive linked to treatment. TB screening was conducted with 918 chest X-rays done for suggestive cases. 4 male and 2 female workers were diagnosed with TB with one male case being Multi Drug Resistant TB. All were linked to treatment.

**Lessons learned:**

- Plantations adhering to Fair Trade Certification provide a good entry point to promote HIV related non-discriminatory practices due to compliance auditing.

- In the absence of discrimination and harmonious industrial relations between workers and the employers, people living with HIV are more likely to disclose their status and become champions against stigma with creation of support groups at the workplace.

**Conclusions/Next steps:** Considering persisting myths and misconceptions about HIV, future interventions will focus on addressing high levels of stigma in the sector, while building linkages with county health services for HIV prevention and care.

**TUPEE635 How are economic factors and HIV risk related? A social-ecological exploration of the relationship between economic factors and HIV risk among adolescents in KZN, South Africa**

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**Background:** While South Africa has made significant progress in improving HIV prevention and treatment services, there are still high rates of new HIV infections, particularly among young people ages 15-24. The USAID-funded Accelerating Strategies for Practical Innovation and Research in Economic Strengthening (ASPIRES) project helps young people prevent HIV infection through integrated economic strengthening and HIV education programs.

We present qualitative findings from this project with the aim of examining the synergistic effects of combining HIV and economic strengthening educational programming on participants’ attitudes, behaviors, and inter-personal relationships.

**Methods:** From October 2016 to April 2017, 50 adolescents (ages 14-17, 55% girls) participated in the ASPIRES program in rural KwaZulu Natal, South Africa. Through this mixed-methods cohort study, in-depth interviews were conducted at two time points during program implementation and once more six months after the program ended. We used thematic analysis to identify and explore consistent themes across the transcripts and data collection periods. Inter-coder agreement checks were carried out by two analysts on 10% of all transcripts in order maintain consistency in definition and application of codes.

**Results:** Overall, the study found that participants gained knowledge on financial literacy and how to prevent HIV, as well as knowledge on how maintaining financial security can help protect against HIV. In addition, participants felt an improved sense of self and new hope for the future following participation in the program. Participants described having a positive outlook on their future with clear goals and the confidence to achieve them. Many described changing their relationships with others as a result of program participation.

Examples of this included an increase in respect for elders and ending friendships with peers who were not supportive of their new life vision or who participated in sexually or financially risky activities. Participants described sharing these lessons with others in their family and young people in the community.
TUPEE636

Capacity Building of sex workers community: Sex Worker Academy Africa

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Background: The Sex Worker Academy Africa is a ground-breaking learning programme for community empowerment and capacity building, led by and for sex workers. It delivers an effective blend of knowledge and experience. The Academy is presented over the course of a week, and includes workshops, site visits and advocacy sessions.

Description: The Academy brings together national teams of sex workers from across Africa to develop organisng skills, learn best practices, stimulate national sex worker movements, and strengthen the regional network. The Academy is an African Sex Workers Alliance (ASWA) initiative implemented by Kenya Sex Workers Alliance (KESWA) in Nairobi, Kenya. The Global Network of Sex Work Projects (NSWP) supported the concept of South-South learning and capacity building.

Lessons learned: The sex workers implementation tool (SWIT) is the foundation and the backbone of the sex worker academy Africa. The Academy provides sex workers with tools to advocate for and ensure that HIV and sex work-related policies, and HIV and STI prevention, treatment, care and support programming are rights-based, and designed and implemented with the meaningful participation of sex workers. At the Academy, participants acquire the skills and knowledge to influence both policy and service delivery.

Conclusions/Next steps: The SWIT recommendations require meaningful sex worker participation in all aspects of planning, implementation and monitoring and evaluation. It is informed by sex worker experiences and preferences, research, and evidence, and represents consensus between sex worker networks, UN agencies, civil society and donors.

TUPEE637

Improving HIV testing for HIV-exposed infants (HEIs) through community participation

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Background: HIV testing for HEIs is critical for early infant diagnosis, and subsequent access to care and treatment. The Zambian HIV guidelines state that children born to HIV-positive mothers are tested at 6 weeks, then 8, 12 and 18 months. Three of the Systems for Better Health-supported health facilities showed particularly low levels of HEI testing: Ngungu Centre tested 22% of HEIs at 12 months; Chikando Zonal Centre tested 33% of HEIs at 12 months; and Kayanga Health Post tested 40% of HEIs at 12 months.

Description: SBH helped these health facilities develop and implement quality improvement (QI) initiatives using the Ministry of Health’s performance improvement approach (PIA): context analysis, stakeholder analysis and engagement, defining desired performance, measuring performance, identifying and analyzing the causes of performance gaps, designing and implementing interventions, and monitoring and evaluating results. Depending on the facilities’ needs, interventions included:

- Orienting staff and community volunteers on EMCTT
- Assigning a community volunteer to each HEI to conduct follow up
- Establishing monthly appointment lists of HEIs due for testing
- Integrating HIV testing for HEIs with other activities
- Improving data management systems for tracking HEIs
- Sensitizing communities on HIV testing for HEIs through quarterly committee meetings
- Supporting consistent and accurate reporting of HIV commodities to ensure availability of test kits

Interventions were implemented over 12 months and monitored monthly using the “Exposed Infant Monthly Appointment Tool.”

Lessons learned: The facilities demonstrated remarkable improvements in testing HEIs. Nguungu Centre and Chikando Zonal Centre increased testing of HEIs at 12 months and 12 months to 100%, whereas the Kayanga Health Post reached 73.8% of HEIs tested at 12 months. These results suggest that a PIA and corresponding interventions that improve outreach, tracking, and commodity logistics help in increasing HIV testing for HEIs. The use of community volunteers to conduct follow ups on HEIs proved to be effective.

Conclusions/Next steps: The PIA can be effective in significantly improving HIV testing of HEIs, using simple and low-cost interventions. The Zambian government and cooperating partners should invest in supporting similar QI initiatives in health facilities to improve key HIV and other health indicators.

TUPEE638

Vulnerability reduction minimizes risk of STI in FSW

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Background: A study was conducted among the FSW groups in the high HIV prevalence states of India in the phase-III of Avahan India AIDS initiative, funded by Bill and Melinda Gates Foundation, implemented by Swasti, to find out the instances of STI in FSW in the last six months and the possible reasons exposing an FSW to the threat of STI. The primary imperative of phase-III has been vulnerability reduction and sustainability of the Community Organizations.

Methods: The study was conducted in five states in India with high HIV prevalence; the study included primary data collection among FSW, MSM and TG groups in these states. The outcome monitoring survey of Avahan phase III was conducted in August 2017 with a sample of 1081 FSW across these five states. The results were then analysed keeping the instances of STI in last six months as outcome variable, and taking profile characteristics, age, education, clients, income as independent variable.

Results: The scores for different variables like social protection, financial, security, safety, security and justice was calculated and independently regressed against STI status. Here was observed that FSW with high CVRICI (Comprehensive Vulnerability Reduction Intervention Coverage Index) score had less probability of having STI (AOR 0.812 CI 0.426-1.582). The profile variables like education and typology were negatively related to STI status. The FSW with better access to better security and justice options had 60% less chances of having STI. The FSW with lesser vulnerability score had less likelihood of having STI (AOR 0.403 CI 0.258-0.613).

Conclusions: Most interventions in the field of STI are clinical in nature and focuses largely on diagnosis and treatment but not prevention. This study attempts to prove that non-clinical vulnerability reduction interventions with focus on empowerment, vulnerability reduction, social and financial security can lead to STI reduction. The results of the study reflect that given the FSW are provided with institutions like access to social safety, social protection, financial security. It makes them more empowered to adopt safe sex behaviour and hence less vulnerable to STI. Collective action also plays a key role in inducting safe sex behaviour in the FSW.
TUPEE639
Can we make comprehensive sexuality education more effective? A review of 23 school-based comprehensive sexuality education programmes in sub-Saharan Africa

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Background: Good quality comprehensive sexuality education (CSE) equips young people with knowledge, attitudes and skills to engage in positive social and sexual relationships. Combined with sexual and reproductive health (SRH) services and commodities, school-based CSE is a key element of HIV prevention. As part of a long-term UNESCO endeavour to support CSE in Africa, we reviewed school-based programmes across 23 sub-Saharan countries to assess the status and inform further interventions.

Description: Using the Sexuality Education Review and Assessment Tool, we analysed data collected in collaboration with ministries of education between February 2011 and January 2016. Analysis of field interviews and teaching, learning, and training materials provided raw data to assess components such as curriculum content, teacher training, programme objectives and design, and policy environment. The tool provided a grid to rate the components against international standards and identify two per country: the weakest and the strongest. This review reported the frequency of strongest and weakest components across the 23 countries.

Lessons learned: CSE programme design is the strongest component in 8 countries, above policy-environment (7 countries, Figure 1). Curriculum content is the most frequent weakest component (10 countries), with important variations among countries. As regards content sub-components, the strongest themes were human development and youth empowerment, while relationships and SRH were most frequently the weakest component. There was a much stronger focus on life skills (8 countries), but limited attention to gender or social norms (weakest in 4 and 5 countries, respectively). Nine countries had the strongest curriculum in the 5-8 age range, but conversely 7 countries had the weakest curriculum in the same range. Curricula for the 15-18 age range were the least developed overall.

Conclusions/Next steps: Strong programme objectives and design shows that many ministries of education address the elements that make CSE effective. There is an important gap in curriculum content for the 15-18 age range, and wide variations between countries in the 5-8 range. Finally, there is a need to pay more attention to content on relationships and SRH, and on social norms and gender, in order to make life skills more relevant and effective.

TUPEE640
Effectiveness of integrated approaches to reduce HIV/AIDS among young people - a case of an integrated area based approach (IABA) concept in rural areas of Chikwawa District in Malawi

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Background: Centre for Youth Empowerment and Civic Education (CYECE) is implementing an SRHR project called: GET UP! SPEAK OUT! Which focuses on addressing harmful, cultural and religious beliefs which affect young people from accessing quality SRHR and HIV/AIDS services within their communities. This project is implemented in a consortium with 5 organisations: CAV/WDC, COLWHA, CHRR, YONECO and FPAM. The 5 year project is being funded by the Dutch Government.

Under the main goal of ensuring that all young people, especially girls and young women are empowered to realize their SRHR without fear of stigma and discrimination. The Integrated Area Based Approach (IABA) concept is a model which focuses on demarcating a particular area in a community where you would like to see change and create Zero Tolerance to New HIV/AIDS infections specifically among young people.

Description: 1. Social Mapping: analysing the working environment in Traditional Authority Lundu in Chikwawa district - identifying the existing structures and institutions for collaboration.
2. capacity building of young people, community, Police VSU & CBOs for them to continuously support project activities.
3. conducted community interface forums with community stakeholders (ie distance to facilities, attitude of service providers, lack of YYFS etc.)
4. Community Score Card process to identify existing gaps (ie distance to facilities, attitude of service providers, lack of YYFS etc.)
5. conducted community interface forums with community stakeholders and young & young people.

Lessons learned: - need to follow up on by laws against Stigma and Discrimination against PLWHA.
- IABA process helped CYECE to establish critical partners for which to work with in the fight against HIV/AIDS but also promoting access to SRHR services among young people in line with the UNAIDS targets of 90-90-90 to end HIV/AIDS.

Conclusions/Next steps: CYECE is very much convinced that the community scorecard helped in bringing out the issues as to why young especially the girls and young women do not access services from health centres in their communities & also to see the gap and how to bridge it. This will also help us to contribute towards achieving Malawi National HIV strategic Plan which highlights the need to align the national response to the UNAIDS 90-90-90 strategy for adolescent girls and young women especially those living with and affected by AIDS.

TUPEE641
‘Money was the motivator’: An evaluation of the integration of a matched-savings program into a HIV prevention program for street-connected young people in Eldoret, Kenya

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Background: We integrated a matched-savings program (MSP) conditional on attendance into an adapted HIV prevention intervention for street-connected young people (SCY) in Eldoret, Kenya. The integration of the MSP aimed to increase attendance at the program sessions, give SCY an economic boost to start an income generating activity (IGA), and secure livelihoods to reduce structural drivers of SCY’s HIV-risk. We sought to evaluate the feasibility, acceptability, and explore outcomes of the savings program.

Figure 1. Number of countries per type and strength of component
Tupee643

Community-wide implementation of positive parenting: A prevention strategy for HIV/AIDS

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Background: The Director of the Multisectoral AIDS Management Unit (MSAMU) at the City of Tshwane, South Africa, initiated consideration of a wide-reaching positive parenting programme as an HIV/AIDS prevention strategy. By strengthening parents’ capacity to deal with risky behaviour through enhancing parenting skills, improving family communication and relationships, (proven outcomes of positive parenting) and supporting better decision-making by adolescents increases parents’ ability for discussions about sexuality and prepares teenagers to make decisions that would keep them safe and could delay engagement in sexual activity.

Description: A pilot was initiated in townships and informal settlements of the City of Tshwane. 18 SWs and managers of the City and SOS Children Villages Mamelodi were trained in the 8-week Triple P - Positive Parenting Program Teen Group and delivered the programme to 300 parents between August 2015 and October 2016. The programme was delivered at six communities.

Local “community health workers” were engaged in the programme as peer educators to recruit and support parents. The project was supported by a partnership between City of Tshwane, Ubuntu Parenting Family and Youth Institute South Africa and Triple P International with University of Queensland providing evaluation support. The evaluation suggests that the Triple P Teen group program has the potential to significantly strengthen family relationships and communication, parent’s confidence and competence and teenagers dealing with risky behaviour. This will strengthen the capacity of the family to deal with risky situations and prevent early sexual activity.

Conclusions/Next steps: The programme had significant positive outcomes on the behaviour of parents and teenagers and high satisfaction with the programme as illustrated by the evaluation results. Families typically included children of broader age range than teens, suggesting the programme should address 0 - 16. Practitioners evaluated the program as effective and useful, however a limited number delivered the programme. This speaks to the importance of supervisory and organisation support in implementing a new programme.

Tupee642

Feasibility and acceptability of integrating intimate partner violence screening and counselling into community HIV testing and counselling services in Kenya

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Background: HIV and intimate partner violence (IPV) are commonly co-occurring epidemics affecting the health of women globally and especially in sub-Saharan Africa. This study aimed to assess the feasibility and acceptability of integrating IPV screening and counselling into community based HIV testing services (CHTS) in Kenya.

Methods: This study employed a mixed qualitative and quantitative design and was implemented between August and December 2017 in three community testing facilities. A total of 332 women aged 18 years and older and 12 HIV testing counselors who gave consent were enrolled. The intervention involved IPV screening using a WHO adapted tool and brief counselling for women who report experience of IPV by counselors who had undergone a three day training. A subset of 37 women were purposively selected for in-depth interviews to assess acceptability of the IPV screening and counselling; and with 12 counselors to assess feasibility of integration of the services into HTS. A focus group discussion was conducted with the counselors to identify gaps in the IPV training curriculum. Frequencies were used to describe the characteristics of the study participants and to measure acceptability. Thematic analysis was conducted with the aid of NVIVO 10 software.

Results: Majority of the women (321/322) accepted to undergo IPV screening. Most (319/322, 61%) rated screening and counselling services as good and were willing to discuss their experiences with the HIV counselors. Majority, 282(85%) said the time taken to screen and counsel was adequate (15 to 30 minutes). The providers found the additional time to screen and counsel reasonable. However, some found the screening questions difficult to explain and translate into local language and noted that a single counselling session was not sufficient. With regards to knowledge and skills, most providers felt that the IPV training equipped them to provide effective screening and counselling services.

Conclusions: This study provides evidence that supports the integration of IPV and HIV services particularly in Sub-Saharan Africa where the two public health problems are still highly prevalent. For successful integration facilities require: a simple screening tool and well trained HIV service providers on IPV identification and IPV counselling services.

Tupee644

Integrating HIV prevention services in residential and support services for women in crisis: What works for women in Ukraine?

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Background: Many women in crisis due to violence, homelessness, displacement, or sex work need residential, legal and socio-psychological support. Research has demonstrated that many of crisis’s drivers are linked with increased risk of HIV infection (i.e. violence against women).
Delivering gender transformative programmes and tackling violence against women and girls: programmatic lessons

TUPEE645
Child marriage, HIV and young people: An appeal for a strong alliance

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Background: At present (2016-2020) we are engaged in an alliance combating child marriage, teenage pregnancy and female genital mutilations/cutting (Yes I Do) in 7 countries among which some with high HIV prevalence among girls and boys. We also collaborate with other child marriage alliances and till now HIV seems to be hardly prioritized in the discourse of preventing girls from becoming young brides and mothers. This is an omission in the Theory of Change, pathways of change and interventions. Here we make a plea for integrating and building alliances between HIV and child marriage interventions.

Description: Yes, I Do interventions include community mobilization, meaning full participation of young people, increased access to social and health services, economic and educational empowerment and legal advocacy. Young girls and boys are the main target group as well as their social environment in all layers of the community. Gender transformative approaches and engagement of men are crosscutting; boys and men are not seen as part of the problem but as part of the solution.

Lessons learned: Working with 5 pathways is effective: Young people are both victims as well as agents of change, eager to be informed to give better shape to their lives. Child marriage and divorce after child marriage make them vulnerable, teenage pregnancy is a silenced problem, no attention seems given to the risk of HIV or STI infections. Child marriage interventions and health programs are operating in parallel atmospheres.

Conclusions/Next steps: In child marriage programs attention needs to be given to HIV prevention, treatment and care while in HIV programs providers need to become aware of extra vulnerabilities such as child marriage and consequences. Only then both programs become more effective. Support clubs for girls and boys, combined comprehensive sexuality education information in and out of school and training health service providers facilitate the strong link between child marriage and HIV interventions. This will be essential for realizing SDG 3 and 5.

TUPEE646
Mberekö+Men: Innovative model for male engagement in PMTCT and family health in rural Zimbabwe

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Background: Zimbabwe has an adult HIV prevalence of 14.6%. Male partner involvement is associated with improved PMTCT and maternal/child health service uptake and outcomes. Little is known about the most effective approaches for engaging men in gender transformative programs for PMTCT and family health in high prevalence settings, including men’s needs and priorities for family health. We present implementation evidence and key lessons from engagement of rural men in men’s dialogue sessions and development of men’s Family Health Charters in the Mberekö+Men Program in Zimbabwe.

Description: The Mberekö Model is a multi-component community-based strategy for engaging women in empowerment support groups for PMTCT and family health in rural Zimbabwe. Since 2011, over 863 Mberekö women’s empowerment groups have been formed in geographical catchment of 46 clinics in 3 provinces of Zimbabwe with over 14,000 members. Based on community and Mberekö mother feedback, the model evolved to Mberekö+Men in 2016 to include men’s facilitated dialogues in the geographical catchment of 4 rural health facilities, in Mutasa District, Manicaland Province.

Lessons learned: Since September 2016, the Mberekö+Men project has created 30+ men’s dialogue forums with 781 participating men. Dialogue forums explore men’s needs and preferences around 10 key topics, mirrored to information provided to women in Mberekö groups. Each men’s meeting results in development of a consensus-based commitment or ‘resolution’ of men to support family health in a community-held Men’s Family Health Charter. Routine facility data demonstrates male partner participation in ante natal care and male partner testing in ANC are significantly higher in Mberekö+Men project areas above national targets (47% and 33% respectively).

<table>
<thead>
<tr>
<th>Broad Theme</th>
<th>Men’s Family Health Charter Resolutions</th>
<th>No. of Charters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men’s role in family health</td>
<td>- Men to accompany their pregnant wives for ANC booking before 12 weeks of pregnancy - To plan, discuss and share ideas on how money and other resources are used in the family</td>
<td>30</td>
</tr>
<tr>
<td>HIV prevention for mother, father and baby</td>
<td>- Couples to have HIV testing together - Responsible fathers disclose HIV status to partners - Open discussion of condom use and sex during pregnancy and postnatal</td>
<td></td>
</tr>
<tr>
<td>Health of mother and baby during pre and postnatal</td>
<td>- Share household chores and give partner time to rest - Share childcare and participate and play with young children</td>
<td></td>
</tr>
<tr>
<td>Birth and importance of birth preparation</td>
<td>- Support partners with developing a birth plan and preparations - Accompany wife to facility and be present during delivery</td>
<td></td>
</tr>
<tr>
<td>Postnatal HIV care and family planning</td>
<td>- To ensure that the whole family is tested for HIV even if they are well, not only partners (Family HIV testing) - Demystify condom use in married couples and use it as a dual method of family planning - Support exclusive breastfeeding - Promote open discussion of reproductive health including sex in married couples - Share responsibility for family planning - Help bring child to clinic for routine check-ups/illness</td>
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(Men’s Family Health Charter Resolutions)
Conclusions/Next steps: Mbereko-Men has been an effective model for engaging men in a conservative, rural population in Zimbabwe in transformative dialogues regarding family health, roles, and support. The Zimbabwean Ministry of Health and Child Care have adopted and costed the Mbereko-Men model as part of “community outreach events” in the “The Plan for Elimination of Mother to Child Transmission (eMTCT) of HIV & Syphilis in Zimbabwe 2018-2022”. Future research seeks to establish family health outcomes including MTCT, in Zimbabwe’s drive to eMTCT.

TUPEE647
Creating a continuum of care for survivors of gender-based violence: Evaluation of a mobile phone-based referral system in Botswana
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Background: Gender-based violence (GBV) is a critical risk factor for HIV infection. Reducing GBV and HIV is an urgent priority in Botswana. MEASURE Evaluation collaborated with the Government of Botswana Gender Affairs Department and USAID Botswana to implement a pilot of a GBV Referral System (GBVRS). The GBVRS included a Referral Information System (RIS) which uses simple mobile technology to facilitate referrals and track GBV cases through multiple sectors; provider training to ensure high-quality GBV care; relationship strengthening between providers; and community mobilization to reduce GBV acceptability and increase awareness of services.

Methods: We implemented a 12-month pilot of the GBVRS. To evaluate the pilot, service provider interviews (n=117) and community member focus groups (n=65) were conducted in intervention and control communities at two time points. Data from 12 months of RIS usage, key informant interviews (n=7), and monitoring reports from implementing partners were also analyzed. Dedoose was used for qualitative analysis.

Results: At endemic, providers in intervention areas reported greater trust in fellow service providers, confidence in identifying GBV cases, and understanding appropriate protocols compared to those in control communities. Between August 2016-July 2017, 401 GBV cases were entered in the RIS. Of the cases logged, 33% (n=134) were provided with a referral and 30% (n=41) of referrals were completed. RIS uptake was uneven between sites and provider type. Challenges noted were adopting new technologies, clinical and psychological violence in 1 case (0.2%). Daily rate of care seeking increased from 0.10 to 0.13 events per day with a rate ratio of 1.33 (CI 1.11, 1.61; p=0.022). During the post-intervention period, 73% of GBV cases remained untreated (vs. 52% in the pre-intervention; p=0.027). 117 completed (28 days) PEP (vs. 21% pre-intervention; p=0.004) and 57% of eligible survivors initiated PEP (vs. 86% pre-intervention; p=0.07); 71% completed an HIV test at one-month (vs. 21% pre-intervention, p=0.036). No improvement was found in survivors’ three- or six-month HIV testing. Conclusions: GBV campaign activities contributed to significant improvement in the rate and promptness within 72 hours of care seeking, as well as completion of PEP medication. Our findings highlight the impact of awareness-raising campaigns and need for further clinical support to ensure patient follow-up.

TUPEE649
Improved services, health seeking behavior, and outcomes for gender-based violence survivors, including post-exposure prophylaxis (PEP) in rural Zambézia province, Mozambique
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Background: Gender-based violence (GBV), including physical, psychological, and sexual assault (SA), represent a significant public health issue. In Zambézia, Mozambique, “one-stop” care models were established at nine district health facilities (HF) by late 2015, creating a single entry point for GBV-related services, but low numbers of people seeking care have limited the impact on health for survivors.

Methods: In January 2017 we initiated a campaign to improve the number of GBV survivors who seek care at the health facility. We conducted theater presentations and lectures to educate community members about the importance of seeking immediate care for GBV and provided a 4-day training to service providers (followed by regular clinical mentoring) to reinforce GBV treatment protocols. We also introduced a home-based care system to follow up patients who did not return for repeat HIV testing. We compared pre- (July 2016 - January 2017) vs. post-intervention (February - September 2017) patient characteristics using Pearson and Student’s t-tests. We employed a negative binomial model to assess change in rate of care seeking.

Results: From July 2016 to September 2017 we compiled data on 473 GBV events at nine HF. Patients were primarily female (90.5%), married (47.7%), and with a mean age of 23 years (SD 12.4). Physical violence was reported in the majority of cases (383/811, 47.3%). SA in 89 cases (18.8%), and psychological violence in 1 case (0.2%). Daily rate of care seeking increased from 0.10 to 0.13 events per day with a rate ratio of 1.33 (CI 1.11, 1.61; p=0.022). During the post-intervention period, 73% of GBV survivors sought care within 72 hours (vs. 51% pre-intervention; p=0.001); 100% of eligible survivors initiated PEP (vs. 86% pre-intervention; p=0.07); 71% completed (28 days) PEP (vs. 21% pre-intervention; p=0.004); and 57% completed an HIV test at one-month (vs. 21% pre-intervention, p=0.036). No improvement was found in survivors’ three- or six-month HIV testing. Conclusions: GBV campaign activities contributed to significant improvement in the rate and promptness within 72 hours of care seeking, as well as completion of PEP medication. Our findings highlight the impact of awareness-raising campaigns and need for further clinical support to ensure patient follow-up.

Social protection: new evidence and programmatic lessons
TUPEE649
Human rights documentation and advocacy program in Myanmar: Ending discrimination against PLHIV and key populations through scaling up their capacity to advocate for themselves
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Background: Asia Catalyst (AC) programs and activities through 2011-2016 in Myanmar revealed few community-based organisations (CBOs) have sound organizational management and skills to effectively advocate, thereby limiting communities’ ability to achieve advocacy goals. AC’s baseline data showed limited understanding among CBOs of in-
international rights frameworks, documentation skills, or evidence-based advocacy. Equipping and upscaling skills of local through a long-term sustained approach was vital. Development partners in the country continued.

**Description:** 4community leaders from 4CBOs representing WLHIV, sex workers, LGBT and PUD participated in series of workshops. The workshops, designed through participatory peer-to-peer learning approach, centered on community-lived experiences and local contexts. Participants developed qualitative tools for powerful evidence collection. CBOs received sub-grants to conduct rights documentation and advocacy on access to discrimination free SRHR services for WLHIV and sex workers, access to drop-in-centers for PUD and end of arbitrary arrest of LGBT persons.

**Lessons learned:** Grassroot CBOs while having limited skills in organizational planning and advocacy plays instrumental role in service delivery. There is limited ability to identify and use the opportunity presented by service delivery work to advance advocacy goals they are seeking. CBOs need support to identify opportunity within their existing work plans to integrate sustained knowledge sharing exercise and advocacy skills enhancement of the community. However, CBOs also have limited human and other resources posing challenges in prioritizing sustained knowledge building and policy advocacy roles. Despite this, communities recognize the importance in engaging in dialogues for structural reforms where their issues are highlighted. Creating a safer space for communities to freely share, learn and strategize is important.

**Conclusions /Next steps:** During this democratic transition in Myanmar, as the country is reviewing archaic laws or drafting new ones that will have long-term impact, community engagement is critical. There are opportunities for this engagement for the CBOs. There are ever increasing civil society movements, including experienced advocates who were in exile during the previous government, and continued donor interests in capacity building, advocacy and services delivery. For a truly community-led advocacy engagement to ending discrimination, stigmatization and criminalization of marginalized communities requires sustained long-term support, including investment in creating enabling environment for effective advocacy for their rights.

**TUPEE650**

**Tracking HIV-sensitive social protection strategy implementation: Policy implications**

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**Background:** The 2016 Political Declaration on Ending AIDS encourages Member States to strengthen national social and child protection systems to ensure that by 2020, 75% of people living with, at risk of or affected by HIV benefit from HIV-sensitive social protection (2). UNAIDS is mandated to support countries in monitoring and reporting on progress towards global AIDS commitments adopted through the 2016 Political Declaration on Ending AIDS (and previously the 2001 Declaration of Commitment on HIV/AIDS, the 2006 Political Declaration on HIV/AIDS, and the 2011 Political Declaration on HIV and AIDS), with the objective of identifying progress, challenges and constraints in the AIDS response.

**Methods:** Data on social protection policies and mechanisms are reported by national authorities and civil society through the UNAIDS Country Offices using the National Composite Policy Instrument (NCPI).

**Results:** Of the 114 reporting countries that submitted the social protection data, 91 countries (80%) have a social protection strategy that includes all 6 of an HIV-sensitive social protection strategy implemented that includes all 6 of an HIV-sensitive social protection strategy. 9 countries (8%) have a social protection strategy that is not being implemented, and 14 countries (12%) do not have an approved social protection strategy.

**Conclusions:** Countries are failing short of meeting their commitments on social protection. Key populations and unpaid work in the context of HIV remain key areas of focus in increase the HIV sensitivity of social protection. More research is needed to understand the design features that will lead to more HIV sensitive social protection programmes.

**TUPEE651**

**Caregiver participation in savings and internal lending communities improves the vulnerable household wellbeing and increases HIV testing**

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**Background:** Nigeria has a high HIV burden with 2.9 million people living with the virus. Caregiver’s inability to meet the basic needs of orphans and vulnerable children (OVC) negatively affects their wellbeing and increases their vulnerability to HIV. To ensure vulnerable caregivers (VC) had reliable income to meet the needs of OVC, Catholic Relief Services-led Sustainable Mechanism for Improving Livelihoods and Household Empowerment (SMILE) project used a savings group methodology called savings and internal lending communities (SILC) to strengthen the household economy and build resilience of VC. Between 2015 and 2017, 1,148 SILC groups were formed comprising of 24,794 members (17,896 women and 6,898 men) including SMILE participants and other community members. By 2017, the groups accrued total assets worth over N446 million (approximately USD 266,000). The purpose of this study was to determine if OVC caregivers participating in SILC had better outcomes than non-participating caregivers.

**Methods:** The study administered a structured questionnaire to a random sample of 2,105 caregivers and 3,038 children who received project services across five states in Nigeria. Dependent variables of interest include HIV testing and progression in school. Multivariate logistic regression was used to assess associations between participation in SILC and wellbeing outcomes while controlling for potential confounders.

**Results:** The result showed the adjusted odds of female children 10-17 years progressing in school were 3.77 times greater if their caregivers were SILC participants compared to female children whose caregivers who were not SILC participants (p< 0.01). There were no differences in school progression for male children by SILC participation. Similarly, the odds of caregivers knowing the HIV status of their female children (10-17 years) was 1.89 times greater compared to caregivers who were not SILC participants (p< 0.05). There was no association between caregiver knowledge of their male children’s HIV status and SILC participation.

**Conclusions:** SILC intervention strengthened the economy of caregivers with a positive effect on caregivers’ ability to meet their children’s needs. Integrated activities have reinforcing effect notably on the uptake of HIV testing among caregivers who participated in SILC.

**TUPEE652**

**Economic empowerment for key populations: potential for HIV prevention**

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**Background:** The burden of HIV is highest among low income countries, sub-Saharan Africa (SSA) contributes 71% of new HIV infections (UNAIDS, 2014), which has previously been aged to have a close correlation with the poverty levels in SSA. Kenya’s HIV Prevalence is 6.0% with 29.3% HIV prevalence among sex workers. Nairobi has the highest number of SWs, with a population estimated at 45,000 SW. Sex workers are also among groups who are economically underprivileged, with majority living in low socio-economic areas and at the fridges of the society.
Background: India has an estimated 2.1 million People living with HIV in which 1.16 million on ART. Poor awareness, low demand, social apathy, systemic flaws, procedural delay and stigma and discrimination is big hindrance in enrollment and access of social protection benefits. Women and Children (< 15 years), which constituted 39% and 7% of estimated 2.1 million PLHIVs, are more vulnerable and standing far behind in availing social protection benefits.

Methods: National AIDS Control Organization (NACO) along with State and district administration particularly District AIDS Prevention Control Units (DAPCU) adapted community centric approaches to coordinate with government, autonomous institutions, civil society for enabling HIV sensitive social protection benefits. Following NACP IV mandates of ensuring social protection for PLHIVs; ‘DAPCU led single window model on social protection’ was piloted and scaled up in 186 high prevalent districts with support of UNDP.

Joint advocacy have taken place for HIV sensitive social protection. 142 directives were issued by Government. Compendium of government organizations, social protection web portal, demand generation toolkit are made available and have used for demand generation, demand aggregation, quality assurance and grievance redressal.

Results: Uptake of social protection schemes by community increased. Priorities given to widow, orphan children for nutritional support, free transport, financial assistance, shelter, insurance, legal aid etc. Access of social protection improved positively in improving qualities of lives of PLHIVs particularly women and children, prevent further indulgence in risky behavior. Wide variety of schemes were established in various facilities to aware community and develop confidence and make independent decisions.

Conclusions: Single window model is economically and programmatically viable option that enabled environments for sensitive policies, social protection schemes, reduces stigma & discrimination, secured human rights and paved way to lead lives of PLHIV with dignity.

TUPEE654
What is different? Lessons learned from the National Strategic Framework (NSF) 2017-2021 development process in Nigeria

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Background: Traditionally the development of HIV/AIDS strategic plans in Nigeria has followed a top down approach due to the Federal nature of governance and perceived capacity gaps at sub-national levels. The federal level coordination agency leads the reviews of the HIV response and develops the National Strategic Framework (NSF) that guides the development of the National Strategic Plan (NSP). State level coordination agencies then derive state strategic plans (SSPs) from the NSF. Over the last two cycles of the strategic planning process, it has been observed that this approach has led to products that were non-responsive to the state epidemic status, capacity and available resources. Thus most SSPs were inadequately implemented due to poor ownership and resourcing and never seemed to guide implementation.

Description: This informed the adoption of a different methodology in developing the NSF 2017-2021. A team of consultants, staff from the National Agency for the Control of AIDS (NACA) and the Federal Ministry of Health (FMoH) worked to develop and finalize the NSF 2017-2021. The team developed comprehensive guidance notes to guide development of sub-national plans by states. The guidance notes identified priority thematic areas, suggestive list of interventions and a Microsoft Excel based costing tool with standard unit cost. State coordinating agencies constituted technical teams to lead the development of SSPs. State teams were trained on the guidance notes and NACA staff drafted to the states to provide hands-on support to states to develop their SSPs. Sub-national plans developed were then consolidated into the NSF 2017-2021.

Lessons learned: The new approach ensured that SSPs were responsive to the state epidemic and set targets were reflective of the resources and capacity in the states. It allowed states to prioritize interventions and activities appropriate to local context, epidemiological data and evidence of what works as a sub-set of overall country priorities. It enhanced the capacity of NACA staff to support the strategic planning process thus reducing cost of hiring consultants. Also states capacities were developed, and ownership of the state plans assured.

Conclusions/Next steps: Implement SSPs at state level and the NSF at national level and put in place tools to track their implementation.

TUPEE655
Impact of drought on HIV response and interventions in arid and semi-arid regions of Kenya

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Background: Tremendous progress has been made in controlling and reversing the HIV trend in Kenya. However, despite the significant progress, there remains a high new HIV infection rate among young people and key populations. Further, the HIV response in arid and semi-arid areas which experience cyclical drought and accompanied high levels of food insecurity and malnutrition remain a concern. With the well-established links between malnutrition, food insecurity and HIV, a good number of PLHIV and their households are classified as food insecure with high levels of negative coping mechanisms.

Further, gaps are experienced in service delivery with nutrition and HIV services often offered separately and gaps persist in prevention of...
mother to child transmission, antiretroviral treatment coverage, and in the coverage and distribution of health facilities and personnel.

Methods: A mixed methods research approach was used in data collection in Kilifi, Turkana and Kitui counties. Three comprehensive care clinics (CCCs) from each county were selected as the entry point. 1,272 children aged 2 to 14 years, adult men and women were sampled. Household Dietary Diversity Score (HDDS) was assessed using a 24-hour recall period. Household Food Insecurity Access Scale (HFIAS). Coping strategies, Coping Strategy Index (CSI) and levels of malnutrition were assessed using BMI and Z scores. Data was stripped and analyzed theoretically using SPSS v24.

Results: Drought affected access to HIV care, treatment and adherence. PLHIV prioritized food over accessing medicine. Food scarcity also forced PLHIV to skip or discontinue medication. Ignorance was noted on PEP, PrEP, female condoms use. There was increased risk of HIV transmission through transactional and commercial sex, gender-based violence and disruption of social networks. PLHIV adopted strategies to cope with the effects of drought including controlled food consumption, reduced portion sizes, reduced number of meals, and relied on less preferred foods.

Conclusions: Strengthened inter-sectoral linkages between nutrition, HIV, WASH and communicable diseases in coordinating drought responses that are cost-effective are needed. Consideration of mixed livelihoods when designing drought response and resilience programmes can be used as a strategy to build resilience into communities to reduce outays on emergency responses.

TUPEE656
Facilitating outreach services for PLHIV: Experience from the Global Fund-supported Vihaan programme in Hyderabad, India

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Background: Facilitating outreach services for PLHIV is important to ensure effective treatment adherence, improves quality of life and ensures access to services for people living with HIV (PLHIV) through its 350 community-based Care & Support, Hyderabad, India, 4India HIV/AIDS Alliance, New Delhi, India

Results: A cohort of 34,528 PLHIVs were recruited for the programme and followed for four years (at least once in 6 months) with Vihaan intervention. Client data were collected using Client registration form for baseline and the follow up service data were collected and documented over the period of 4 years. For analysis, the clients who had been followed-up in the last one year and received services including social protection) can be replicated with further testing of significance.

Methods: Using quasi-experimental design, we sought to find out if peer educators (PEs) distributing HIV oral-self testing (HIVOST) increased FSW enrolling into DiCEs versus routine programming. We conducted the study from February 2016 - May 2017 in eight sites spread in four regions, all with high HIV burden and attributing to 88% of Kenya’s FSW population. Two DiCEs in each region were randomly selected. The intervention phase involved PEs distributing HIVOST at hot-spots, linked to the selected DiCE, to FSW who had never sought HTS or last tested over six-months, and subsequently confirming their HIV status at the selected DiCE after using HIVOST. In the control phase, PE referred an equivalent FSW population from the same hot-spots to the selected DiCE for routine HTS. In each region, one site started with the 6-months intervention phase, 3-months wash-out period to wane-off the effects of HIVOST, and 6-months control phase (Group-1), while the other site started with the control, wash-out, and intervention (Group-2). The choice of the different starting times was to spread the distribution of HIVOST to cover different months as the intensity of sex work is known to vary throughout the year. We used Stata for analysis and accounted for the study design.

Conclusions: Strengthened inter-sectoral linkages between nutrition, HIV, WASH and communicable diseases in coordinating drought responses that are cost-effective are needed. Consideration of mixed livelihoods when designing drought response and resilience programmes can be used as a strategy to build resilience into communities to reduce outays on emergency responses.

TUPEE657
The role of oral-HIV self-testing in enrolment of female sex workers into comprehensive HIV programmes in Kenya

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Background: Female sex workers (FSW) enrol to receive comprehensive HIV, STI and reproductive health services at Drop-in Centres (DiCEs) - FSW dedicated clinics/safe spaces. Enrolment entails registering and HIV testing service, and is the entry point to DiCE services. However, enrolment and subsequent utilization of services at the DiCEs are known to be sub-optimal.

Methods: Using quasi-experimental design, we sought to find out if peer educators (PEs) distributing HIV oral-self testing (HIVOST) increased FSW enrolling into DiCEs versus routine programming. We conducted the study from February 2016 - May 2017 in eight sites spread in four regions, all with high HIV burden and attributing to 88% of Kenya’s FSW population. Two DiCEs in each region were randomly selected. The intervention phase involved PEs distributing HIVOST at hot-spots, linked to the selected DiCE, to FSW who had never sought HTS or last tested over six-months, and subsequently confirming their HIV status at the selected DiCE after using HIVOST. In the control phase, PE referred an equivalent FSW population from the same hot-spots to the selected DiCE for routine HTS. In each region, one site started with the 6-months intervention phase, 3-months wash-out period to wane-off the effects of HIVOST, and 6-months control phase (Group-1), while the other site started with the control, wash-out, and intervention (Group-2). The choice of the different starting times was to spread the distribution of HIVOST to cover different months as the intensity of sex work is known to vary throughout the year. We used Stata for analysis and accounted for the study design.

Results: Overall, 1,415 FSW were enrolled. During the intervention phase, 900 FSW were enrolled, and 515 during the control phase. The proportion of Intervention phase enrolment was significantly higher compared to the control phase (48% vs 18%; p< 0.001). Similar independent results were observed for group-1 and group-2. Adjusting for DiCE characteristics (urban/rural and work load) and study phases, enrolment likelihood was significantly greater in the intervention phase compared to the control phase (adjusted odds ratio-8.44, 95% confidence interval-6.04-14.1).

Conclusions: This study suggests that HIVOST improves FSW enrolment to DiCEs and uptake of HIV, STI and RH services.

Innovations in behavioural data collection and use

TUPEE658
Innovative, technology-driven methodologies to collect qualitative data among youth

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Background: In-person methods for collecting qualitative data from youth to inform intervention development traditionally involve focus groups, in-depth interviews and advisory boards (YABs). While these proven methodologies have strengths, youth engagement can be limited by structural barriers (e.g. lack of transportation, inconvenient tim-
TUPEE659

Estimating over-reporting in condom use among Senegalese sex workers

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Background: Social desirability bias, that is the tendency to under-report socially undesirable health behaviours, significantly distort information on sensitive behaviours gained from self-reports. As a result, self-reported condom use among high-risk populations is systematically over-reported. The main objective of the paper is to test whether the list randomization is an effective method to estimate misreporting in condom use among female sex workers and to identify factors associated with condom use.

Methods: We used a list randomization and a secret vote to indirectly elicit condom use among 805 female sex workers surveyed in 2015 and 2017 in Senegal, a country where sex workers face high social stigma and a high risk of HIV/AIDS infection.

Results: Based on the list randomization, we find that the condom use rate in their last sexual intercourse with a client is 80% (79%) in 2015 (2017), which is significantly lower than the 97% obtained when self-reported. The secret vote method estimates a condom use of 88%. When estimating condom use among sub-groups, we find that condom use among HIV positive female sex workers is only 31%, which is 46 points lower than the condom use in HIV negative FSWs. However, we did not find any significant difference in condom use among sex workers who were enrolled in the PEP demonstration project.

Conclusions: Our study confirms that, unlike the secret vote method, a well-designed list randomization is an inexpensive and an easy method to implement in order to elicit condom use among high-risk groups in low-income countries.
Big data: an untapped opportunity?

TUPEE661
Rapid population size estimation of online men who have sex with men using Facebook marketing data in India

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Background: Population size estimates (PSE) are used by key population (KP) HIV programs to plan implementation and measure progress toward targets. However, it’s challenging to estimate sizes of KPs not linked to known networks or physical venues. Programs need a way to quantify the reachable/accessible population, including those not present in physical venues.

Methods: Between September and October 2017, the USAID- and PEFPAR-supported LINKAGES project in India used a new method to rapidly enumerate online men who have sex with men (MSM) leveraging publicly available marketing data on Facebook and short online surveys on Survey Monkey to refine estimates useful for programming.

Results: Using Facebook’s ad manager, there are 16.5 million adult male profiles in the program’s catchment areas of Mumbai, Thane, Pune, and Vijayawada and 268,000 profiles if restricted to profiles indicating “interested in” men. A survey advertised to those profiles acquired 29 respondents, 34% reporting MSM behavior. A similar survey more widely distributed to MSM through ads and social media postings acquired 318 MSM respondents and found 72% do not specify “interested in” men on their Facebook profile. These data were used to estimate 325,428 Facebook profiles used by MSM in the 4 geographies, representing 318 MSM respondents and found 72% do not specify “interested in” men in their Facebook profile. These data were used to estimate 325,428 Facebook profiles used by MSM in the 4 geographies, representing 318 MSM respondents and found 72% do not specify “interested in” men in their Facebook profile. These data were used to estimate 325,428 MSM respondents and found 72% do not specify “interested in” men in their Facebook profile.

Conclusions: Leveraging Facebook’s marketing data is a promising approach for assessing the size of online markets for KP HIV services - a new way to complement existing PSE approaches quickly and affordably. The approach can be adapted for other settings/populations by identifying the attributes on people’s social media profiles which predict whether they are KP members and then refine based on the accuracy of that attribute and its expression among the target audience. The method is still being developed and needs to be tested rigorously with better quality surveys to establish proof of concept.

TUPEE662
Technology based solution improves HIV testing reported by private facilities in the States of Tamil Nadu and Kerala, India

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Background: Reporting of HIV testing by private health sector is a challenge due to lack of policy for mandatory reporting in India. A large proportion of pregnant women deliver in private facilities in Tamil Nadu (41%) and Kerala (75%). Svetana, a GFATM funded program was implemented to engage with 4177 private maternity facilities in the two states to increase PMTCT coverage. Collecting monthly HIV testing reports from these facilities was challenging as a limited number could be visited and report collection over phone was time consuming and unreliable. A technology based solution was introduced in both states to facilitate correct and consistent reporting of HIV testing directly by the private facilities.

Description: HIV Pulse was a simple application for online, SMS or mobile based reporting system was developed, tested and rolled out by SAATHII in 2016-2017. Private facilities that agreed to share reports of monthly HIV testing were registered in HIV Pulse. Indicators for reporting were number of pregnant women and general clients tested and found reactive for HIV and Syphilis. Between April 2016 and December 2017, 2332 private facilities were registered in HIV Pulse and 56% started reporting regularly.

Lessons learned: HIV Pulse contributed to 93% (82300 to 1,58,988) increase in reporting of HIV testing over a six month period. The number of HIV testing reported through HIV Pulse was significantly (75% to 100%) higher compared with testing data collected over phone. SMS reminders and in some cases phone based follow up with facilities helped to improve regularity and consistency of reporting. Facility staff found reporting in HIV Pulse to be simple and less time consuming for sharing of monthly reports. Reporting in HIV Pulse required involvement of the facility in charge which was considered more authentic.

Conclusions/Next steps: Simple technology based solutions such as HIV Pulse can significantly increase private health sector reporting of HIV testing in India. This solution is being scaled up across 22 states of India in partnership with the Government PMTCT program.
Innovative approaches to track individuals

TUPEE663
Constructing a treatment cascade from routine laboratory data for HIV PCR positive children in two districts in South Africa

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Background: Retention-in-care is associated with improved virological control and survival amongst HIV-infected children. Using routine laboratory HIV test data, we followed the retention-in-care and virological outcomes of HIV-PCR positive children aged < 18-months in one urban and one rural district in South Africa.

Methods: HIV-PCR positive results of children tested between April 2015-May 2016 from Tshwane (urban) and uMkhanyakude (rural) districts, were extracted from the National Health Laboratory Service’s Corporate Data Warehouse (CDW). HIV test data (PCR, viral load (VL), CD4) are routinely collected into the CDW to facilitate near real-time monitoring. For each child, HIV test data were collected for 113-months after the initial PCR positive result using both an automated patient-linking algorithm and manually searching demographics within the CDW. Test-sets were linked if ≥2 demographics (surname, name, date of birth, folder number) matched exactly. Programmatic indicators evaluated included age at HIV diagnosis, result return-rate and retention-in-care at 6 and 12-months.

Results: 304 and 94 children tested HIV-PCR positive in Tshwane and uMkhanyakude, respectively. Median age at HIV diagnosis was 2.3-months (IQR: 0.1-6.7) for Tshwane and 3.6-months (IQR: 1.4-7.2) for uMkhanyakude. In Tshwane, 218 (72%) children with an initial HIV-PCR positive result returned for their result; 192 (69%) had a confirmatory HIV test; 58 (31%) were retained in care at 6-months; 50 (14%) had a VL test and 21 (8%) were virologically suppressed. 40 (13%) children returned in care at 6-months had subsequent follow-up. In uMkhanyakude, 73 (78%) children returned for their result after testing HIV-PCR positive; 59 (63%) had a confirmatory HIV test; 30 (32%) were retained in care at 6-months; 25 (27%) had a VL and 15 (16%) were virologically suppressed. 38 (13%) children retained-in-care at 6-months had subsequent follow-up.

Conclusions: We demonstrate the value of routine laboratory data for constructing a treatment cascade of HIV-infected children. Data demonstrates high drop-off rates immediately following first HIV-PCR positive result, with loss-to-follow-up of up to 70-80% by 6-months. However, once children present at 6-months, subsequent drop-offs of only 6-10% were seen at 12-months. Strengthening systems for tracking HIV-infected children in the first 6-months of treatment must be prioritized for enhanced monitoring and improved retention-in-care.

TUPEE664
Repli cating the success: Using an HIV model of Peer Driven Intervention (PDI+) to increase TB new case detection in Cambodia

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Background: Cambodia has made great strides in tuberculosis (TB) control and achieved the Millennium Development Goals (MDG) target to halve TB deaths and prevalence by 2015. However, new case detection and treatment coverage remain a challenge. To increase new case detection rates, KHANA, under support of the national TB program, has implemented an innovative approach that was adapted from HIV model of peer driven intervention (PDI+) that was successfully employed in new HIV case detection.

Description: In 2017, KHANA was awarded a grant from TB Reach Wave 5 to implement the Community-based Innovations for Revitalized TB Active Case Finding (ACF) for Improved Detection and Linkage to Treatment. The existing KHANA’s community HIV infrastructure and networks, allowed us to integrate, mainstream and build synergy among key stakeholders at grassroots levels. The project has been implemented in four Operational Districts from August 2017. Three approaches were used for the intervention:

1) snowball active case finding (ACF),
2) integrated active case management (IACM); and
3) community mobilization for sustainability.

Lessons learned: Working with community lay counselors, seeds and recruits have been identified. These included former people with TB and family contacts. They were given a coupon if agreed to be a seed and another five coupons to refer their peers. The eligibility screening tools and TB risk evaluation using a multi-TB symptom questionnaire were used to screen the participants. A TB pre-counseling and consent form were completed for TB screening. As the result, by January 2018, 2,732 of people coming with a coupon were verbally screened and met TB risk criteria, and all of them were tested for TB. In total, 644 people were diagnosed of TB (all form of TB), yielding a positivity rate of 23.3%. The majority of the positive cases (97%) received TB treatment.

Conclusions/Next steps: Findings from this intervention indicate that the PDI+ could be effectively adapted to increase TB new case detection in Cambodia. This innovative strategy should be scaled up as part of the National TB Program. Further studies are needed to more comprehensively evaluate the impacts and cost-effectiveness of the model in Cambodia as well as in other resource-limited settings.

TUPEE665
Time to HIV test uptake and associated factors among partners of newly diagnosed HIV infected persons in Rakai district, Uganda

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Background: A substantial number of persons living with HIV are unaware of their status but literature on targeted HIV testing among exposed persons is limited. We aimed to determine the median time to HIV testing from date of partner elicitation, and factors associated with HIV test uptake in exposed persons in a low resource setting.

Methods: We reviewed service records at 6 facilities for 349 HIV exposed persons confidentially identified by their newly-diagnosed HIV infected partners (the index). Entry into the risk set was from the date of partner elicitation, and censoring was either at the endpoint (HIV test uptake) or administrative at the study end date of March 31st, 2017. The Kaplan-Meier method was used to estimate median time to HIV testing, and a Cox proportional hazards model was used to determine factors associated with HIV testing. Selection of covariates was based on plausibility and these included age, sex, marital status, notification options, phone access, location, prior partner violence, relationship to index, and key population status of index.

Results: The median time to HIV testing was 356 days (IQR: 37-372). Exposed persons with phone access and those with an active relationship with the index partner had higher likelihood of testing for HIV (adj. HR: 1.60, 95% CI: 1.07, 2.38; and adj. HR: 1.92, 95% CI: 1.06, 3.50 respectively), while exposed persons residing outside Rakai district had lower likelihood of testing for HIV (adj. HR: 0.14, 95% CI 0.04, 0.46).

Conclusions: A very long median time to HIV testing in exposed persons (356 days) reflects need for creative interventions for active partner tracking especially for those in temporary relationships, those who do not live with sexual partners, and those without phone access.
Innovative uses of data to strengthen systems and programmes

TUPEE666
Prioritizing healthcare facilities for on-site mentorship to increase HIV treatment uptake: Results from EQUIP

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Background: Throughout Africa, resources are being invested in building healthcare facilities to increase the number of new patients initiating ART, with the goal of achieving the "second 90." A practical methodology for determining which facilities should be prioritized to maximize uptake has not been developed. As part of a PEPFAR program to expand and improve service delivery in two provinces in Zambia, we developed a methodology to rank individual health facilities for on-site mentorship based on their potential to contribute to total numbers of patients initiating treatment ('new-on-ART').

Description: Using PEPFAR data, we ranked facilities in the selected provinces by number of patients initiated on ART in 2017. Using multivariable regression, we identified facility-level parameters associated with being in the top quartile of new-on-ART in 2017. Those parameters were then assigned weights, and the weights summed, at the facility level to calculate the prioritization score.

Results: Thirteen of 76 facilities were identified as high priority facilities to target for on-site mentorship to maximize new-on-ART: methodology flowchart !

Facilities that received a high prioritization score but did not rank highly on treatment initiation numbers (i.e. facilities that did not initiate as many patients as their prioritization score suggested they should) were prioritized to receive intensive day-long on-site mentorship (target setting, stock monitoring, clinician mentoring on routine HIV testing, ART initiation, and record keeping).

Lessons learned: Thirty-eight of 76 facilities were identified as high priority for on-site mentorship. Eight of these were provided mentorship by EQUIP, as were two non-priority facilities. Prioritized facilities that received mentorship achieved 78% of their new-on-ART targets in the month prior to the intervention and 104% of their targets in the month after the intervention. In the two priority facilities not offered mentorship, 53% and 64% of the target was achieved in pre- and post-intervention months, respectively. In non-priority facilities that received mentorship, 63% and 72% of targets were achieved in pre- and post-intervention months.

Conclusions/Next steps: Early data suggest that prioritizing facilities for mentorship on the basis of unrealized potential can increase numbers of new-on-ART more efficiently than giving all facilities equal support. A practical, easily-applied methodology for prioritizing which specific healthcare facilities should be supported first should thus offer a promising way to reallocate resources more efficiently to achieve national and global targets.

TUPEE667
Barriers to reaching the first 90: A simultaneous, multicountry online survey to identify barriers in HIV rapid test kit service delivery and commodity availability in low- and middle-income countries

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Background: In 2017, anecdotal reports indicated site-level stockouts of HIV rapid test kits (RTKs) in several countries. Two projects under the USAID Global Health Program-Procurement and Supply Management (GHSC-PSM) project and Rapid Test Kit (GHSC-RTK) investigated stock-out causes, service delivery barriers, and supply chain management challenges in more than 20 countries.

Methods: October 24-November 15, 2017, the two projects simultaneously conducted a qualitative survey in 22 countries. The 47-question survey, which included multiple-choice and open-answer questions, was sent to GHSC-PSM field offices for data collection and response through SurveyMonkey, a cloud-based online survey development service. Answers extracted from SurveyMonkey were cleaned, aggregated, and analyzed by headquarters staff of GHSC-PSM and GHSC-RTK.

Results: Survey analysis highlighted: a) major issues that currently hinder countries' ability to provide testing services, including poor planning practices (of the 23 percent of countries without established min/max levels, 80 percent have reported stockouts at one or multiple levels in the last two years) and inefficient distribution systems (25 percent of countries do not have a push model; 14 percent of countries do not have emergency distribution procedures; both systems could help prevent stockouts) and b) correlation between service delivery practice/planning and availability of RTKs at all supply chain levels (58 percent of countries test through unplanned campaigns, of which 43 percent reported stockouts at all levels in the last two years).

Conclusions: This survey was the first in the number of participating countries and the types of data collected, helping identify countries with considerable barriers to reaching the goal of having 90 percent of people with HIV know their status. Results highlighted correlation — if not causality — in how service delivery decisions can affect product availability, and ultimately a program's ability to reach its testing objectives. Finally, the survey is helping partners prioritize countries and systems strengthening interventions, and showed opportunities for service delivery planning and improved communication to help ensure availability of RTKs at testing sites.
TUPEE668
Task-shifting and sharing practices during implementation of differentiated care for HIV service delivery: Experiences from Uganda

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Background: The adoption of ‘Test and Start’ to accelerate the achievement of the 90-90-90 goals has increased the number of ART clients. In many countries, this requires the adoption of streamlined service delivery approaches to combat potential health systems constraints - notably the lack of adequate human resources for health (HRH). Differentiated service delivery (DSD) models are one such innovative approach. Under these models, drug refills are separated from clinical consultations, and stable ART clients less frequent clinical consultations; receive their refills faster and less frequently, and can be managed outside health facilities by health workers or ART clients themselves. Implementing DSD models in high HIV burden, resource limited settings often requires optimization of the limited HRH resources to include task-shifting and sharing. In 2017, the HRH2030 program, funded by USAID, through PEPFAR, explored such practices at 20 health facilities offering DSD models in Uganda to better understand staffing requirements.

Methods: 1,720 client flow observations were undertaken across eight ‘critical tasks’ along the ART service delivery continuum for DSD and the standard models of care. For each observation, service providers performing specific tasks were identified and their frequency of task performance tabulated. For analysis, these service providers were grouped into professional and lay health workers as shown in the table. Results: It was found that the proportion of critical tasks carried out by both professional and lay health service providers (51% vs 49%, p = 0.316) was similar. Nurses performed 66% of observed tasks in the professional group while facility-based auxiliaries - a type of trained, facility-based but non-professionally certified lay provider performed 48% of all tasks in the second group. Additionally, lay providers were found to be more involved in enrolment and triage (p = 0.0001) while the professional group were more involved in clinical consultations, laboratory/blood work and drug dispensing (p = 0.0001).

Conclusions: Appropriate task-shifting and sharing can reduce overburdening and optimize client flows hence improving health worker utilization during the implementation of DSD models. Our data suggest that if countries allowed greater use of task shifting/sharing and lay workers through DSD, limited clinical staff could be prioritized for ART initiation or complex cases.

TUPEE669
Evidence synthesis to populate a dynamic HIV transmission model for 6 US cities

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Background: Dynamic HIV transmission models can provide evidence-based guidance on optimal combination implementation strategies to treat and prevent HIV/AIDS. However, these models can be extremely data intensive, and the availability of good quality data characterizing regional microepidemics varies substantially within and across countries. We aim to provide a comprehensive description of a novel evidence synthesis process to populate and calibrate a dynamic, compartmental HIV transmission model for six US cities.

Methods: We executed a mixed-method evidence synthesis strategy to compile model parameters in six categories: (i) Initial HIV-negative and HIV-infected population; (ii) parameters used to calculate the probability of HIV transmission; (iii) screening, diagnosis, treatment and HIV disease progression; (iv) HIV prevention programs; (v) the costs of medical care; and (vi) quality-adjusted life year weights for each stage of HIV disease progression.

We defined parameters that required city-specific data and stratification by gender, race group and race/ethnicity a priori, and sought out databases for primary analysis to augment our evidence synthesis. We ranked the quality of each parameter using a context- and category-specific rubric and verified data sources and assumptions with a scientific advisory committee using a web-based survey.

Results: We synthesized evidence from 74 peer-reviewed publications, 102 public health and surveillance reports, and executed primary analyses using 11 data sets to identify the 1,731 parameters needed to populate our model (1,093 (63%), 218 (13%) and 330 (19%) parameters in categories (i), (ii), (iii) and (iv), respectively, with 1,562 (90%) parameters being unique to each city). Parameters ranked as best- to moderate-quality evidence comprised 47% of the 169 common parameters and ranged from 61% to 63% across cities for the city-specific parameters. In addition to variation in parameter values across cities, we also found extensive variation in key parameters within cities across risk and race/ethnic groups (Figure 1).

Conclusions: Systematic reporting of the evidence synthesis process used to populate models and explicit quality assessment of data inputs can promote better integration of modelling in decision-making. Effectively communicating this process can help prioritize data collection to reduce decision uncertainty and strengthen model conclusions.
Methods: The National AIDS Control Programme has implemented targeted interventions (TIs) for key populations (KPs): female sex workers (FSWs), men who have sex with men (MSM) and male-to-female transgendered people/Hijras (TGH). The individual tracking system (ITS) classified them as low, medium, and high risk. We assessed the change in risk assessment between the original and the new scale in 3818 KPs according to old and new classifications.

Results: The results of the old classification were: 72% low, 28% medium, and 12% high. Only 27% of KPs were classified similarly in both scales. In 73% of KPs, the risk was upgraded in the new scale; the proportion was high in MSM (84%, 68%, 71%, p< 0.001) change from low to medium or high in all KPs could be attributed to the new scale; this proportion was higher among high/medium risk KPs according to new classification.

Conclusions: The revised risk assessment scale was able to classify a significantly higher proportion of KPs as medium or high risk, particularly MSM and TGH. These KPs also had a higher incidence of HIV and syphilis. Thus, using type-specific scale may be useful to identify high risk KPs for intensive follow-up and strengthen the existing intervention programmes for differentiated and focused preventive care.

TUPEE671
Social media platforms- a tool for increasing access to medicines in low income countries

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Background: Generating health commodities supply chain data occurs routinely in countries at different levels. A major challenge however, is the incomplete and fragmented nature of the data generated, with gaps in data and issue visibility making it extremely difficult for program managers and logistics officers to detect and resolve supply chain related issues at service delivery points (SDPs), build better awareness of stock issues as they arise and support affected SDPs to improve their performance on an ongoing basis.

This paper describes the outcome of interventions to enhance data quality and issue visibility for increased access to HIV, TB & Malaria drugs in 1,412 health facilities across 44 local government areas in Nigeria.

Description: To improve data quality and issue visibility at SDPs, the Nigeria Supply Chain Integration Project in conjunction with i+ Consortium, developed simplified data capture and quality verification tools for use by government instituted logistics management units across 14 States. Data officers within these units were trained on the use of these tools and a "WhatsApp" group was formed as a "real time" alert system to enable them report issues detected for timely action. In addition, monitoring/supervisory visits to health facilities were conducted to provide capacity building and support to health facilities that require on-site interventions.

Lessons learned: The "WhatsApp" group served as a medium for a peer review for health facilities' stock performance, alerting and enabling state/national level managers, partners and donors to see and address issues as they arise. This resulted in the re-distribution of 1,134,851 packs of malaria and HIV drugs & products worth about $17,281,758 USD thus averting expiries and stock outs at SDPs. The data verification tools helped to analyze logistics data and review issues detected at SDPs for corrective follow up actions.

Conclusions/Next steps: In resource limited countries, lack of data and stock issue visibility at SDPs and ability to react appropriately in a timely way has led to stock-outs, overstocks, expiries, and other losses throughout the health system. It is therefore vital to introduce simple and efficient communication channels to ensure regular contact with SDPs, improve issue visibility and enable "real time" resolution of issues as they arise.
TUPEE672

How to ascertain an accurate number of people living with diagnosed HIV and fill data gaps from the past - lessons learned from a high prevalence setting in Europe

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Background: In 2013, HIV prevalence was estimated to be 1.3% in Estonia. Unique identifier based HIV surveillance became available in Estonia in 2009 and until then included anonymous reporting of up to 30%. Only AIDS related mortality is monitored. Ascertaining the number of people currently living with diagnosed HIV has remained a challenge.

Methods: All healthcare services are recorded electronically since early 2000s in Estonia. For this study, all electronic healthcare records which included an HIV diagnosis (ICD-10 codes B20-B24, Z21, F02.4, O98.7, R75) and a national identification code were extracted from the following national databases: Estonian Health Insurance Fund, 2000-2016, covering >94% of the population; Health Board, 2010-2016, passive HIV surveillance; Prisons healthcare, 2008-2016. Data was linked with the national Death Registry. We compare our results with other HIV data sources including E-HIV, a prospective clinical cohort study in Estonia that started recruitment in 2009.

Results: By end 2016, 9492 HIV diagnoses had ever been recorded through national statistics (Figure). Our analyses found a 21% lower figure than E-HIV, a prospective clinical cohort study in Estonia that started recruitment in 2009.

Conclusions: For the first time, we present a de-duplicated number of people diagnosed with HIV in Estonia who remain alive. The higher cumulative figure reported through national statistics includes people who have died as well as people reported anonymously. Our data show a time lag in linking to HIV care, as more recently people newly appear in our data set than are reported as new diagnoses to national statistics each year. E-HIV has a good coverage of HIV diagnosed people and could become a national HIV treatment registry. Linking data from different registries helps to improve data quality and provides vital information for prevention and treatment activities.

[Figure: Number of people diagnosed with HIV (PLHIV) in all electronic databases available in Estonia]

TUPEE673

A mobile electronic system to monitor mode, content and duration of health navigation services for people living with HIV in Guatemala

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Background: Health navigators provide instrumental and emotional support for people living with HIV to stay in care and adhere to treatment. Timely monitoring of navigation services is challenging due to the burden of reporting a high volume of diverse activities and outcomes. We developed a mobile electronic monitoring system for navigators as part of a multi-level intervention to decentralize HIV care and treatment and offer holistic care for men who have sex with men (MSM) living with HIV in Guatemala City.

Methods: We designed a mobile application using free and open-source tools for navigators to report details about interactions with patients. The app prompts navigators to enter data in three areas: 1) mode of support provided - in person (accompaniment to appointments, meeting with families/partners, support visit or distance (phone call, text messages, social networks); 2) content of interaction (appointment reminder, HIV education, emotional support, clinic procedures, employment issues); and 3) duration of interaction.

Results: From July 2017 to December 2017, 662 (38/3%) of MSM enrolled in the intervention received the support of a health navigator. A total of 2037 reports were recorded by 11 navigators. Navigators took from 1-5 minutes per interaction to enter data. The median number of interactions per participant was 5 (IQR: 3-8). Most frequently covered topics during interactions were: appointment reminders 35.8%, employment issues 19.7%, family concerns 14.3%, partner relations 14.1%, HIV education 11.5%, and clinic procedures 9.4%. The majority of interactions occurred remote (75.9%) with a median duration of 5 min (IQR: 5-10) for telephone interventions and 3 hours for in-person interventions (IQR 1-4). Information from the app was used to identify areas for follow-up training regarding navigator functions as well as content areas, such as PrEP/PEP.

Conclusions: The mobile monitoring app is a user-friendly and low-cost tool that allows navigators to quickly and efficiently record details about each interaction with participants. Access to up-to-date navigator data allowed the intervention team to more effectively monitor and provide timely feedback and follow-up training. These data can also facilitate analysis of the required intensity and content of support for different types of patients to tailor and streamline navigator interventions.

TUPEE674

Clinical monitoring system for people living with HIV (SIMC) and continuum care improvement in Brazil

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Background: The HIV care cascade assessment enables measurement, understanding and monitoring of ART delivery policy and guide the development of interventions to improve people living with HIV (PLHIV) care. A tool to easily monitor PLHIV viral load (VL) suppression allows health care providers (HCP) to identify care gaps (low adherence, lost to follow up and treatment failure), as well as readily indicates treatment success, and potentially contributes to reduce transmissibility and morbidity-mortality of PLHIV.

Description: Brazilian’s Ministry of Health developed in 2013 a clinical monitoring system (SIMC) that link data from national ART delivery and laboratory (CD4 and VL) control systems to help HCP to develop better
interventions in the process of continuum care of PLHIV. Besides showing treatment GAP - PLHIV that are not on ART - since 2016 is possible to monitor patients with lost to follow up and/or detectable VL.

**Lessons learned:** After SIMC’s development and its use encouraged, analyses of PLHIV (≥18 years old) between 2013 and 2017, demonstrate that there was an increase of PLHIV on ART with sufficient adherence (SA) and reduction with insufficient adherence (IA), as well lost to follow up (LTFU) - SA and IA considered right time ART delivery above or below 80%, respectively, and LTFU as more than 100 days without ART delivery. In 2013, of the approximately 355,000 PLHIV with at least one ART delivery, 69% had SA, 21% had IA and 6% had LTFU. In contrast, of the 431,000 PLHIV who delivered ART in 2017, 76% had SA, 18% had IA and 7% had LTFU. Data from PLHIV (12 years old) on ART, between 2013 and 2016, also showed that there was an increase in VL suppression (40% in 2013 and 53% in 2016).

**Conclusions/Next steps:** The SIMC development, with crucial information to HCP about PLHIV in treatment GAP, detectable VL or lost to follow up, helped to improve PLHIV care in Brazil. However, it is necessary to encourage its use and systematic monitoring, contributing to the establishment of strategies that will have a long-term impact on SA to ART, reduction of LTFU, as well as the increasing of people with VL suppression.

[Distribution of PLHIV (≥18) on ART in the year, according ART status, per year of delivery. Brazil, 2009-2017]

**TUPEE675**

**Review of home and community-based care (HCBC) for orphans and vulnerable communities programme implementation in KwaZulu-Natal, South Africa:** Towards re-engineering the HCBCs programme

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**Background:** South Africa remains one of the high-burden HIV/AIDS country globally with an estimated 5.7 million individuals infected. One of the greatest HIV/AIDS consequences that face South Africa’s children and their future, particularly in KwaZulu-Natal (KZN), is orphan-hood and child-headed families that render them unable to reach/attain their full developmental potential.

**Description:** To mitigate the ravaging effects of the HIV/AIDS pandemic on children, youth and other vulnerable communities, the Department of Social Development (DSD) through the community and home based care (CHBC) programme provide funding and support to organizations that offer a range of services to individuals and families infected and affected by HIV/AIDS with particular focus on orphans and vulnerable children (OVCs). Essentially HCBC’s provide two broad categories of interventions.

(i) Care and Support,
(ii) Prevention Programmes.

**Lessons learned:** Of the eleven HCBC centres reviewed, all had some form of governance structure and business plan and none provided training. In terms of prevention services, two reported home visits, two had awareness campaigns, two had socio-behavioural change programmes, and two had youth programmes. Regarding psychosocial support four conducted counselling, five had food security programme, three provided educational support, none monitored treatment adherence. Referrals were reported in only three centres where two made referrals to SASSA and one to home affairs. Only three had some form of monitoring documentation. These results suggest that there are major programmatic challenges, poor quality of services and implicit inadequate reach of the vulnerable and needy individuals and children.

**Conclusions/Next steps:** The results suggest a need for a more in-depth assessment of the programme, its quality, impact, reach of the deserving communities particularly orphans and a need for programme restructuring plus establishment of an effective monitoring and evaluation programme. The evaluation should include interviews and focus group discussions with staff, beneficiaries and community members on programme activities. Indicators for effective monitoring and evaluation will also be developed.

**TUPEE676**

**Reaching the first 90 through community HIV testing services requires use of digital systems to understand geo-coverage. A case of implementing DHIS2 Mobile tracker during HIV testing**

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**Background:** Zimbabwe Population Based HIV Impact assessment (2017) have shown that considerable progress towards the 90-90-90 UNAIDS targets have been made. However, there are some sub-geographies with significant gaps especially on HIV case detection. FHI360 was awarded a five-year USAID-funded Zimbabwe HIV Care and Treatment (ZHCT) mechanism to provide home-based index case HIV testing (HIHT) as the main activity to close the gap on reaching the first 90 UNAIDS target. Reported here is the coverage of HIV testing in one of the 10 districts under FHIT60 where an electronic HIV testing register was introduced.

(HIV Testing coverage in one of the districts (Mahoni))
assumed that services were being provided to only easy to reach areas. As a result, DHSIS2 Mobile Tracker Capture was customized to include capturing of geo-coordinates when providing HIV testing which will allow pinpointing geographical location of HIV testing. The application works offline and synchronize with central server when there is connectivity. Makoni district was selected for the pilot and nurse testers were trained. QGIS was used to analyze and present spatial data collected between October to December 2017.

Lessons learned: A total of 146 people were tested, 32% (47/146) were positive and 98% (46/47) were linked into care during this period. Majority of the clients tested were those living within four kilometers of the major roads as shown in Figure 1. Furthermore, HIV testing services were provided to clients living in peri-urban area (68% of tested). The North-East and South-East part of the urban area with more than 40km and 29km respectively was poorly covered during this period. The major reason stated is that of inaccessibility.

Conclusions/Next steps: Reaching the first 90 of UNAIDS targets will be difficult if HTS services are only limited to easy to reach areas. Use of electronic systems with geo-coordinates in the provision of HIV services will help to improve service coverage and identification of hotspots when feedback is provided to field teams in a timely manner.

TUPEE677
Evaluation of “Getting to 90”, a data-driven health department - service agency initiative to improve viral suppression rates among HIV-positive housing consumers in New York City

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Background: The World Health Organization recommends that 90% of persons diagnosed with HIV be engaged in care and 90% of those achieve viral suppression (“suppression”) in order to control the epidemic. The US National HIV/AIDS Strategy and Centers for Disease Control and New York State’s Ending the Epidemic initiative prioritize increasing care and suppression among low-income and racial/ethnic minority persons. More than one-third of New York City’s (NYC) persons with HIV receive subsidized housing assistance, but many remain unsuppressed. The “Getting to 90” initiative was developed to help HIV housing agencies reduce barriers to suppression. We evaluated the impact of this initiative.

Description: In August 2016, the NYC Department of Health and Mental Hygiene (DOHMH), a grantee for the USAID Housing and Urban Development’s Housing Opportunities for Persons with HIV/AIDS (HOPWA) program, launched “Getting to 90” for 14 HOPWA-funded agencies, which serve low-income and predominantly racial/ethnic-minority persons with HIV (Table). DOHMH and technical staff established a 90% suppression goal, streamlined collection of consumer care and suppression information in the NYC HOPWA data system eCOMPASS; matched eCOMPASS with NYC HIV surveillance data; analyzed factors associated with non-suppression among HOPWA consumers; and provided agencies with analysis results, customized care- and suppression-related dashboards, and technical assistance.

Lessons learned: At baseline, 88% of NYC HOPWA consumers were documented in eCOMPASS as being in care and 73% suppressed (Figure). During the initiative, agencies participated in eCOMPASS training and received six quarterly dashboards, five quarterly technical assistance calls, and lists and epidemiologic profiles of their unsuppressed consumers. Non-clinical professionals successfully incorporated suppression into routine work, supervision, team meetings, and in-house trainings, and had timely awareness of their housing consumers’ suppression status. Agency-reported care engagement rates from baseline to 15 months increased to 95%. Suppression rates increased at 10 of 14 agencies and to 82% overall (Figure).

Conclusions/Next steps: Local health departments can play an important role in providing data and technical assistance to agencies responsible for providing services and increasing suppression among persons with HIV. “Getting to go” advanced innovative use of program and jurisdictional surveillance data to strengthen suppression efforts among HOPWA agencies.

TUPEE678
Digital innovation to improve access to health services: Online platform with geo-referenced information

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Background: Increasing access to supplies and services for prevention, diagnosis and care of HIV/AIDS is a key aspect to reach 90-90-90 targets. Massive increases in the use of internet devices and availability of public data allow innovation on digital solutions offering useful data to citizens. The purpose of the program is to create a platform with geo-referenced information about condom delivery points, HIV testing, and other health services and allows the collection of user feedback to improve quality of care.

Description: A responsive website was developed, specially focused on young people, originally for Argentina (#DoNDie) and then also to 40 countries in Latin America and the Caribbean (VAMOS). In addition to localizing health services, the platform encourages citizens participation to assess services’ quality. Users can add information and evaluate each service in order to identify opportunities for improvement. The information gathered is used to advocate in order to improve services and delivery. Through user involvement, collaboration with social organizations and the public sector, the tool is continuously updated and improved.
TUPE6679

Using data to optimize provision of DREAMS social asset building services in safe spaces across two counties in Western Kenya

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Background: Nearly 1,000 adolescent girls and young women (AGYW) are infected with HIV every day. This group accounts for over 70% of new HIV infections among adolescents in sub-Saharan Africa. DREAMS is an initiative of the President’s Emergency Plan for AIDS Relief (PEPFAR) that supports AGYW through a multi-layered, evidence-based package of interventions, including social asset building (SAB) focused on strengthening social, health, economic, educational, and other factors to create a strong, positive safety net for AGYW at risk.

Description: With PEPFAR support, American International Health Alliance (AIHA) implements a DREAMS project for girls aged 10-14 in high HIV burden counties in Western Kenya where the HIV prevalence rate is over 25%. SAB takes place in Safe Spaces; it is one aspect of the project that provides a platform from which other interventions are offered and monitored to ensure each girl receives comprehensive, individualized services. Optimally, AGYW should receive a minimum of 3 primary interventions, 3 secondary interventions, and 2 contextual interventions.

Lessons learned: AIHA conducted a survey in early 2017 revealing that 17,509 AGYW were enrolled in SAB. 1,937 (11%) received 4+ services; 6,809 (39%) received 2-3 services; 2,879 (16%) received 1 service; and 5,884 (34%) had received no services. AIHA developed a structured tracker to monitor service delivery at its 200 project Safe Spaces in Bondo and Siaya counties. AIHA conducted a follow-up assessment in January 2018, revealing that out of the 24,661 AGYW enrolled, 7,329 (30%) received 4+ services; 12,900 (52%) received 2-3 services; 3,954 (16%) received 1 service; and only 478 (2%) had not received any service.

Conclusions/Next steps: As revealed by the second survey, the service provision tracker allows for continuous monitoring of each girl at the lowest level of implementation, helps identify gaps in service, and facilitates more effective prioritization of girls for intervention. Use of the tracker helped reduce the number of girls receiving no services from 5,884 to 478 within a year’s time, thus ensuring girls receive the required package of interventions to support them as they grow into determined, resilient, empowered, AIDS-free, safe women.

TUPE6680

Using low cost performance tracer systems for data collection and performance monitoring of large HIV programs in resource limited settings

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Background: In the era of scaling up of HIV/AIDS programs to meet the UNAIDS 909090 goal, strong low cost M&E tools that provide real time quality data for tracking program performance are inevitable. This paper presents a new innovation (Performance Tracer system) used to collect data and monitor performance of a large HIV/AIDS program in Uganda.

Description: Baylor Uganda is implementing a large PEPFAR funded HIV/AIDS project in Western Uganda, at 361 health facilities since 2012. The project scope has over 182 performance indicators being monitored. Of them, 10 performance tracer indicators were objectively selected for weekly tracking in 2017. Program components tracked include HIV testing, HIV Treatment, Viral load, TB-HIV, PMTCT and Logistic stock status. Trained health workers submit weekly reports for these tracers through an affordable mobile SMS platform. The platform has a user friendly dashboard with weekly analytics shared with management and district health teams for review and action planning. Comparison was done to assess impact of tracer system for program performance before (FY2016 Quarter 4) and after (FY2017 Quarter 4).

Lessons learned:
- Monitoring performance using tracers motivated implementers to re-focus on key interventions and identifying areas which require quick actions. Consequently, there was a general improvement in the program performance as per set targets. A comparison before and after showed an improvement of 18% in positives identified, 25% in HTS yield, 22% in new ART initiation, 3% in viral load suppression, 11% in new TB case identification, 26% in HIV exposed infants identified and 14% in ARV stock availability.
- The weekly Tracker platform promoted program ownership, data use and increased timely responsiveness to actions among implementers.
- The system is scalable and effective in enabling staff to fast track actions to gaps.
- Mobile SMS is an affordable and efficient platform to monitor performance while engaging implementers.
- Transfer of trained staff and mobile network interruptions affected the functionality of the system.

Conclusions/Next steps: Objectively selected tracer indicators can be used to monitor performance of large programs through a reliable and efficient electronic system. Such low cost tracer systems should be easily up to monitor progress in line with UNAIDS 909090 goal.
and improved targeting of HIV prevention programmes, similar to HIV treatment cascades. However, different prevention cascade formulations exist, reflecting their different purposes. This project aimed at developing a unifying HIV prevention cascade framework on which different applications with different requirements could be based.

Description: A series of meetings and seminars was conducted to establish goals of HIV prevention cascades, review prevention cascade models, and develop new models of cascades. Prevention cascade frameworks were applied to existing datasets to understand gaps in data currently collected. A stakeholders meeting and workshop were held in Harare, Zimbabwe, with policy-makers, non-governmental organizations, programme planners, and international and local researchers to consult on the utility and functions of HIV prevention cascades and develop models for prevention cascades.

Lessons learned: Previously proposed HIV prevention cascade models (Lancet HIV issue July 2016) were considered too complex for many intended uses of prevention cascades, especially routine monitoring and advocacy for HIV prevention. Particularly, estimating the impact of HIV prevention (infections averted) (proposed by Garnett et al. 2016) should be seen as a useful but separate modeling exercise.

Instead, a generic HIV prevention cascade model is proposed that consists of three core steps of motivation for using a prevention method, access to this, and effective use of it in a priority population (Figure blue). This cascade is part of a framework that incorporates the explanatory factors underlying gaps in cascade steps and indicates types of interventions to address these (Figure orange/green). The simple core cascade and wider framework reconcile contrasting needs for simple and complex cascade models.

Conclusions/Next steps: The HIV treatment cascade has shown how a framework can become a driving force for treatment programmes and policy. While applications of the proposed HIV prevention cascade framework need piloting and methods for measuring the framework need to be developed and validated, the HIV prevention cascade has similar potential for boosting our HIV prevention efforts to bring about substantial declines in HIV incidence.

TUPEE682
Age-specific national HIV care continua in sub-Saharan Africa

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Background: In Sub-Saharan Africa (SSA), epidemic control requires increased coverage of HIV testing and treatment for adolescents and young adults (15-24 years). Adolescents and young adults account for nearly 11% of all people living with HIV (PLHIV) yet nearly one-third of new HIV infections occur in this age category.

Methods: For 21 highest burden countries in SSA (95% regional HIV burden), we searched PubMed, US President’s Emergency Plan for AIDS Relief (PEPFAR) operational plans, country progress reports and conference abstracts for the age-specific continua published between 2012-2017. We reviewed published national HIV care continua with age-specific data and compared the progress towards 90-90-90 across age groups.

Results: Of the 21 countries, 10 countries published age-specific continua between 2012 and 2017 (53% regional burden). The age distributions were <15, 15-24 and >25 years. Only three countries published the complete 90-90-90 data. All countries reported data on second 90 (on ART), three countries reported on first 90 (diagnosed), and eight countries on the third 90 (viral suppression).

ART coverage among 15-24 year olds living with HIV varied from 17%-72% and was significantly lower than the ART coverage for <15 and >25 year olds in all but three countries (Uganda, Cote d’Ivoire and Cameroon). Similarly, viral suppression rates among 15-24 year olds varied from 10%-58% and were lower than the national average in all countries except Cote d’Ivoire.

Impact of electronic logistics information system on HIV service delivery in Zambia

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Background: The Zambian Ministry of Health faced many challenges in managing procurement and distribution of medical products and supplies. Long lead times, stockouts, and general lack of efficiency characterized the in-country supply chain.

Description: In 2014, USAID implementing partners began working with the Zambian Government to pilot and scale up an electronic Logistics Management Information System (eLMIS). This open-source software facilitates data collection in low-infrastructure environments for review, aggregation, analysis, and forecasting by incorporating a wide range of systems (medical records, laboratory data) and enabling data visibility from point of origin to point of delivery. The eLMIS has been deployed to seven countries.
Lessons learned: Through eLMIS, Zambia has achieved measurable improvements in logistics management, according to the eLMIS mid-line evaluation, including:

- Increased visibility of supply chain operations resulting in broader involvement of user groups for supply chain decision making: User sessions in eLMIS increased by 149% between May 2015 and January 2018
- Increased throughput of health commodities to support WHO universal test-and-treat strategy UNAIDS 90-90-90 goals: Increased use of HIV test kits by 341% and ARVs by 254% between the start of 2015 and end of 2016
- Improved health care delivery resulting in reduced missed treatments and better patient adherence to treatments: Expired products at sites reduced by 80% between March 2016 and February 2017; ARV availability at sites increased by 20% since 2015
- Potential reduction in supply chain supervision costs: Targeted supervision visits conducted to easily identifiable problem sites based on insights from data. Fostering of a cohesive experience among implementing partners, leading to improved quality and lower costs of intervention.

Conclusions/Next steps: Electronic information systems require allocation of resources in time to achieve sustainability and attain the full change management maturity model. Some challenges persist in Zambia; there is a need to continue cultivating reliance on data for decision-making. Data are widely used to guide procurement and routine operational decisions, but not yet for supervision and policy development. The technology and implementation experience from Zambia will benefit neighboring countries grappling with similar challenges.

TUPEE685
Harmonization processes on HIV data for key population clinical cascades in and it’s impact on HIV programming in Tanzania

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Background: In an effort to attain the 90-90-90 Global targets, Tanzania developed HIV data for key and vulnerable populations reporting system through harmonization of all data recording and reporting tools and indicators from all partners and donors. The process was consultative with all key stakeholders. The aim of this data is also improvement of data quality for better programming among KVPs.

Methods: Four Technical consultative meetings with LGAs, CSOs, KP community and all partners to review tools used; indicators and reporting modalities were conducted. Consensus was reached through the use of one National reporting system for all implementing partners and KP organisations. Tools which report from community to facility level (identified HIV) at a catchment area were developed with 15 indicators and reporting timeline was agreed. Quarterly reports agreed for all KPs as per the National Guidelines which was disaggregated by KP type, age, geographical location and implementing partners. Data collected included behavioural data, services accessed and visit type. Each client is provided by unique identification code.

Results: Five main implementing partners are supporting the Ministry who are ICAP, Jhpiego, HUF AMREF and MUHAS TAPP. Data reported from all the implementing partners from January to December 2017 show HIV clinical cascade performance for KPs in Tanzania. Total KPs reached were 82,746, Tested 80,180, identified positive 7,146, initiated ART 5341, and the linkage is at 70% of all identified KPs. Strategies used to reach the performance included engagement of identified KP friendly facilities and attached peers to the friendly facilities. Also provided facility led ART outreach services targeting general and KP.

Conclusions: Harmonisation of all KP reporting system to one National reporting tool has enabled to track KP HIV programming through the clinical cascade. All partners are using one National system through DHIS2 system. This has improved HIV programming among this group and informs the country on KP cascade.

TUPEE684
Maximizing data use to respond to healthcare landscape changes: Lessons learned from a national survey on the state of community-based organizations

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Background: Implementation of healthcare reform, advancement of national public health strategies, and biomedical prevention developments are some of the fundamental shifts impacting HIV non-profit organizations in the United States. Reduction and re-direction of HIV funding and increased focus on accountability and outcomes requires these organizations to remain responsive and proactive.

Description: HealthHIV conducted a first-of-its-kind national survey of over 600 AIDS Service Organizations and Community-Based Organizations (ASO/CBOs) to evaluate the sustainability and availability of services, and the capacity and structure of the organizations providing them. With the survey, HealthHIV developed a National Directory of ASO/CBOs to document the availability, scope, location, and type of services available to healthcare consumers. The State of ASOs/CBOs in the US survey assessed how ASO/CBOs are responding to the healthcare landscape changes, particularly its impact on workforce development; program coordination; fiscal sustainability; strategic partnership development; leadership advancement; and strategic planning.

Findings provided a qualitative perspective on the challenges ASO/CBOs face in responding to environmental, political, and economic changes in the healthcare landscape. Participation, content, and categories make it a unique analysis of the overall health of ASOs and a valuable tool for responding to collective challenges.

Lessons learned: ASO/CBOs are the point of medical care for many people living with HIV and face barriers in responding to the changing healthcare landscape. Services commonly provided by ASO/CBOs (condom distribution, HIV counseling/testing), do not reflect the social, environmental, and economic developments impacting people living with or at risk for HIV. Responses indicated an inability to innovate based on client need and a lack of diversity in funding streams across ASO/CBOs in the US.

Conclusions/Next steps: While ASO/CBOs are expanding to incorporate clinical services and updating billing infrastructure to bill third party payers, organizations are not able to sustain services and maintain purposeful data to improve health outcomes. Better understanding the infrastructure and sustainability challenges of ASO/CBOs allows stakeholders to inform creation of educational resources and capacity building programs. establish training blueprints for policymakers, and prepare strategies to respond to healthcare landscape changes. The State of ASO/CBOs Survey will facilitate decision-making on funding pursuits, service expansion, and capacity building assistance in the US.
Methods: We analyzed documented client interactions for new and relapsed TB cases, inclusive of adults and children, at PEPFAR-supported TB clinics in 15 countries from October 2016 - September 2017 as they related to:
1) the proportion of TB cases who had a known HIV status
2) the proportion of TB cases who were HIV-positive
3) and the proportion of HIV-positive TB cases who were on ART.

We analyzed comparable national-level estimates from the 2017 World Health Organization (WHO) Global TB Report.

Results: As reported by both sources across 15 countries, a majority of TB cases knew their HIV status and a majority of HIV-positive TB cases were on ART. For nine out of 15 countries (Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Botswana, Lesotho, Malawi), the PEPFAR-supported programs reported a higher proportion of registered new and relapsed TB patients who knew their HIV status when compared to same metrics reported by national estimates in these countries. The PEPFAR range was 85% in Mozambique to 100% in Burundi and Rwanda. For 11 out of the 15 countries (Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Uganda, Botswana, Lesotho, Malawi, South Africa and Swaziland), the PEPFAR-supported programs reported a higher proportion of HIV-positive TB cases who were on ART when compared to the same metrics reported at the national level in these countries.

Conclusions: Although PEPFAR-supported programs and national estimates may not serve directly comparable underlying populations, it is prudent to consider the state of implementation of these services as reported by these sources to identify gaps in the delivery of these services and inform strategies to meet 100% coverage.

Approaches to using data to improve programming

TUPEE688
Using simple electronic systems to enhance data quality and use for HIV/AIDS programming

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Background: Use of electronic medical records systems to enhance data quality and use in HIV/AIDS programming has been emphasized and well documented, however adopting such systems has been on a small scale. This study presents findings and experiences from a large HIV/AIDS program implementing simple and easy to use electronic system (OPENMRS) in Uganda.

Methods: Baylor Uganda is implementing a large HIV/AIDS program in Western Uganda serving over 70,000 HIV positive patients on treatment, 5,000 HIV exposed infants, 6300 sex workers and 1800 TB patients annually. The organization is implementing OPENMRS computer system in 80 health facilities. Training of staff, computers provided and supportive supervision done. Mentor coaches were identified to provide onsite technical assistance. Forty eight health facilities implementing OPENMRS and fifteen non-OPENMRS (un-computerized) were selected on a random basis for a study to assess impact of the system on data quality and use. The period of review was January 2017 and September 2017. Data quality components were generated using SAS 9.2 software for comparison.

Results showed significant differences between OPENMRS and non-OPENMRS sites with respect to data quality and use. Adherence to reporting timeliness was higher in OPENMRS sites compared to non EMR sites (73%) compared to non EMR sites (73%). OPENMRS sites were 3.1 times (95%CI, 2.13-4.07) more likely to report accurate data than non-OPENMRS sites. Completeness was 17 times (OR=17, 95%CI=12.22-3.18) better in OPENMRS than non-
OPENMRS sites. 8% of staff at OPENMRS sites had used their data for planning compared to 65% in non-OPENMRS sites. 81% of OPENMRS sites had initiated quality improvement projects based on gaps in their data compared 52% non-OPENMRS sites. The average time of generating a report and reviewing it was half a day for OPENMRS sites compared to 5 days in non-OPENMRS sites. All sites had submitted reports within 7 working days.

Conclusions: There was a strong association between computerization, data quality and use to improve HIV programming, with better results observed in computerized sites. There is need to design and implement low cost electronic systems to enhance data quality and use.

TUPEE690
Improving continuum of HIV care: Experience from Ukraine

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Background: Until now there have been a few publications on HIV continuum of Care from Eastern European Countries. First evaluation of HIV continuum of Care from AHF-supported Clinical Sites in Europe was published in 2017. Having strategic information on continuum of care is a key for effective monitoring of patient retention and treatment success.

Description: We analyzed electronic medical records of 29,693 patients from 29 AHF supported clinical sites in Ukraine. All data have been taken from databases created and maintained by AHF. We conducted evaluations of HIV treatment coverage and viral load suppression rates in January 2017 and January 2018. After first evaluation, we developed and implemented a comprehensive package of interventions, consisting of decentralization of services, integration of TB component into HIV care, outreach medical care for temporarily and permanently disabled patients, retention in care interventions including comprehensive psychosocial support, active case finding, and restoration of documents.

Lessons learned: As a result of implementation of the intervention package, the number of clients on ART in AHF supported programs increased from 19,392 in 2016 to 24,699 in 2017 while proportion of clients on ART therapy remained stable (83%). Additionally, the programs noted an increase of patients with viral load suppression from 9,681 (42%) in 2016 to 20,340 (69%) in 2017. Viral load suppression rates increased significantly in Mykolayiv Region from 42% to 75%, Odessa Region from 43% to 66%, Dnipropetrovsk region from 38% to 58%, Kiev Region from 41% to 70% and Donetsk Region from 47% to 65%. There was no significant difference between genders. The lowest proportion of patients on ART and viral load suppression rate were identified in the age group 25-34 (75% and 61% respectively). Additionally, it was found that VL suppression rates among patients with TB was 54% in Ukraine.

Conclusions/Next steps: Continuum of care is an effective tool to monitor patient retention in care and success of antiretroviral therapy at the country and program level. We suggest implementing it further in the region. Decentralization, integration of services, and targeted psychosocial activities has been found to be effective instruments to improve continuum of care in AHF supported clinical programs in Ukraine.

TUPEE691
Assessing the needs of the beneficiaries, measuring the impact of our programs: Preliminary results of a community study among the beneficiaries of the CBO Alternatives Cameroon in Douala

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Background: Measuring the impact of CBO programs on their beneficiaries is often difficult. This is the case for Alternatives Cameroun, CBO working for LGBTI rights, including their access to comprehensive HIV care. Studies are often out of reach for CBOs and do not always provide program-specific information from the CBO. We decided to conduct a study with our beneficiaries, almost without costs, managed by the community actors themselves and which could provide a basis on which to measure the impact of our programs.

Methods: We administered a questionnaire to 105 MSM and 104 WSW during encounters with our beneficiaries. The questionnaire included 3 psychological tests and about 30 questions on sexuality and HIV, human rights, violence and mental health.

Results: The results revealed that 78% of MSM and 86% of WSW had no knowledge of LGBTI rights; 58% of MSM and 55% of WSW had a good knowledge of HIV; 85% of MSM and 78% of WSW wanted to have children, and among them, respectively 68% and 78% wanted to have them through a heterosexual relationship. The WSWs were 58% to consume tobacco and 18% to consume drugs, against 8% of MSM for tobacco.
and 3% for drugs. Severe depression was diagnosed in 32% of MSM and 30% of FSW. Also, 26% of passive MSM (role of dominated in the couple) against 14% of assets (dominant role), have already been paid for sex, while 30% of active FSW and 15% of passive have already been paid for sex. The condom is widely used in MSM couples (71%), and almost not between FSW (7%).

**Conclusions:** The study provided new insights for action, especially in mental health and human rights, with a baseline from which to measure changes to our beneficiaries attributable to our programs. This information has made more “SMART” description of the project objectives that we have written since then. By replicating the study at least every two years, we will be able to measure the achievement of these objectives.

### TUPEE692

**Diagnose one, link one (D1L1): Strategy increases new HIV diagnoses and improves testing yield among key and vulnerable populations in Tanzania**

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**Background:** The 2016-17 Population HIV Impact Assessment suggests that Tanzania is not on track to reach the first 90 of UNAIDS’ 90-90-90 goals. Sauti is a PEPFAR/USAID funded project, which provides combination HIV prevention services including HIV testing and linkage to care to key and vulnerable populations (KVP) in 14 regions of Tanzania. HIV testing services (HTS) are provided on an outreach basis in hotspots such as bars, brothels, mines and truck stops, or in homes in the case of HIV-exposed partners and children of index cases. In fiscal year (FY) 2017 (Oct 2016-Sept 2017) Sauti aimed to test 541,682 and diagnose 37,450 HIV infected KVP, 93% and 95% of the annual target.

**Methods:** Due to mid-year achievement concerns, in May 2017 project leadership communicated a new strategy, “Diagnose One, Link One” (D1L1), to Sauti’s 290 frontline HTS providers. The strategy consisted of: 1) Daily providers’ target allocation; 2) Daily providers’ performance monitoring and guidance using WhatsApp groups; 3) Effective use of GIS and data dashboards to guide HTS delivery; 4) Efficient leveraging of services and resources across partners and project-platforms. We conducted a two-population proportions 2-test to compare the increase of HIV yield between Q4 and Q1.

**Results:** By year-end FY 2017, Sauti project had tested 505,274 and diagnosed 35,920 HIV infected KVP, 93% and 95% of the annual target. In Q1 and Q2, the project identified 1,524 and 7,652 new HIV positive KVP, respectively, compared to 10,862 in Q3 and 15,920 in Q4. These findings represent an increase in HIV yield as well as total clients diagnosed, from 4-5% in Q2 and 2-8% in Q3 and 11% in Q4; a trend observed among all sub-populations (See Fig 1). The 7% increase in yield between Q1 and Q2 was statistically significant (p< 0.001, z= 8.5562). Similar was statistically significant (p< 0.001, z=8.5562).

**Sub-populations (See Fig 1). The 7% increase in yield between Q1 and Q2, to 8% in Q3 and 11% in Q4, a trend observed among all sub-populations (See Fig 1). The 7% increase in yield between Q1 and Q2 was statistically significant (p< 0.001, z= 8.5562).**

**Conclusions:** A rapid increase in both new HIV diagnoses and HIV testing yield among KVP was observed following the introduction of the Diagnose One Link One performance monitoring strategy. Similar approaches could help community based HTS programs achieve the first 90 of the UNAIDS’ 90-90-90 goals.

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### TUPEE693

**Measuring continued use of oral PrEP: A review of indicator definitions and programmatic implications**

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**Background:** Oral pre-exposure prophylaxis (PrEP) was launched in South Africa in 2016 in a phased approach to support reduction of new HIV infections. Routine programme data supports continual programme evaluation and adjustment. Contextualisation of continued use of PrEP is critical to this. This paper reviews definitions, data, and programmatic implications of measures of continued use of PrEP.

**Methods:** It is programmatically important to separate the concepts of retention in antiretroviral therapy (ART) and effective continued-use of PrEP. PrEP users may start, stop, and re-start PrEP over time, which does not necessarily indicate inappropriate usage. Based on current programme outcomes, many individuals who initiate PrEP stop use between initiation and one month. In order to better understand programmatic implications of varying approaches to defining continued use of PrEP, NDoH and CHAI undertook an assessment of two potential continued-use definitions and resulting insights. Calculations are shown in Figure 1.

**Results:** Continued use outcomes are shown in Table 1 based on original and updated calculations, by site type. Both calculations demonstrate overall trends in PrEP stoppage, with slower rates of stoppage in later months and a slight increase in usage in 16 months. Further, sites that work primarily with men who have sex with men (MSM) demonstrated higher levels of continued use than sites that work primarily with sex workers (SW) for months where data is available. Utilising both calculations allows for clearer differentiation of drop-off point and for stakeholders to further reflect on how programmatic differences between sites - such as PrEP targets or differing practices on offering PrEP - affect drop-off in the first month of use.

**Conclusions:** The updated calculation enables clearer programmatic differentiation between individuals who may have been prematurely initiated or not managed appropriately during the critical first month of use rather than those who may face challenges in later stages or may be appropriately cycling. Operations research is currently evaluating discontinuation justifications at varying durations of PrEP use, though side effects appear to be a driver across durations. NDoH and partners are also developing options for targeted interventions to address site-level challenges and share opportunities for programmatic improvement.

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**Table 1 Continued oral PrEP use outcomes, by site type and original and updated definitions**

<table>
<thead>
<tr>
<th>Site Type</th>
<th>Original Calculation, all sites</th>
<th>Updated Calculation, all sites</th>
<th>Original Calculation, sex worker sites</th>
<th>Updated Calculation, sex worker sites</th>
<th>Original Calculation, MSM sites</th>
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**Figure 1 Oral PrEP continued use calculations**
TUPEE694
A descriptive analysis of TB screening of ART patients and linkage to critical health services among PEPFAR-supported programs in Kenya, Tanzania, Uganda and Rwanda at semiannual time points, 2017
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Background: Tuberculosis (TB) is the leading cause of death for people living with HIV (PLHIV) and routine TB screening of antiretroviral (ART) patients is a critical health service in countries with dual epidemics. Linking ART patients who have been screened for TB into receiving TB preventive therapy (TPT) if clinically indicated or TB treatment if diagnosed, can reduce morbidity and mortality. The U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) tracks the number of ART patients who have been screened for TB and related indicators that have helped to monitor program success and offer insight into implementation.

Methods: We conducted a descriptive analysis and assessed percent completeness and additional proportions as measures of data quality on documented client interactions collected at PEPFAR-supported ART sites from Kenya, Tanzania, Uganda and Rwanda between October 2016–March 2017 and April–September 2017 to investigate the state of implementation of these critical health services.

Results: The proportion of ART patients who were screened for TB increased across the two time periods for Kenya (92.64% to 95.61%), Tanzania (89.54% to 95.90%) and Rwanda (99.33% to 98.00%). The completeness of reporting for TB screening results improved across the two time periods for Tanzania (99.00% to 100%) and Rwanda (94.66% to 100%), and was low for Uganda (83.63%) for the time period April–September 2017. The proportion of ART patients who screened positive for TB ranged from 0.50% in Rwanda from October 2016–March 2017 and to 6.22% in Kenya from October 2016–March 2017.

Conclusions: The majority of PEPFAR-supported programs in East Africa are routinely screening ART patients: for TB and these proportions increased over time, meeting an important global health benchmark. The majority of PEPFAR-supported programs in East Africa are routinely screening ART patients: for TB and these proportions increased over time, meeting an important global health benchmark. The completeness of reporting for TB screening results improved across the two time periods for Tanzania (99.00% to 100%) and Rwanda (94.66% to 100%), and was low for Uganda (83.63%) for the time period April–September 2017. The proportion of ART patients who screened positive for TB ranged from 0.50% in Rwanda from October 2016–March 2017 and to 6.22% in Kenya from October 2016–March 2017.

Country | Patients on ART (N) | Patients on ART screened for TB (N) | Proportion of patients who were screened for TB (%) | Proportion of patients who were screened positive for TB (%) | Complete- ness of reporting for screening results (%) | Patients who were screened positive for TB (N) | Patients who were screened positive for TB and screened negative for TB (N) | Patients who were screened positive for TB and screened positive for TB (N) | Patients who were screened positive for TB and screened negative for TB (N) | Patients who were screened positive for TB and screened negative for TB (N) |
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
Kenya, Apr 2017-Sept 2017 | 1,041,320 | 959,264 | 93.60% | 98.00% | 59,738 | 6.22% | 59,391 | 5,357 | 915,377 |
Uganda, Oct 2016-Mar 2017 | 893,091 | - | - | - | - | - | - | - | - |
Uganda, Apr 2017-Sept 2017 | 915,070 | 946,999 | 94.30% | 99.36% | 5,257 | 3.14% | 1,871 | 2,224 | 72,857 |
Tanzania, Oct 2016-Mar 2017 | 841,796 | 732,754 | 87.94% | 99.30% | 3,180 | 1.23% | 4,906 | 4,356 | 737,000 |
Tanzania, Apr 2017-Sept 2017 | 522,097 | 833,488 | 95.90% | 100.00% | 12,317 | 1.40% | 13,666 | 5,306 | 881,161 |
Rwanda, Oct 2016-Mar 2017 | 93,366 | 85,534 | 91.93% | 94.66% | 402 | 0.50% | 407 | 151 | 80,562 |
Rwanda, Apr 2017-Sept 2017 | 94,748 | 82,007 | 88.00% | 100.00% | 2,234 | 2.45% | 2,234 | 212 | 80,613 |

TUPEE695
Using client tracking to improve access to counseling and testing services for adolescent girls and young women in Western Kenya
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Background: DREAMS, funded by President’s Emergency Plan for AIDS Relief (PEPFAR), is an evidence-informed initiative that arms adolescent girls and young women (AGYW) with knowledge, life skills, and support they need to stay healthy and HIV-free. DREAMS relies on functioning community health systems to ensure HIV testing services (HTS) support the needs of AGYW to more effectively address HIV/AIDS and reach global 90-90-90 targets.

Description: American International Health Alliance (AIHA) implements a DREAMS intervention targeting girls aged 10-14 to ensure they receive a core package of services to help reduce new HIV incidence by 40% in high-burden counties in Western Kenya. HTS is a core service AGYW receive through referrals and linkages, so girls know their HIV status and can make informed decisions to mitigate risky behavior. Caregivers were often unwilling to take girls for testing by themselves, however, so project mentors would accompany them, adding another layer of complexity to the HTS process. AIHA worked closely with Kenya’s Ministry of Health (MOH) and County AIDS and STI Coordinators (CASCos) to arrange for counselors to provide HTS services at project Safe Spaces. Enrolled AGYW, accompanied by a parent or caregiver for consent, can get tested there. AIHA implemented a detailed process to track girls, HTS referrals, and status, ensuring girls who test positive are put on treatment, while those who test negative are scheduled for annual re-testing. After the referral form is completed, it is filed and updated in DREAMS Database.

Lessons learned: Of the 24,620 AGYW presently enrolled by year 2 of the project, 19,353 (79%) were tested and aware of their HIV status. 27 girls tested positive and were referred to healthcare facilities for treatment and follow up care is support of Kenya’s efforts to attain the global 90-90-90 targets.

Conclusions/Next steps: Implementers must continually evaluate project metrics and adjust operations to better meet local challenges and context. Working with stakeholders to find solutions that meet the needs of project beneficiaries can result in increased success and, in this case, resulted in a 90% success rate of AGYW enrolled in AIHA’s DREAMS project knowing their HIV status.

TUPEE696
Is the whole greater than the sum of its parts? Using narrow age bands in routine adult HIV surveillance for enhanced programme targeting and planning
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Background: Zimbabwe has an adult HIV prevalence of 14.6%. Since 2011 the National HIV & AIDS surveillance system has been tracking HIV prevention and control activities amongst older adults receiving services at public health facilities using a single broad age band (25-49 years). However, results from the 2016 Zimbabwe Population-Based HIV Impact Assessment showed noteworthy disparities of HIV prevalence by age and sex amongst persons between the age of 25 and 49 years. These results prompted the FACE-HIV programme to pilot a surveillance system collecting routine public health facility data on HIV prevention and control activities using narrower age bands (25–29, 30–34, 35–39, 40–44) amongst adults to solicit for enhanced HIV prevention and treatment program decision-making.

Description: A passive facility-based HIV surveillance system was implemented among 368 health facilities in 12 Districts from Oct–Dec 2017. Routine age and sex dis-aggregated service uptake and outcome data amongst adults (25-49) receiving HIV services at public health facilities were collected within narrow age bands.
Lessons learned: A total of 82,683 clients within the 25-49 year age group were tested for HIV. 4,641 were newly identified HIV positive giving a yield of 5.6%. Amongst women and men the HIV testing yield was 4.7% (2,721/57,558) and 7.6% (1,920/25,127) respectively. When the same data were analysed using narrower age bands, noteworthy disparities by volume of tested clients and yield were observed (fig 1). Across all age groups, absolute numbers of women tested for HIV was greater than men. For both women and men, as age increased, the volume of clients tested for HIV decreased, but the yield increased. The increase in yield was more marked in men, with the group with the highest yield being men aged 40-49(11%; 578/5,529).

Conclusions/Next steps: The observed findings confirm the urgent need to collect and analyse increasingly granular routine facility HIV surveillance data for better understanding of HIV program performance and targeting of programme interventions as the programme reorients towards meeting the UNAIDS 90-90-90 2020 targets.

TUPEE697
Trends in one-year retention among clients on antiretroviral therapy in PEPFAR-supported sites from 2015-2017
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Background: Recent PHIA results document high levels of viral suppression among people on ART, yet retention measured through routine program data suggest that retention among HIV+ clients newly initiating on antiretroviral therapy continues to be a significant barrier. In 2014, PEPFAR began prioritizing the highest burden geographic areas for accelerated epidemic control to increase diagnosis, linkage, and retention.

Methods: We conducted a retrospective analysis using facility-level 12-month retention data reported at 7,042 PEPFAR-supported facilities from 2015 to 2017 in the following countries: Côte d’Ivoire, Kenya, Malawi, Mozambique, Rwanda, South Africa, Uganda, Tanzania, and Zambia. Sites were selected for inclusion in the analysis if data were reported on the PEPFAR 12-month retention indicator during all three years under review. 5,707 (81%) sites in the sample were in PEPFAR areas of geographic scale-up. We reviewed trends in overall 12-month retention rates and assessed if there was a relationship between PEPFAR geographic prioritization and changes in 12-month retention rates from 2015-2017.

Results: The overall mean rate of 12-month retention in was 78.4% (SD-17.3) in 2015 and 78.7% (SD-14.1) in 2017, 29.6% of the sites reported in 2014 had a 12-month retention rate ≥90% compared to 29.2% in 2015 and 29.2% in 2017. 2,781 (44.7%) sites in PEPFAR scale-up areas observed an increase in 12-month retention compared to 631 (47.3%) in non-PEPFAR scale-up areas. There was no statistically significant difference in proportions (p = .089) between retention in scale-up and non-scale-up areas. Decreases in 12-month retention were observed in over half of sites in both PEPFAR scale-up (47.6%) and non-scale-up (50.0%) areas.

Conclusion: Results reported for the PEPFAR 12-month retention indicator are likely an underestimation of actual 12-month retention as facilities often struggle to account for “silent transfers,” particularly as efforts have been made to decentralize ART service delivery. Data from the PHIA demonstrate high levels of retention and viral suppression of clients on ART. Further investigation of both the data quality for retention indicators and programmatic strategies to improve tracing of clients between sites is needed to understand the observed decreases.

TUPEE698
Accelerating data use for Indonesia’s Fast-Track response
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Background: Each month, more than 4,000 health facilities across Indonesia collect and report HIV service-delivery data into the national HIV information reporting system (SIHA). Data are presented in tabular form across hundreds of indicators. This information is difficult to track, review, and analyze, and visual graphs are complicated to make. Not surprisingly, evidence has not been systematically used at all levels for accelerating HIV programming towards HIV epidemic control.

Description: The LINKAGES Indonesia Project – with support from USAID, under PEPFAR – partnered with Indonesia’s Ministry of Health (MoH) to create the Cascade Generator, using Microsoft Excel and a MySQL application that is integrated directly into SIHA. For the first time, visual HIV testing and treatment cascade dashboards can be generated at facility, district, province, and national levels with just a few clicks. Data can be isolated for various time periods, key population groups, and HIV service modalities. The Cascade Generator enables users to focus on data that directly corresponds to national epidemic control objectives, making data more manageable and supporting more comprehensive data utilization efforts.

Lessons learned: The Cascade Generator has been introduced in two PEPFAR-targeted provinces, Jakarta and Papua. One hundred-fifty facilities, eight district health offices, two provincial health offices, and the MoH have initiated its use during Fast-Track planning and analysis consultations. In mid-2017, PEPFAR assessed its use and determined
TUPEE699

Measuring advocacy and capacity building: Experience of major MSM/LGBTI-focused project in EECA

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1Consultant, Vilnius, Lithuania, 2NGO Tanagdoma, Tbilisi, Georgia, 3Humanitarian Project, Novosibirsk, Russian Federation, 4Eurasian Coalition on Male Health (ECOM), Tallinn, Estonia

Background: Eurasian Coalition on Male Health (ECOM) initiated a project in 5 countries aimed at improving responses to increasing HIV epidemics among MSM/LGBTI in Eastern Europe and Central Asia (EECA) through advocacy and empowered community engagement in policies and services. To assess the work, in 2017, it conducted a baseline assessment (BA) covering: development of LGBTI community; levels of epidemics and services available; recognition of MSM/LGBTI in national HIV policy documents; involvement of LGBTI leadership and MSM services in national HIV and other governance; domestic investments in HIV among MSM/LGBTI.

Methods: The BA protocol with qualitative and quantitative (scoring) tools was developed. Data were collected through literature review and semi-structured interviews with LGBTI groups/MSM services and national stakeholders.

Results: Involvement of MSM and transgender people in HIV decisions varies from third to half of the maximum possible scores, with higher levels in Georgia and Kyrgyzstan, where investment in HIV prevention among MSM is highest. While all the countries indicate MSM as a key population in HIV policy documents, funding for services has come exclusively from the Global Fund. Transgender people is recognized as a key population only in Kyrgyzstan; there is a complete lack of data on them across the countries. LGBTI leadership is being renewed across the countries but without focused leadership building. Valuable experiences have been identified: special seats allocated for community representatives and first transgender person elected to HIV coordination mechanism in Belarus. PreP initiation in Georgia, strong cross-fertilization among LGBTI groups and HIV-MSM services in Kyrgyzstan, first-time allocation of national funding for HIV prevention among MSM in Macedonia. Regional and country-specific recommendations were produced.

Conclusions: The BA might serve as an example for monitoring progress of advocacy and capacity building and producing comparative indexes on stronger and weaker sides of each country. Similar assessments should combine self-assessment of LGBTI/MSM stakeholders and confidential feedback from external partners (major differences seen in BA). The assessment will be repeated in 2019 to measure ECOM project’s impact. ECOM considers extending BA to other EECA countries to map EECA situation and compare of changes in its project countries with non-project countries.

TUPEE700

HIV rapid test procurement forecast at a regional level: Improving operational planning to achieve the HIV screening and detection targets

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Background: Ukraine has one of the highest HIV burdens in Eastern Europe with an estimated 243,000 people living with HIV/AIDS (PLWH). As of early 2018, 58.6% of PLWH have learned of their status. Scale-up of HIV testing is needed to reach the first 90 of the global targets. In the context of Ukraine’s health financing reform and HIV services’ decentralization, USAID HIV Reform in Action Project developed and tested an electronic tool for forecasting program and financial needs for rapid HIV tests supply at the regional level. The tool enables evidence-based supporting of HIV strategies and policies in programmatic scale-up and HIV testing provision.

Description: Our analysis reflected allocative and technical efficiencies as a key strategic pillar for HIV rapid test kit needs forecasting, with a particular focus on the first 90 target. The projections use regional go-go-90 targets. Input data include area-specific demographic, epidemiological, service utilization, and costing data. The tool allows forecasting of three alternative scenarios based on procurement practices used at the targeted area.

We tested the tool in seven PEPFAR-supported high-burden regions. The routine application of the tool permitted calculation of rapid HIV testing financial and programmatic needs for annual procurement plans.

Lessons learned: The tool supported local-level authorities in projecting financial needs to purchase rapid HIV tests based on their regional epidemiologic situation. Our experience demonstrated the difference in financial forecast needs based on rapid HIV test procurement practice in centralized, or pooled procurement vs. local procurement of small amounts of test kits.

Conclusions/Next steps: A multipronged approach to forecasting the programmatic and financial needs for rapid HIV testing could be introduced countrywide into the routine operational planning process at regional and local levels. Using such a tool will allow governmental policy-makers to make informed decisions to achieve 90-90-90 targets in a cost-effective manner and enhance transparency and accountability in decision-making and programmatic planning at the regional level. Programmatic planning should select the more suitable procurement option (pooled vs. local procurement).

TUPEE701

All for the Africans but nothing by the Africans? Analysis of the contribution of African HIV research institutions in the IAS 2017 conference

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Background: Research conducted in Africa has changed the way that HIV is prevented and managed globally. When the epidemic started expanding in Africa in the early 1990’s, foreign support (also in research) was critical to confront that threat. Today, is Africa still depending on foreign institutions and researchers to end HIV? We present here data on institutions that presented HIV research from Africa in the most recent International AIDS Society Conference on HIV Science (IAS 2017).

Methods: All abstracts accepted for IAS 2017 for Oral sessions and Poster discussions presenting research conducted in Africa were included in the study. Affiliations of the first four authors in each abstract were classified in seven categories: Research institutions (RI) - based in the United States (US-RI), Europe (UE-RI) or Africa (Afri-RI). Long term collaboration programs between RI in US or Europe and RI in Africa (Colab-RI). Non for profit with headquarters [HQ] out of Africa (Intn-NGOs). Non for profit with HQ in Africa (Afri-NGOs) and Ministries of Health [MoH] of African countries (Afri-MoH). Weighted scores based on author order were given
to each affiliation, keeping the total score for each abstract equal. After categorization, percentages were calculated of the contribution of each category to the total.

Results: 83 abstracts met the inclusion criteria. 46% of them focused on Implementation Science (Track D), none of them on Basic Science (Track A). Countries where HIV research was more frequently conducted were South Africa (22 abstracts), Malawi (13) and Uganda (9). By institutions, US-RI were responsible for 30% of the HIV research conducted in Africa presented in IAS 2017, Afri-RI for 22% (almost two thirds of these from South Africa). INTI-NGOs for 21%, Afri-NGOs for 8%, UE-RI and Colab-RI for 7% each and Afri-MohF for 5%.

Conclusions: Foreign research institutions and international NGOs are still responsible for almost 80% of the research conducted in Africa presented in IAS 2017. South African universities are the main actor in HIV research within the African continent. The role of long term collaboration programs between African and US or European universities in HIV research is lower than expected.

TUPEE702
Mapping population sizes and hotspot locations for female sex workers improved targeting for HIV prevention interventions in Ethiopia

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Background: HIV prevalence among female sex workers (FSWs) in Ethiopia is approximately 23%. To address risk of HIV in this population, the MULU/MARPs combination HIV prevention project was launched in 2012 across 168 Ethiopian towns/cities. Implementation was challenged by insufficient data on FSW locations and sizes. A rapid size estimation approach was developed to aid program implementation.

Description: FSWs were enumerated from 100 cities/towns through interviews with key informant (KI), who included FSWs, venue managers/owners, cashiers, and guards at FSWs workplaces. KIs were asked about the number of FSWs, who negotiated sex for money in the last month. The number of venue-based FSWs reported by KIs were summed to estimate population size in a given town.

The number of street-based FSWs was estimated using a capture/recapture approach. Street vendors/guards of FSWs helped to identify street-based FSWs. Further, service facilities were also mapped from 79 towns, including facilities that provide HIV testing, family planning, and sexually transmitted infection diagnosis and treatment. KIs provided informed consent and data collection was conducted June-October 2013 (44 cities/towns), February-March 2014 (35 cities/towns), and March-May, 2015 (21 cities/towns).

Lessons learned: The FSW population in the 100 study towns was estimated to be 84,801 (41,768 in 2013, 31,932 in 2014, and 11,101 in 2015) and were found to operate in 34,732 locations (67% establishment, 3 bars, hotels, cafes, groceries & coffee house, 41% homes and 6% streets). A total of 3,542 private, public, public/private, and NGO facilities were mapped and about 550 (11%) provided comprehensive HIV services including HIV counselling and testing, STI screening, and FP services. The results of this rapid size estimation approach have been used for project target-setting, allocation of resources, and developing coverage standards specific to each project town. It also helped to establish private network service facilities in hot-spots to provide standard services and evidence for national planning processes. One limitation is dependence of interviewers on KIs who can over/under estimate the size for various reasons.

Conclusions/Next steps: Rapid size estimation approaches may be less precise than other estimation approaches, but can be a useful exercise for programs seeking to better target services for hidden populations.

TUPEE703
Reaching universal coverage, through low cost integration with health system model: Madhyra Pradesh, India

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Background: Madhya Pradesh, low prevalent, central state in India, reports 2.2 million estimated annual pregnancies. 95% of the estimated pregnant women are registered for antenatal services and 75% are tested for HIV in 2017. These services are delivered through 680 facilities located in Community centers and Primary health centers. This paper describes the improvement in PPTCT in terms of screening and treatment services.

Description: The major barrier in reporting of Prevention of Mother to Child transmission services of HIV/AIDS program was the need for hardware and internet connectivity and data monitoring of these facilities. Although pregnant women were accessing services for PPTCT, it was not being reflected in the health system. The reporting from the facilities was 8% in 2014, which increased to 80% in 2017. These improvement in reporting was due to the integration with the maternal health system. Nodal officers from maternal health were identified at State, district, block and facility level: were trained on their responsibility to ensure reporting of the PPTCT services in the health system. These trainings were conducted during their regular monthly review meeting. These trained officers during their regular supportive supervision visits to the facilities and during their review of the facilities ensured reporting of PPTCT services in the health system.

Lessons learned: Despite many constraints on the need of hardware and internet connectivity, the facilities delivering services ensured that they report in the health system, through utilisation of the health system hardware and internet facilities. Total number of ANC registration in the year of 2014-15, 2015-16 & 2016-17 were 19,01,81,84 million and out of which pregnant women screened for HIV were 365,54,561% respectively, i.e. 97% increment over 3 years. The treatment initiation to the HIV positive pregnant women and ARV prophylaxis to HIV exposed babies increased by 94.9% in 2016-17 from 98.8% in 2014-15. Integration with maternal health systems and strengthening of data monitoring and reporting from the facilities providing testing & counselling services led to this upscale.

Conclusions/Next steps: Monitoring of Health facilities and strengthening reporting through the maternal health system has contributed to documenting the increase uptake of HIV services and improvement in treatment services.

TUPEE704
Focused HIV programming: A visual analysis of routine HIV data from 51 sub-districts in KwaZulu-Natal province, South Africa

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Background: KwaZulu-Natal (KZN) province remains the epicenter of the global HIV epidemic and despite massive investment in HIV programs, infection rates remain unacceptably high. In 2016, the provin-
The epidemic is not homogeneous in the province both at district and sub-district level. Across all age-groups, Ethekwini Metro has a high positivity rate and carries 40% of the total provincial burden. Sub-district analysis indicate major variances with cities and coastal areas having higher rates. For example, figure 1 shows that 12 of the 19 sub-districts with positivity rates over 10% among 15 - 49 age group were areas having higher rates. For example, figure 1 shows that 12 of the 19 sub-districts with positivity rates over 10% among 15 - 49 age group were along major routes or towns.

Lessons learned: The epidemic is not homogeneous in the province both at district and sub-district level. Across all age-groups, Ethekwini Metro has a high positivity rate and carries 40% of the total provincial burden. Sub-district analysis indicate major variances with cities and coastal areas having higher rates. For example, figure 1 shows that 12 of the 19 sub-districts with positivity rates over 10% among 15 - 49 age group were along major routes or towns.

Based on analysis, the province was able to prioritize specific high burden districts and sub-districts for intensification of high impact interventions. In 2017, the results informed Global Fund resource allocation for five identified high burden districts and 10 sub-districts.

Conclusions/Next steps: Visual analysis of routine data collected at sub-district can easily be used for focussed HIV programming at different levels. Further disaggregation by sex and ward level is recommended.

TUPE705
Effective use of LabEQIP tool for VL laboratory network optimization in Rwanda: Data-driven decision making to building laboratory capacity to meet the 3rd 90

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Task Order 1 HIV/AIDS, Arlington, United States

Background: To reach the 3rd 90-90-90 goal of having 90% of those on treatment virally suppressed, countries require thorough analysis and understanding of their national laboratories and referral sites networks. These networks should be optimized to strategically plan for future testing capacity needs. To that end, a comprehensive laboratory network optimization exercise in Rwanda supported viral load (VL) scale-up while scaling down CD4 testing.

Methods: Using the Laboratory Efficiency and Quality Improvement Planning (LabEQIP) software, a mapping and network optimization tool, partners in Rwanda collected data on patient numbers, facilities, and equipment utilization rates. The existing testing network and respective referral sites contained nine conventional VL and 92 CD4 instruments. Using LabEQIP, partners ran various scenarios to determine the optimal testing capacity, equipment placement and utilization rates, sample transportation, and referral linkages.

Results: A key finding from the exercise was that the National Reference Laboratory (NRL) was overburdened by participating referral sites while the Rwanda Military Hospital Laboratory (RMHL) was underutilized. Reallocation of some ART sites from NRL to RMHL resulted in a 6% reduced workload at NRL that RMHL was able to absorb; this also led to a 35% decrease in travel distances to support the network. Moreover, a scenario assuming the projected 8% increase in VL patients found the national equipment capacity to be adequate, as the labs were found to have only 23% utilization rate at baseline. Another scenario analysis showed that the existing POC CD4 network could meet projected overall 8% decrease in testing demand through reallocation of existing POC CD4 machines, leading to cancellation of a planned order of 22 new ones, saving at least $240,000 in equipment and installation.

Conclusions: The experience in Rwanda is illustrative of how national VL programs can benefit from the use of the LabEQIP tool. By providing rich, data driven scenario planning for VL network optimization, the tool informs policy and programmatic decisions that produce greater network efficiency, better clinical outcomes, and significant cost savings. The tool can also be used for long-term monitoring and revisions to VL networks.

TUPEE706
Using surveillance and other data systems to improve linkage to HIV care for racial and ethnic minorities in the United States: Lessons from the CAPUS demonstration project (2012-2016)

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Background: In the United States, blacks/African Americans and Hispanics/Latinos are disproportionately affected by HIV. Increasing access to care for people living with HIV (PLWH) and reducing HIV-related disparities are key national objectives. Data-to-Care (D2C) is a public health strategy that uses HIV surveillance and other data to improve linkage, retention, and health outcomes for PLWH who are not linked to medical care.

Description: The Care and Prevention in the United States (CAPUS) project implemented in 2012-2016 by eight state health departments included a combination of interventions to reduce HIV-related morbidity.
onsite mentorship was done to support facilities that did not initiate QI (1 in data management and 2 in QI) from each of the 19 facilities in data with the Ministry of Health and UZDPS, AIHA trained 3 health personnel to a range of factors, including inadequate integration of monitoring and Department of Population Studies (UZDPS), data management and utili-

According to a study conducted by the University of Zambia's across Zambia. military bases provide health services, including HIV testing, counsel-

Background: The Zambia Defence Forces (ZDF) Military Medical Service plays a substantial role in the country's HIV/AIDS response. ZDF’s 54 military bases provide health services, including HIV testing, counseling, care, and treatment, to over 400,000 military personnel and civilians across Zambia. According to a study conducted by the University of Zambia’s Department of Population Studies (UZDPS), data management and utilization to inform facility-level decisions at ZDF health centers is low due to a range of factors, including inadequate integration of monitoring and evaluation (M&E) systems, poor record documentation of records, and lack of standardized training resources. Description: With support from the President’s Emergency Plan for AIDS Relief (PEPFAR) and the U.S. Department of Defense (DOD), the American International Health Alliance (AIHA) is working with ZDF to promote data use for quality improvement. QII in 19 (ZDF) health facilities by establishing M&E Hubs at 19 ZDF health facilities. In collaboration with the Ministry of Health and UZDPS, AIHA trained 3 health personnel 1 in data management and 2 in QI from each of the 19 facilities in data management and QI. Post-training follow-up was conducted to ensure facilities were adhering to QI plans developed during training and onsite mentorship was done to support facilities that did not initiate QI processes.

Lessons learned: Site Improvement Monitoring visits conducted by DOD at 3 sites selected among the 19 facilities in 2016 scored 59% in QI. In 2017, 2 of the facilities selected scored 100%, demonstrating improved quality of HIV-related services. Staff at all 19 facilities discuss performance data in review meetings and revise action plans accordingly. Challenges such as staff attrition, inadequate support from District Health Offices (DHOs), and resource limitation still exist as impediments to further progress.

Conclusions/Next steps: Bridging identified gaps in effective collection and utilization of data to improve the quality of health services and outcomes requires, among other things, additional training, strong engagement of DHOs in the provision of onsite mentoring, and support for harmonization of data collection tools.

TUPEE708
Should health-facility service data alone be used to locate the HIV epidemic? Experience from a Health Facility Catchment Area Mapping study in Nigeria

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Background: Locating the epidemic is critical to any disease control effort. In Nigeria, PEPFAR utilized patient-level data to prioritize scale-up interventions in 32 of the 774 Local Government Areas (LGA) towards controlling the HIV epidemic. While PEPFAR relied on health-facility service data to determine its focus, failure to take patients’ residence into consideration challenged the accuracy of the prioritization. A Health Facility Catchment Area Mapping (HFCAM) was conducted to inform program and policy decisions regarding epidemic control activities performed by PEPFAR Implementing Agencies and their partners in Nigeria.

Description: The HFCAM collected demographic, geo-location of patient residence (LGA) and health facility data along with HIV treatment records from 26,365 (7,163 Male; 19,202 Female) beneficiaries between June and August 2016 in 127 PEPFAR supported facilities across 34 priority LGAs. The data collected was used to develop catchment maps. The maps show the spatial distribution of clients who reside in PEPFAR prioritized LGAs overlaid with that of clients who cross LGA boundaries to access care in the prioritized LGAs. The HFCAM concluded that 27.5% of clients access services outside their LGA of residence and 70% of clients who cross LGA boundaries did so from contiguous LGAs to a PEPFAR prioritized LGAs.

Figure: Caseload contribution to Scale up LGAs by contiguous LGAs!

Lessons learned: In response to the HFCAM findings, PEPFAR created a new category of support in Nigeria - ‘Sustain Support Plus’ - which joins the other categories of support (‘Scale-Up’ and ‘Sustained Support’). The 13 ‘Sustain Support Plus’ LGAs are contiguous to scale-up LGAs and have started to benefit from an expanded range of PEPFAR priority interventions to address the identified challenges in accessing core community-based interventions. PEPFAR has described this as ‘cluster-based targeting’ which considers LGA catchments in planning coverage of interventions. Through the granular analysis of client records and spatial visualization, the HFCAM supported greater precision in targeting services for PLHIV.
Conclusions/Next steps: Combining facility-based coverage data with patient-level geographic data leads to improved evidence on the location of the HIV epidemic, improving program decisions towards epidemic control. Future research will explore the characteristics of individuals who seek care in their LGA versus those who do not. This will allow further refinement in effective targeting.

Evaluating large scale programmes: approaches to rigorous evaluation

TUPEE709
Implementation of “Getting 2 Zero” in Miami: A progress report

Florida International University, Stempel College of Public Health & Social Work, Miami, United States

Background: Miami-Dade County is currently ranked number one in the United States for new HIV infections per 100,000 residents. To reduce HIV incidence and improve other outcomes, the Mayor’s Office appointed a ‘Getting 2 Zero (G2Z) Task Force’ of 29 stakeholders to review HIV prevention, treatment, and control policies, programs, and practices in the county. The Task Force began to meet in September 2016 and concluded its work in February 2017 by proposing 16 recommendations for implementation. We followed up on the implementation of G2Z recommendations by tracking the progress of the Florida Department of Health (FDOH-Miami) and their partners.

Description: Eight members of a master’s of public health class on “Health Promotion Program Planning and Intervention Design” formed a research team and divided the 16 recommendations into eight pairs. Each team member then followed up on two of the recommendations by contacting a representative of the health department or another person designated in the action plan as taking the lead. Information obtained from personal communication, meeting attendance and minutes, and other sources was used to create a timeline displaying monthly progress from June 2017 through January 2018.

Lessons learned: As of February 1, 2018, progress was reported on 13 recommendations and no progress on three. Those being implemented had achieved varying degrees of completion (Table on the next page). For example, significant strides had been made with respect to:
(1) improving access to PrEP and nPEP,
(2) routine HIV/STI testing, and
(3) providing rapid access to ARV treatment and retention in care.
Major obstacles still remained with:
(1) implementing comprehensive sex education in public schools,
(2) bridging gaps when clients move or lose eligibility, and
(3) expanding the network of housing available for PLWHA.

Conclusions/Next steps: Significant progress had occurred on implementing recommendations under the control of FDOH. Recommendations that required legislation, policy changes, and multi-agency collaboration or additional resources had made less progress. No additional resources had been allocated by FDOH, the Mayor’s Office, or other agencies to assure complete implementation of Task Force recommendations in Miami-Dade County.
Updates provided by Y.T. Cooke
1. Provide comprehensive sex education throughout the Miami-Dade County Public School System (M-DOPS) recommending modifications in the M-DOPS comprehensive sex education curriculum as age appropriate.
2. Expand PrEP (Pre-Exposure Prophylaxis) and pPEP (non-occupational Post-Exposure Prophylaxis) capacity throughout Miami-Dade County, and increase utilization by all potential risk groups.

Miami-Dade County Public Schools
Florida Department of Health in Miami-Dade County and Gilead FOCUS Project

Not implemented—Why?

• Parents want control over sex education of children.

• M-DOPS adopted an abstinence only curriculum.

• Abstinence only rule is now under review.

• Comprehensive sex education in M-DOPS is possible. Non-profit CBD could partner with Planned Parenthood.

Number of PrEP locations: 25 Number of PEP locations: 16 Number of PrEP prescriptions: • June 2017— 907 patients (676 continuing, 119, new patients) • August 2017—184 patients • September 2017—832 patients (HIV orama decisions) • October 2017—1044 patients

Quarterly meetings between community representatives and the Superintendent of M-DOPS have been scheduled to discuss health-related issues. Barring is at the top of the list. Comprehensive sex education is lower down on the list of priorities.

The number of people using PrEP in Miami-Dade County almost doubled from 663 at the end of 2016 to an estimated 1031 people at the end of November 2017. Adherence is believed to be as good for PrEP as it is for ARV treatment, but providers are concerned about discontinuance by patients after 6 months of use.

Updates provided by L. Blair
3. Implement routine HIV/STI testing in healthcare settings (hospitals, urgent care centers, medical practices).
16. Identify barriers and improve access to existing HIV/AIDS services for HIV positive undocumented immigrants

Baptist Hospital Homestead, Bonninique Clinic, and Jackson Health System have implemented routine testing in ERs. Want to expand to Baptist West Kendall and Jackson Health System Adolescent Emergency Rooms.

Clinic hours and weekend availability created. Increased number of participating providers and mobile units.

The number of people using PrEP in Miami-Dade County almost doubled from 663 at the end of 2016 to an estimated 1031 people at the end of November 2017. Adherence is believed to be as good for PrEP as it is for ARV treatment, but providers are concerned about discontinuance by patients after 6 months of use.

Updates provided by M. Brown
4. Create a comprehensive HIV/AIDS communications toolkit.
11. Expand the network of housing available for PLWHA with particular attention to pregnant women, released ex-offenders, youth and other high risk HIV-positive groups.

Florida Department of Health – Central Florida
Miami-Dade County Homeless Trust, City of Miami Hopika Program, Miami-Dade County Ryan White Part A/MAI Program

Created a comprehensive HIV/AIDS communications toolkit.

Creating a marketing campaign to educate providers on Florida Statute 381.004. The Statute mandates routine HIV testing in healthcare settings unless a patient chooses to opt-out.

No progress reported

Updates provided by J. Garcia
5. Convene a multi-agency consortium of public health/ academic institutions/service providers to share data/collect epidemiological research identifying the driving forces of the HIV/AIDS epidemic in Miami-Dade County.
6. Decrease the lag time from diagnosis to linkage to HIV/AIDS care within 30 days or less for: (1) clients newly diagnosed, (2) clients returning to care and (3) clients going from H/AIDS, irrespective of where clients were diagnosed and where clients seek treatment. This action recommendation includes expanding the Department of Health’s “Just and treat” program and other forms of fast-track post-diagnosis clinical engagement.

Florida Department of Health in Miami-Dade County

No progress reported

Partnering with Florida International University’s Steinme College of Public Health and Social Work to identify research needs and opportunities for collaboration. A 5-year strategic plan will be developed.

Updates provided by M. Guzman
7. Increasing system capacity to bridge the gaps in provision of treatment and medication (and maintain PLWHA in care) when changes in income and/or residence create eligibility problems.
12. Create/expand a network of internal (in-jail) and post-release HIV/AIDS service provision to inmates in the Miami-Dade County jail system to address viral suppression while incarcerated and effective linkage to medical / mental health / substance abuse / housing care upon release, including providing sufficient medication to facilitate continual viral load suppression during post-release linkage to care.

Florida Department of Health – Central Florida
Florida Department of Health in Miami-Dade County
Florida Department of Health in Miami-Dade County and Jackson Health System Correctional Services

Correctional Health Services is modifying the process to provide remits upon release with a 30-day supply of medication. Hiring a linkage to care specialist for post-release HIV services.

Jackson Health System Correctional Services in partnership with FDOH-Miami and South Florida AIDS Network will work on a plan to extend ARV medication supplies for 30 days post-release.

Hired a Linkage to Care Coordinator.

No progress reported

Updates provided by D. Felder
8. Enlist commercial pharmacies as HIV/AIDS treatment partners, from making PrEP and pPEP more available (see Recommendation #2) to having pharmacists alert HIV/AIDS care clinicians and/or case managers when antiretroviral (ARV) medications are not picked up on time.
9. Develop a county-wide system of HIV/AIDS program effectiveness evaluation, basing it on a common set of outcome measures across all providers.

Florida Department of Health – Central Office
Florida Department of Health in Miami-Dade County, Government of Miami-Dade County

In August 2017, Miami-Dade County RW Partnership created a pharmacy Workgroup to explore barriers to accessing medications through ADAP. Walgreens Minute Clinic will be starting a PrEP/PPEP pilot program at two locations with future plans to expand to all 17 locations. The program is scheduled to start in November 2017.

No progress reported

RW Partnership created a commercial pharmacy with in-house clinical services to provide PrEP and pPEP. Trying to establish an nPEP standing order at a commercial pharmacy.

Urging revision of Florida Statute 348.3 to allow youth access PrEP without parental consent.

No progress reported

Updates provided by E. Dornovil
10. Develop a county-wide integrated system of HIV/AIDS care, including a county-wide treatment consent form and develop county-wide data-sharing system addressing various social service needs (transportation, legal services)
18. Build a county-wide system of HIV/AIDS program effectiveness evaluation, basing it on a common set of outcome measures across all providers.

Florida Department of Health – Central Office
Florida Department of Health in Miami-Dade County, Government of Miami-Dade County

In August 2017, Miami-Dade County RW Partnership created a Pharmacy Program to ensure barriers to accessing medications through ADAP.

Walgreens Minute Clinic will be starting a PrEP/PPEP pilot program at two locations with future plans to expand to all 17 locations. The program is scheduled to start in November 2017.

No progress reported

Data sharing agreement initiated with the Agency for Healthcare Administration (ACHA) to obtain health outcomes for Medicaid clients.

Exploring the creation of a statewide Ryan White consent form.

Meeting with County officials to create a county-wide consent form.

Updates provided by T. Brown
12. Create/expand a network of internal (in-jail) and post-release HIV/AIDS service provision to inmates in the Miami-Dade County jail system to address viral suppression while incarcerated and effective linkage to medical / mental health / substance abuse / housing care upon release, including providing sufficient medication to facilitate continual viral load suppression during post-release linkage to care.
14. Reform and modernize Florida’s current statutes criminalizing HIV non-disclosure.

Florida Department of Health in Miami-Dade County, Miami-Dade County Ryan White Part A/MAI Program
Florida Department of Health in Miami-Dade County
Florida Department of Health – Central Office
Florida Department of Health in Miami-Dade County
Florida Department of Health in Miami-Dade County
Florida Department of Health in Miami-Dade County

In 2016, the Test and Treat Rapid Access Program was launched to help newly diagnosed clients start ARV treatment as early as possible. Early treatment slows disease progression, decreases transmission, and provides access to medical care, support services, and other benefits.

Jackson Health System Correctional Services in partnership with FDOH-Miami and South Florida AIDS Network will work on a plan to extend ARV medication supplies for 30 days post-release.

Hired a Linkage to Care Coordinator.

No progress reported

Florida Legislative

The bill has been filed for consideration in the 2018 Florida Legislative
TUPEE710

The impact of an interpersonal communication intervention on knowledge and uptake of the new Woman’s Condom among young adults (18-24 years) in urban Zambia: A randomized evaluation

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Background: There is a need to diversify contraceptive choices, particularly in settings such as Zambia which experience high rates of HIV (13.3%) and unmet need for family planning (27.1%). A new Female Condom (FC), the Woman’s Condom (WC), was introduced combined with social marketing in urban Zambia.

Methods: A cluster randomized controlled trial was implemented to determine the impact of an interpersonal communication (IPC) intervention on FC knowledge, perceptions, and use. A baseline survey (n=2,392) was conducted in March 2016. The WC was distributed throughout 40 urban wards comprising Lusaka, Zambia coupled with a mass media campaign. Twenty wards were randomly assigned the IPC intervention. After one year, an endline survey (n=2,430) was conducted. Models were fit to determine the impact of IPC on outcomes of interest including FC knowledge, male condom use, interest in trying a FC, a condom perceptions index and knowledge of modern contraception.

Results: Using an intention-to-treat approach, no change in outcomes between intervention and control wards was detected. While IPC agents were assigned to an intervention ward, IPC attendees could be from any ward. Therefore, an average treatment effect on the treated approach was also explored. Using this approach to compare participants who attended IPC events to those that did not, an increase in FC knowledge (OR=2.47, 95% confidence intervals (1.36, 4.46)) and 79% improvement in FC knowledge and/or poor reporting remain unclear and require further investigation. ZAZIC is responding with expanded active surveillance, accelerated refresher/retraining for clinical, and data teams, improved post-operative counseling for younger clients, and creation of a Quality Assurance Task Force. ZAZIC will expand implementation of this QA effort.

Conclusions/Next steps: Although results cannot be generalized, active surveillance suggests that AEs may be more frequent and follow-up lower than reported. Root causes for poor follow-up, poor documentation and/or poor reporting remain unclear and require further investigation. ZAZIC is responding with expanded active surveillance, accelerated refresher/retraining for clinical, and data teams, improved post-operative counseling for younger clients, and creation of a Quality Assurance Task Force. ZAZIC will expand implementation of this QA effort.

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*Moderate and severe AEs; **AEs expected (ab) was calculated by multiplying the number of MCA reported over the passive surveillance period (a) by the observed active surveillance AE rate (b) to estimate the AEs that may have actually occurred over the past reporting period.

TUPEE711

Trust but verify: Is there a role for active surveillance in monitoring adverse events in large-scale voluntary medical male circumcision programs?

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Background: Ensuring quality service provision is fundamental to ZAZIC’s voluntary medical male circumcision (VMMC) program in Zimbabwe. ZAZIC (a name created by merging partners’ names) aims to create safe space to identify and manage adverse events (AEs). Literature on surveillance weaknesses and introduce quality improvement strategies.

Implementation science: lessons from researcher / programme partnerships

TUPEE712

Methodological issues in data quality of cohort studies in populations of persons living with HIV: Challenges and opportunities in resource constrained settings

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Background: Understanding the epidemiology of HIV infection and response to treatment is essential to optimizing the outcome of HIV treatment programs. Research in sub-Saharan Africa is increasingly...
focused on large cohorts of persons living with HIV to document and improve long-term treatment outcomes. Structural and contextual factors continue to pose challenges to the quality of data collected. We describe implementation challenges and opportunities in three hospitals in Cameroon, part of the Central Africa International Epidemiology Databases to Evaluate AIDS (CA-IeDEA).

Description: Using a mixed methods approach, including data source review, source data verification, data collection and management systems, and interviews with data collection staff and HIV care providers, we identified structural, contextual, and individual factors that impede quality data collection in the three IeDEA clinics in Cameroon. Thereafter, processes and mechanisms were implemented to address the challenges. Existing problems with data collection tools were also identified and addressed.

Lessons learned: Over 12,000 patients have been consented and enrolled in the three Cameroon CA-IeDEA clinics. Patient treatment data are collected on paper forms and archived in a central location and entered in an electronic (REDCap) database. In 2017, we implemented measures to address existing challenges. These included retraining of data staff on good clinical practices and ethical conduct of research, providing standard operating procedures for data collection and management processes, implementing a rigorous monitoring and evaluation plan, and revising the staffing systems. Structural and contextual constraints to effective data collection included lack of coordination between caregivers and data collectors in various units, insufficient number of trained data processing staff, weak data tracking mechanisms, and inadequate infrastructure and equipment for collecting clinical information.

Conclusions/Next steps: Identifying and addressing structural, contextual, and personnel factors that impede the collection of quality data is essential in large cohort studies. Researchers and policy makers should be aware of and address these challenges prior to implementing cohort studies in resource limited settings.

TUPEE714 Challenges in recruiting prisoners with opioid use disorder into HIV prevention using methadone: Lessons learned from program implementation in Kyrgyzstan

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Background: Methadone is the most cost-effective HIV prevention strategy in Eastern Europe & Central Asia (EECA), where the HIV epidemic is volatile and driven primarily by injection drug use. As criminalization of drug use results in high incarceration rates, we conducted a longitudinal MATLINK study employing SBRT (screening, brief intervention to expand coverage of methadone maintenance therapy (MMT), and linkage to treatment) to improve primary and secondary HIV prevention among prisoners with opioid use disorders in Kyrgyzstan. Here, we critically reflect on experiences of recruiting prisoners into MATLINK in Kyrgyzstan where prison-based MMT is available.

Description: Recruitment for MATLINK in Kyrgyzstan began in March 2017 in six including one women’s prisons. Eligibility criteria were 1-year pre-release, plans for release near the capital city (Bishkek) and opioid dependence based on the Rapid Opioid Dependence Screen (RODS). While target enrolment was 100 participants, only 86 out of 894 screened prisoners were eligible for study recruitment based on the RODS, time to release, and region of release criteria (and 83 consented).

Lessons learned: Among 894 screened prisoners, only 128 (14.3%) reported using an opioid within one year pre-incarceration, and 106 (11.9%) met RODS criteria for pre-incarceration opioid dependence. In comparison, according to a nationally representative biobehavioral survey of Kyrgyz prisoners, 35% reported pre-incarceration opioid use (PULHELSE, 2014). MATLINK recruitment revealed that prisoners may be reluctant to disclose pre-incarceration opioid use during screenings for a health intervention study. This may reflect a social desirability bias, with prisoners mistaking abstinence during incarceration for long-term recovery, and believing they don’t need addiction treatment. Prisoners, however, may report HIV risk behaviors like injection drug use in a confidential health survey not followed by linkage to care.

Conclusions/Next steps: Prisoners may underreport pre-incarceration opioid use at screening for HIV prevention interventions, circumventing opioid dependence diagnosis tools. This has implications for design and implementation of HIV prevention programs using Methadone among prisoners who have injected drugs. Future studies may compare screening via a short biobehavioral survey with using the RODS. Qualitative interviews should also explore how prisoners may perceive recruitment into HIV prevention studies and what reservations they experience.

TUPEE713 Research protocol considerations when working with male couples: Lessons learned from the field

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Background: Two-thirds of new HIV infections among men who have sex with men (MSM) occur from primary partners. However, there is limited understanding of the unique behaviours, needs and challenges of male partnerships in African contexts. The Together Tomorrow study was the first study to our knowledge to explore the HIV risk taking behaviour and prevention and treatment needs of male-male partnerships in Namibia and South Africa.

Description: This mixed methods study comprised of three phases:
1) formative work with community stakeholders;
2) focus group discussions and in-depth interviews with gay, bisexual and other MSM; and
3) a quantitative survey, with optional HIV testing and counselling, with male couples. Recruitment and data collection was done by local implementing partners.

Lessons learned: Implementing research protocols is an iterative process that requires adaptability to various contextual (social, cultural, legal, political) considerations. In contexts where homosexuality is criminalised or highly stigmatised, community engagement and mobilisation becomes a scientific and ethical imperative. This was achieved through extensive community mobilisation with LGBT community-based organisations and gender sensitisation of tribal authorities.

While the protocol initially prescribed gender-matching of researchers and participants, in practice, gender matching was not the preferred option for the male-couples who largely felt more comfortable speaking to female interviewers, mentioning that in general, men did not talk to other men about personal matters. Initial formative research also indicated that the eligibility criterion of a relationship of at least one month in duration would be too short a time to assess relationship dynamics, resulting in an amendment to 3 months for the survey phase. The uptake of optional HIV testing at both sites was considerably low. Participants reasons for declining included concerns about pressure to disclose their status to their partner and inadvertent disclosure of an HIV positive status if a positive test takes a longer time with counsellor or emotional reactions to results.

Conclusions/Next steps: The development and application of research protocols is in itself a research activity, and should be adaptive to varying contextual factors. With LGBT in general, the contextual factors influencing the expression of sexual orientation and gender identity, should remain top of mind.
TUPEE715
HIV case finding and linkage to care in eleme local government area, Rivers State: a comparative analysis of facility HIV services optimization and community based HIV intervention

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Background: A combination of effective and efficient approaches are necessary for scaling up of HIV case-identification, particularly in resource-limited settings. To increase access and coverage, communities need to be linked to facilities via community-based interventions that seek to promote health seeking behavior. This study compares the effect of community based HIV testing services (HTS) to HTS optimization at the facility level.

Description: This is a pre-and post-intervention study conducted in Eleme, one of the priority LGA supported by the USAID funded Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS) in Rivers State. The pre-intervention phase (PIP1) covers the period November 2015 - October 2016 while the post intervention phase is from November 2016 - Oct 2017. PIP involved community entry/mobilization, HIV screening in general population, referrals and linkage to care and treatment services from the community to the facility, while the PIP2 focused on optimization of HIV testing services within the facilities through multipoint/Provider Initiated Testing and Counselling (PITC), targeted testing in the communities, Sexual Network and Genealogy Testing and referrals by escort to Service Delivery Points. We reviewed HTS and ART commencement data to compare differences in positivity yield and linkage between both phases.

Lessons learned: The PIP1 had 107,813 individuals counselled, tested and received result, 1,406 tested HIV Positive and 964 linked to ART while the PIP2 had 24,078 individuals tested, 614 HIV positive and 610 linked to ART. Findings show increase in positivity yield from 1% to 3% and linkage from 87% to 99% in PIP1 and PIP2 respectively.

Conclusions/Next steps: Although community outreach creates awareness, a targeted approach to HTS including sexual network/genealogy testing may be a more efficient approach. In addition, PITC in health facilities yields a higher positivity and linkage rates, maximizes use of testing resources by focusing on higher risk populations.

TUPEE716
Implementing proactive HIV testing in General Practice in Amsterdam within a fast-track city initiative (H-TEAM)

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Background: An estimated 300-400 individuals in Amsterdam live with undiagnosed HIV and 33% are diagnosed late. A recent study by our group showed that in the 5 years prior to HIV diagnosis, 60% consulted the GP with one or more HIV indicator conditions. To promote targeted and proactive testing by GPs we designed, implemented and evaluated several interventions, including multifaceted interactive training sessions for Amsterdam GPs using laboratory feedback.

Description: Since 2015, 171 of 545 Amsterdam GPs participated in these training sessions on HIV/STI testing behaviour, which included personal feedback and the development of practice-improvement plans. Additionally, all Amsterdam GPs receive a quarterly newsletter on HIV and can participate in an annual free HIV testing week. A unique dataset was generated by retrieving HIV and STI test request data (2011-2016) for each individual GP from all diagnostic laboratories they use (90% estimated coverage). Test request data were converted into an annual average per fulltime GP and HIV positivity rate, separated by gender.

Lessons learned: The training sessions were well-received (rating 8.5/10) and facilitated the development of quality improvement plans by GPs. Close collaboration between GPs, local GP-representing organisations and laboratories was key in developing and implementing the training sessions and database. Amsterdam GPs together requested 10,000 HIV tests annually, with large inter-GP and inter-practice variation. We found a decreasing trend prior to 2015 from 38 HIV tests per GP in 2011 to 26 in 2014, followed by a slight increase to 29 in 2016 (figure, preliminary). Since 2014 more men than women are being tested. Over 30,000 tests for chlamydia and gonorrhoea are requested annually. Interestingly, anal testing for chlamydia and gonorrhoea, which GPs often neglect, doubled between 2014 and 2016.

Conclusions/Next steps: The decreasing trend in HIV/STI testing by Amsterdam GPs has reversed since 2014, coinciding with the start of the H-TEAM initiative. We are currently performing a subanalysis comparing GPs participating in training sessions to non-participating GPs. Upon receiving 2017 data we will conduct additional analysis on this unique dataset, including geospatial mapping. Detailed insight into testing behaviour by GPs will be essential for designing interventions that further curb the HIV epidemic in Amsterdam.

TUPEE717
Strengthening HIV and tuberculosis surveillance through intensified case finding in a prison in North-East India, 2017

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Background: The northeastern state of Mizoram in India is reported to have the highest HIV prevalence, driven by people who inject drugs. Currently low detection rates of HIV and tuberculosis points towards apparently poor infrastructure and ineffective implementation of existing surveillance strategies within the prison healthcare system in Mizoram’s capital city of Aizawl. Our objectives
were to identify the barriers for routine case detection activities and assess the operational feasibility of implementing the intensified case finding strategy in Aizawl prison.

**Methods:** We conducted in-depth interviews and focus group discussions (FGDs) with prison authorities/inmates, and state/district officials of HIV and tuberculosis control programs. Subsequently, we implemented the intensified screening through entry screening of new inmates, mass screening of resident inmates and exit screening at release for four months. We setup chest x-ray, sputum smear microscopy and HIV testing facilities within the prison and referral to external facility for Cartridge Based Nucleic Acid Amplification Test (CBNAAT). We did content analysis of transcribed text from in-depth interviews/FGDs using coding and themes and estimated proportions for key variables.

**Results:** We identified poor tuberculosis-related awareness among inmates, low risk perception during incarceration, negative attitude of healthcare providers, poor testing and referral infrastructure, lack of trained technicians, and absence of inmate tracking mechanism as key barriers. We screened 738 inmates (Male:626/Female:112). Of 391 (53%) having presumptive tuberculosis symptoms 145 (37%) underwent sputum microscopy. We detected 14 new tuberculosis cases; overall tuberculosis positivity 1.9%. We tested 431 (65%) of 657 inmates for HIV, of which 21 (9.5%) new cases were detected; overall HIV positivity 16.5%. Three males were HIV-tuberculosis co-infected.

**Conclusions:** It is feasible to implement intensified case detection in the prison setting albeit with challenges in sputum microscopy/CBNAAT and linkages with treatment facility outside the prison. Inter-departmental coordination along with upgradation of the prison health infrastructure are vital to overcome logistic, linkage & security barriers and establish a sustainable intensified surveillance system.

**TUPEE719**

**The people living with HIV Stigma Index 2.0: Community-driven strategic information for change**

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**Background:** The People Living with HIV (PLHIV) Stigma Index is the most widely used global survey measuring stigma and discrimination among PLHIV. Launched in 2008, and administered by PLHIV to their peers, the Stigma Index has generated evidence that has been used to identify the extent of stigma and its effects, and to influence policy. Shifts in the HIV response, including an increased focus on HIV treatment and care, prompted the original developers (GNP+, ICW, and UNAIDS) to work with Population Council/Project SOAR and partners to update the tool.

**Description:** A small working group (SWG) was established to guide an iterative update process with representatives from GNP+, ICW, UNAIDS, USAID and researchers from the Population Council, Johns Hopkins University and RTI. The SWG outlined a process for evaluating, updating, pre-testing, and pilot-testing the revised Index.

**Lessons learned:** Based on a desk review of 13 country reports and 4 regional reports; input from 15 key informants; and a 2-day stakeholder consultation (April 2016), both topical and methodological aspects of the Stigma Index were identified for updating. In addition to restructuring and streamlining the original instrument, the healthcare section was expanded, with an emphasis on the impact of stigma and discrimination on access to HIV care and treatment. Modules were added to assess stigma and discrimination among sex workers, men who have sex with men, lesbians, transgender individuals and people who inject drugs. Validated scales that assess internal stigma and mental health were incorporated and a new scale to measure resilience was added. Feedback from 60 PLHIV who pre-tested a draft of the updated questionnaire was incorporated before the formal pilot study was conducted in Cameroon, Senegal and Uganda among 1207 respondents. Results of the pilots indicated good variability in responses for most questions; a few minor adjustments to the questionnaire were made and the Stigma Index 2.0 was shared in November 2017.

**Conclusions/Next steps:** Results from pilot testing the Stigma Index indicate the updated questionnaire performs well in sub-Saharan Africa. Other countries are encouraged to implement the Stigma Index 2.0 to expand the body of evidence from a range of experiences and settings.

**Effective approaches to linking population and programme data, to inform HIV programming**

**TUPEE719**

**Measuring behavioural and health seeking outcomes among people who inject drugs using the Polling Booth Survey (PBS) in Kenya**

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**Background:** People who Inject Drugs (PWIDs) in Kenya are characterized by high levels of risk in terms of their injecting practices through sharing of needles and 8.8% of PWIDs are women of age 15-49 years. PWIDs have a HIV prevalence rates at 18.3% (NASCOP 2013). Kenya conducted three rounds of nationwide polling booth survey (PBS) in 2014, 2015 and 2017 to measure changes in behavior of PWIDs as a result of program interventions and understand if the PWIDs programs are achieving their intended effects.

**Description:** PBS is a group interview method, where individuals give their responses through a ballot box. Individual responses are anonymous and unlinked. Anonymity of the respondent improves reporting on sensitive and personal behaviors. Participants were selected using probability sampling and organized into small homogenous groups of 10-12 people. During the third PBS, we included groups for the young PWIDs. A total of 87 polling booth sessions were conducted involving 1131 PWID (both men and women), representing 97% of the sample size. The age distribution among the PWID was 25% 24 years and below and 75% 25 years and above.

**Lessons learned:** A new needle and syringe were used by 88% of PWID the last time they injected and there was no difference between the old and young PWIDs, but 13% of PWID shared their needle when they last injected compared to 16% who shared during the previous PBS. When asked about condom use at last sex with a non-regular partner, 76% responded that they used a condom. Condom burst when last a condom was used was at 17% for the old PWID and 26% for the young PWID. Out of those who took part in the PBS, 20% were positive, with 78% and 68% on care and ART respectively. The percentage of PWID who experienced sexual violence increased from 8% to 12%.

**Conclusions/Next steps:** Responding to HIV programming needs of PWIDs at scale is key ingredient in national HIV response. As programs with key populations scale up in Kenya, it is important to measure KP programs effectiveness. Behavioural surveys like PBS that can measure sensitive behaviours should be part routine National monitoring.
TUPEE720
HIV treatment cascades: A community health framework for addressing HIV quality improvement
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Background: HIV Treatment Cascades (HTCs) have tracked worldwide achievement on 90-90-90 UNAIDS goals. While HTCs are excellent visualizations to assess the impact of HIV quality improvement, little is known about their application in community health practice. In 2017, Callen-Lorde - the largest LGBT community health center in NYC - created a strategy to improve the quality of our HIV care in 2017 based on HTCs. We discuss here the implementation, impact and outcomes of our approach.

Description: We obtained four nested indicators for 2016: Active Case-load patients receiving HIV care. Prescription of Antiretroviral Therapy (ART). Retention - patients receiving a primary care visit in the 6 months prior to the end of the year, and Viral Load Suppression (VLS) - patients with viral load of < 200 copies/ml. We also investigated several subgroup categories: transgender identity, Black race, and youth (< 25) to assess their unique outcomes. Overall, our population achieved 91-85-93. The achievement in subgroups was: Transgender (86-83-88), Black (93-85-89), Youth (84-77-83). Based on these outcomes, our HIV program team set forth a set of 2017 quality improvement initiatives including: A Rapid ART initiation program, a redesigned multidisciplinary HIV intake linking all newly diagnosed (NDS) to social support and navigation, sharing quarterly cascade data on internal systems and social media, installing an open-access program to eliminate challenges in accessing care. Reducing barriers to care through open-access programs and service navigation has been key to patient retention, and Rapid ART initiation has been essential for VLS. Data sharing has contributed greatly to patient education and collective goal setting. Our cash incentive program has proven impactful in its nascent phase. Our 2017 HTC shows overall achievement of 98-89-92 (Figure 1).

Conclusions/Next steps: HTCs should be used in community health settings to assess gaps in care, guide quality improvement and organize multidisciplinary teams maximizing impact. Reducing barriers to care through open-access programs and service navigation has been key to patient retention, and Rapid ART initiation has been essential for VLS. Data sharing has contributed greatly to patient education and collective goal setting. Our cash incentive program has proven impactful in its nascent phase. Our 2017 HTC shows overall achievement of 98-89-92 (Figure 1).

TUPEE721
Virtually found: A differential approach of community mobilization for MSM and TGs on social media platform for HIV screening
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Background: The HIV epidemic in India remains concentrated to key population groups. HIV prevention among FSWs, MSM and TGH is changing rapidly. The National HIV/AIDS programme is investing heavily on focused prevention via physical outreach through targeted interventions (TIU) spread across the country for the key population. However, in the current context especially among FSW, MSM and to some extent TGH, soliciting clients and potential sexual partners is increasingly becoming virtual due to increased access to technology such as internet and mobile applications via the use of smartphones and computers.

Methods: India HIV/AIDS Alliance conducted a rapid assessment of most frequented sites on the internet used for finding potential sexual partners by MSM and TGs. We also identified potential social platforms such as Grinder, BlueX, Planetromeo, Facebook, Instagram and Tinder used to outreach MSM and TGH community. Communication materials were posted on those platforms to identify and contact individuals, offering them HIV prevention messages as well as free, confidential and community friendly HIV screening services via the Samarth programme sites for one month period. Data were collected and analysed on the output. Comparative analyses was carried out between physical contact and social media contacts.

Results: Total MSM and TGs that came to Samarth clinic via social media exclusively was 1,229 (629 TG, 13 and not specified 38%). This has resulted in an increase in reaching Samarth via social media exclusively from 6% to 45% (after). Majority of the respondents were between 25-34yrs (60%), graduates (50%) and salaried/employed (60%). Proportion of individuals reached by via social media strategy as compared to physical outreach under the programme and is willing to take an HIV test is 41.

Conclusions: India is now struggling to develop its next generation HIV prevention programming. There is a clear realisation of the fact that internet, smart phone applications etc. have to be addressed.

TUPEE722
Developing a standardized tool for data use and decision-making to estimate the human resources for health (HRH) requirements for implementing differentiated care for HIV in high burden settings
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Background: The adoption of the “Test and Start” strategy to accelerate the achievement of the 90-90-90 goals has increased the number of PLHIV receiving ART. Stable ART clients often do not require the same level of clinical oversight and could receive services through alternative models, allowing limited HRH to see those clients who require regular monitoring.

Service providers have identified differentiated service delivery (DSD) models of care for clinically stable ART clients as a way to provide services more efficiently. Estimating and optimizing available or required human resources becomes the next requirement. To aid in decision-making for implementation and resource allocation, the HRH2030 program, funded by USAID, through PEPFAR developed a simple, client-focused tool that guides users for standardizing estimation of HRH needs.

Methods: From August to December 2017, data were collected from 20 experienced ART clinics and community-based service points in Uganda (see table) that manage about 62,000 clients. The information obtained was used to benchmark client-service provider contact time.
for critical tasks performed along the HIV service delivery continuum under different DSD models. Key data collected included: annual ART client caseloads (new and current); client classifications (stable, unstable) as well as by sub-population; DSD models implemented; service provider types, numbers, task distribution and level of effort.

Client flows for 335 ART recipients were observed for a total of 64,000 minutes. Using these data, a prototype tool that estimates HRH needs from the annual ART client caseload and allows the building of scenarios for workforce mix and task-shifting for optimizing resource allocations. Results from a pilot in Cameroon suggest it helps facility staff make more informed HRH decisions.

Conclusions: Use of DSD models globally is rapidly expanding. Two country pilots have shown promising value for this tool. Implementation in additional settings will gauge further utility, accuracy, areas for additional refinement, and options for country-specific contextualization.

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**TUPEE723**

Fast Track VCT@Work for workers in informal sector to achieve 90:90:90 in India

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Background: An emerging trend of HIV positivity among workers engaged in informal sector is a major concern. In India, the HIV positivity among workers in different occupations is much higher than national adult HIV prevalence (0.25%). Due to non-availability of adequate evidence the workers in informal sector are not reached. Early detection and linking them with preventive services is a challenge.

Methods: National AIDS Control Organisation (NACO) collected data from 16000 ICTC on testing done across the country for the period of 2013-2016. The data was analysed to understand source of referrals & methods: More than 20.69 million (65%) had worker occupations. During the said period, around 32.45 million of HIV tested were gaged in informal sector is a major concern. In India, the HIV positivity among workers in different occupations is much higher than national adult HIV positivity (0.25%). Due to non-availability of adequate evidence the workers in informal sector are not reached. Early detection and linking them with preventive services is a challenge.

Results: The analysed data showed that the overall HIV sero-reactivity among workers is 13% with sero-reactivity 1.61% reported during 2014-15 and 1.77% during 2013-14. Sero-reactivity is four times higher than national adult HIV prevalence (0.25%). Due to non-availability of adequate evidence the workers in informal sector are not reached. Early detection and linking them with preventive services is a challenge.

Conclusions: The analysis of HIV testing data is proven strategy to strengthen HIV/AIDS intervention targeted to workers in various occupations. Analysis and evidence helped to engage Ministries, industries and other stakeholders for worker education, prevention, reduce stigma & discrimination, early detection and link them with services as well impact mitigation through social protection.

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**TUPEE724**

Reaching the uncircumcised through community HIV testing services (HTS): Are mobile men creating regional circumcision prevalence discrepancies?

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Background: Tanzania’s voluntary medical male circumcision (VMMC) program reached over 2.5 million males in regions with low male circumcision coverage and high HIV prevalence. Modeling, using the Decision Makers’ Program Planning Toolkit 2, indicates many scale up districts are approaching 80% male circumcision coverage. Sauti, a PEPFAR/USAID-funded project in Tanzania, offers community-based combination prevention services, including HTS, to key and vulnerable populations (KVP), including mobile men and partners of female sex workers, and refers HIV negative, uncircumcised men to VMMC services.

Methods: We reviewed program data across ten Sauti regions between August 2015 and September 2017 to determine circumcision prevalence for men served by HTS. We reviewed HIV negative male clients and their self-reported circumcision status. Further analysis was conducted determining their resident or non-resident status of region where they received HTS (as a proxy for mobility). A two-population proportions z-test was used to compare the region prevalence of circumcision between 2013-2016 and 2014-2016 in the 10 regions Differences were statistically significant (p<0.001). The three regions with the largest differences between Sauti and TDHS estimates (Dodoma 53% vs. 100%, Morogoro 41% vs. 95%, Dar es Salaam 60% vs. 93%, respectively) are all considered traditionally ‘circuitising’ regions; they do not have VMMC programming. Further analyses of uncircumcised men receiving HTS in these three regions indicated that 15% on average were non-resident, indicating that they had recently moved.

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**Table 1. Circumcised versus uncircumcised men by region. Sauti vs TDHS**

<table>
<thead>
<tr>
<th>Region</th>
<th># males reporting to be circumcised (2015-16)</th>
<th># males reporting to be uncircumcised (2015-16)</th>
<th>Total males responding to be at least circumcised (2015-16)</th>
<th>% males reporting to be circumcised (2015-16)</th>
<th>Male circumcision proportion in Sauti at TDHS</th>
<th>% difference in circumcision estimates between Sauti and TDHS</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dodoma</td>
<td>565</td>
<td>500</td>
<td>1065</td>
<td>90</td>
<td>49</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td>Arusha</td>
<td>5,107</td>
<td>5,017</td>
<td>10,124</td>
<td>91</td>
<td>63</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td>Kilimanjaro</td>
<td>28,410</td>
<td>21,212</td>
<td>59,622</td>
<td>94</td>
<td>46</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td>Morogoro</td>
<td>1,010</td>
<td>701</td>
<td>1,711</td>
<td>86</td>
<td>55</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td>Dar es Salaam</td>
<td>85</td>
<td>76</td>
<td>161</td>
<td>92</td>
<td>57</td>
<td>-0.001</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Details of Data Collection from Uganda**

<table>
<thead>
<tr>
<th>Critical ART service delivery model name</th>
<th>Data Collection Method</th>
<th>No. of observations</th>
<th>No. of critical task observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client managed community group model</td>
<td>Interviews</td>
<td>18</td>
<td>509</td>
</tr>
<tr>
<td>Community individual model</td>
<td>Interviews</td>
<td>30</td>
<td>252</td>
</tr>
<tr>
<td>Facility based comprehensive clinic care model</td>
<td>Interviews</td>
<td>123</td>
<td>477</td>
</tr>
<tr>
<td>Health-care worker managed facility group model</td>
<td>Interviews</td>
<td>12</td>
<td>147</td>
</tr>
<tr>
<td>Facility based individual fast track model</td>
<td>Interviews</td>
<td>399</td>
<td>356</td>
</tr>
<tr>
<td>Total</td>
<td>Expert Consultations</td>
<td>40</td>
<td>1720</td>
</tr>
</tbody>
</table>
Conclusions: Given discrepancies in circumcision prevalence, further investigation is warranted to determine why a substantial proportion of uncircumcised males are presenting for HTS in regions where circumcision is considered nearly universal according to TDOHS; and whether this is due to the mobility of these men. Community-based HTS are reaching larger numbers of uncircumcised HIV negative men, suggesting a potential role for direct provision of adult circumcision services in combination prevention package in regions not typically served by VMMC programs.

TUPEE725
Combined estimation of disease progression and antiretroviral therapy retention among treated individuals with HIV in the United States

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5 John Hopkins University School of Medicine, Department of Internal Medicine, Baltimore, United States; 6 Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada

Background: Accurate estimates of rates of disease progression and antiretroviral therapy (ART) retention are critical to mathematical HIV models designed to inform resource allocation decisions. We aim to jointly estimate on-ART CD4 progression, mortality, and ART interruption rates, and to examine variations in these rates by geographic region and individual characteristics, using a continuous time multi-state Markov model.

Methods: Data were obtained from the HIV Research Network cohort, a consortium of adult and pediatric clinics in the United States. Individuals aged 15 years or older who were in care (having at least one CD4 test and one HIV primary care visit) and had at least one ART prescription between 2010 and 2015 were included in the analysis. Study entry was defined as the date of their first CD4 test while on ART between 2010 and 2015. Continuous-time multi-state Markov models were used to estimate the transitions among five states (on ART CD4 cells/µL: ≥500; 200-499; < 200 off ART; and death), operationalized by a matrix with 42 possible instantaneous transitions. Covariates were included to examine and adjust for differences in the transition rates by region, race/ethnicity, gender, HIV risk group, and clinical status.

Results: The median age at study entry of the 34,656 individuals included in this analysis was 44.5 years [IQR: 35.0, 51.3]. Over a median of 4.5 years of follow-up (2.8, 6.0), 44.8% of individuals interrupted ART, and 3.6% of individuals died. In the multivariable analysis, black race, people who inject drugs, and attending clinics in the south or west regions, were independently associated with increased rates of ART interruption, and faster disease progression (CD4 decline or death) (Figure1). The differences remained statistically significant after additionally adjusting for age, time since diagnosis and CD4 counts at ART initiation among a subset of study sample with known ART initiation dates.

TUPEE727
Facility level cascades: Uniting public health and clinical data through a government-led initiative to improve programming

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Background: National and local HIV public health programs have used the HIV treatment cascade to shape implementation of strategies for epidemic control however they have not engaged clinical care facilities in this public health initiative. To address this gap, the New York State
Nutrition and food security status of PLHIV and gap analysis in comprehensive care clinics in Kenya

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Background: Kenya is one of the UNAIDS fast track countries and global plan PMTCT countries. High levels of malnutrition and food insecurity exist in the arid and semi-arid areas in turn affecting PLHIV and their households. In 2017, Kenya experienced a serious drought leaving 3.1 million people food insecure. However, there was no clear data on the impact of the drought on PLHIV and the country’s HIV response. Nutrition and food security status of PLHIV accessing treatment was assessed to guide decision making on appropriate nutrition and food support interventions for comprehensive treatment packages.

Methods: Descriptive cross-sectional national survey that sampled 3590 respondents, 12990 adults and 900 children from 31 Comprehensive Care Clinics (CCC's) in 10 national AIDS and STI Control Programmed (NASCOP) operating regions. Target population: clients aged from 6 months onwards enrolled at CCCs. Three categories of clients considered: clients on prophylaxis not on ART, on ART < six months and on ART > six months. SPSS v18 and WHO Anthro softwares were used.

Results: Thinness was more prevalent in males: Pre- ART 26.1%, Early ART 22.5% and Late ART (22.0 percent) than in the females (12.6 %). 143 among Pre-ART, 247 among Early ART and 247 among Late ART. Overweight/obesity was 23.5% and 20.4% in Pre- ART, Early and Late ART respectively. Late ART females presented with the highest prevalence of overweight/obesity 28.0% and Early ART male clients had the lowest prevalence (6.8%). More boys (53.3%) than girls (46.6%) were stunted among children 24-59 months (p=0.04). Severe thinness was higher in boys (24.3%) compared to girls (11.3%) (p<0.001). In adults, Food Consumption Score (FCS) was acceptable (>35). 88 %, 85 %, and 83% of Early ART, Pre- ART and Late ART respectively had acceptable FCS (IFCS<35). 10 to 13 had borderline FCS (21-35), while 5 % had poor FCS (0-21).

Conclusions: Men and women are presenting different forms of malnutrition. Underweight in children and men, and overweight in females depicts the challenge of managing the double burden of malnutrition in PLHIV and calls for interventions that take into cognizance the emerging trend.

TUPEE729

Next generation HIV programming for sub to middle income countries for MSM

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Background: The context of HIV prevention among women in sex work, men who have sex with men and transgender is changing rapidly. In urban settings, key population groups who traditionally were available to HIV services and outreach at identified “hot spots”, are diminishing and away from HIV programming. In the current context, especially among women in sex work, MSM and transgenders, soliciting clients and potential sexual partners is increasingly becoming virtual due to increased access to technology such as internet and mobile applications.

Methods: Dedicated and differential approach of community mobilization on social media platform such as Grindr, BlueDot, Planet Romeo, Facebook, Instagram and Tinder - via the co-investment grant to venture into virtual space with an existing campaign “Pata Lagao” - meaning “Find out” that literally translates to “Find out your HIV status” to experiment and assess, if virtual outreach has any impact on increasing uptake of services including testing for HIV.

Results: Source of information for visiting clinic being social media increased from 6% to 45% in two months. 1,229 (MSM-828, TG-13 and not specified - 387) new individuals were contacted and provided information on HIV prevention and the project services. Of the 1,229 reached, 44% showed interest or agreed to visit Samarth Clinics. 132 (MSM 119 and TG 13) individuals reached the clinics and were tested for HIV and provided prevention services or linked to treatment, care and support services as the case may be. The monthly average of outreach has also significantly increased from 521 (Before) to 763 (after). HIV testing as one of the most important result, the success rate is 90% for physical outreach as compared to 11% for virtual outreach.

Conclusions: Experience from an initiative in five urban sites in India provides evidence that with right messaging, focused virtual outreach and accessible community friendly HIV services - key population groups such men who have sex with men and transgender can be reached and they are willing to come forward to access services. Investing in new approaches to HIV prevention programming is the need of hour if we need to stay ahead in fight against HIV and AIDS.
TUPEE731
The importance of establishing baseline data for viral load testing scale up - laboratory assessments: Zambia experience
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Background: Zambia has a population of 15 473 905 with 1.2 million adults living with HIV among whom 65% are accessing Anti-Retroviral Therapy (ART). Scaling-Up of HIV Viral Load (VL) testing in Zambia is imminent to achieve the third 90 goal as set by UNAIDS. To ensure there is a baseline data for comparison of impact of intervention with regards to VL scale-up for the country; the Zambia Ministry of Health (MoH) engaged EQUIP to conduct assessments of laboratories.

Methods: An electronic Rapid Assessment Tool, hosted on ArcGIS, was used for data collection. The primary focus was to assess the role of laboratories and facilities in the VL value chain. Questions covered in the assessment varied from pre-analytic, analytic to post analytic processes including quality management and health and safety. Data illustrations into graphs and interpretation was done using excel pivot tables.

Results: A total of 653 facilities were assessed and 50% of these facilities have functional laboratories. 21% have mini labs and the remaining 29% have no laboratories. The results showed that, 73% of the facilities collected VL specimens and referred the specimens for testing; 5% of the facilities acted as hubs. The remaining 20% facilities did not offer any VL support i.e. they did not collect any VL specimens whilst only 2% laboratories offered VL testing. Overall, only 32% of the assessed facilities responded to having storage space for Consumables and Reagents. Health and safety adherence was generally a challenge with 52% of facilities having a safety manual available whilst 48% did not have one.

Conclusions: Given that at least 65% of HIV infected population are on ART; there is an urgent need for special focus on increasing the demand for VL testing in Zambia. Therefore, recommendations on how to improve pre-analytic, analytic and post analytic will inform MoH’s decision making on the scaling up of VL testing to reach the third 90 UNAIDS target for Zambia.

TUPEE732
Utilizing innovative modern data collection methods to identify most-at-risk HIV positive children and adolescents in 11 districts of Zimbabwe
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Background: Tremendous progress has been made towards identifying children and adolescents living with HIV (CALHIV). Limited resources has necessitated the shift in HIV testing strategies from generalized testing to targeted testing. Using targeted testing enables HIV burdened countries to direct resources towards most at risk population. Africaid uses an innovative data collection tool utilizing its database to refer and link siblings and partners of children and adolescents living with HIV to HIV Testing Services (HTS).

Description: Africaid is implementing a project aimed at improving children and adolescents’ experience of HTS, diagnosis and linkage to care and treatment support across Zimbabwe. Africaid is piloting the use of innovative data collection in 11 districts to evaluate the acceptability of using index case finding in identifying CALHIV. Community Adolescent Treatment Supporters (CATS) who identify CALHIV in their communities using a network of already registered beneficiaries in the Zvandiri database as index cases, CATS enrol CALHIV in the Zvandiri program using mobile and web-based database for easy and routine tracking, follow ups and documentation of conditions upon enrolment into the program. This enables CATS to provide differentiated services to clients.

Lessons learned: The database which captures CALHIV proved to be a cost-effective mechanism of tracking most at risk adolescents. As a result of the follow ups conducted through using contacts in the database a total of 3, 033 (1, 788 females and 1, 245 males) siblings and partners were identified and linked to for HTS. This resulted in 2, 827 (1, 634 females and 1, 184 males) being tested and 860 (520 females and 340 males) tested positive and were linked onto care and treatment. The pilot also revealed that most at risk adolescent are reluctant and afraid to visit clinics for testing and hence using the database enabled their peers the CATS to sensitize, mobilize and encourage them to get tested for HIV.

Conclusions/Next steps: Pilot results demonstrated that using modern data collection methods for tracking and tracing HIV positive clients assists in identifying CALHIV in need of HTS through working with their peers. This will be scaled up through the utilization of HIV self-testing kits in the intervention districts.

Data and accountability and transparency
TUPEE733
Using community-led participatory action research for accountability on the Global Fund’s Country Coordinating Mechanisms: CCM Scorecard and CCM Community & Civil Society Shadow Reports in Africa
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Background: Effective Country Coordinating Mechanisms (CCMs) are a vital part of the Global Fund architecture at country level. CCMs are responsible for submitting requests for funding and for providing oversight during implementation. CCMs are assessed using external assessors or a self-assessment and are overly concerned with box-ticking and not with impact.

Methods: The CCM Scorecard and Country CCM Shadow Reports is a nine country study that saw twenty-two community and civil society watchdogs evaluate the CCMs against the Global Fund’s own Eligibility Performance Assessment, and research for themselves how their CCMs...
Systematic data quality improvement by innovative and simple technique at large scale - an experience from world's second largest ART program

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Background: India is a home of almost more than 2.1 million HIV positive people, of which approximately 1.2 million are on treatment from ARTC for June, July, August, September, October, November and December respectively.

Improvement in data quality at ARTC level is meant to provide accurate input for program functioning and planning. An offline system of reporting from ARTC to state and national level had data quality issues which hindered its reliability for planning.

Description: To improve the data quality, a monthly feedback mechanism from national level to State officials was developed by using a simple Microsoft excel sheet that finds out errors and discrepancies between two successive monthly reports from each ARTC. State officials studied the errors and got them rectified from ARTCs gradually. At least one error was found out in 60% of ARTCs at the beginning while comparing the report of May 2017 with that of April 2017. With monthly feedback and constant technical support to the states by senior officials at national level, these errors were reported by 66%, 59%, 57%, 42%, 40%, 29% and 32% of ARTC for June, July, August, September, October, November and December respectively.

Lessons learned: Data quality improvement usually requires rigorous and resource intensive efforts especially when data system is not online or automated. It was believed that constant positive supervision and feedback has a motivating effect and usage of simple tools are more effective at large scale.

Conclusions/Next steps: It is planned to share the same tool to state officials and later to ARTC with a simple guidance video for usage which should reduce these errors further. It is also envisaged to include another set of indicators in current tool for making it more comprehensive. Such efforts should bring more ownership about data among program managers and motivate them to use data for local purposes. It would also make forecasting and planning based on such data more reliable and realistic which would benefit the program and nation.

TUPEE735

The CAVD DataSpace data sharing and discovery tool facilitates exploration of HIV immunological data from pre-clinical and clinical HIV vaccine studies

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Background: The Collaboration for AIDS Vaccine Discovery (CAVD) is an international network whose primary mission is to accelerate the development of a safe and effective HIV vaccine through a combined effort across research institutions. The DataSpace (dataspace.cavd.org) is an integral part of the CAVD's Global Access policy which requires public access to data and information from CAVD studies.

DataSpace is a web-based, data sharing and discovery tool developed to empower researchers by increasing awareness of the breadth of HIV vaccine studies and facilitating self-guided data exploration (Table).

Description: Currently, binding antibody, neutralization antibody, and cellular immunoassay results from over 160 vaccine products tested in 61 studies conducted in the CAVD have been harmonized and are available for exploration and download. Data are included from both clinical trials and studies of non-human primates and other animals. An application programming interface (API) for the R programming language is also available through the DataSpaceR package (https://github.com/FredHutch/DataSpaceR).

Value to researchers | Core functionality
--- | ---
Provides quick reference for detailed information about studies, products, and assays. | Learn context - Find information about studies and assays to inform which data to analyze and how to interpret the results. Study information includes: treatment regimens, assays performed, product and assay descriptions, study objectives and findings, and publications.

Helps researchers find cohorts and data of interest. | Reference what study populations and data exist - Find which assays were performed on subjects with common attributes and what data are available for exploration. Data identified through the DataSpace application can be easily exported from DataSpace in CSV or Excel formats or by using the API in the DataSpaceR package.
Facilitates data exploration. | Standardized data facilitates comparisons across studies - Integration of harmonized data across studies provides consistent data (fields, terminology, and response call calculations), making it easier to: (1) perform meta-analyses, (2) compare assay performance over time, (3) correlate assays, (4) reproduce published results and figures, and (5) estimate sample size using historical data to inform design of future studies.

[Table: Core functionality and value of the DataSpace]

[Figure: % of ARTCs with at least one error in reporting]
Lessons learned: We present three case studies establishing DataSpace functionality (Table). First, we recreate published figures using the DataSpaceR API to illustrate DataSpace as a tool for study reproducibility. Second, we perform an adjuvant study power calculation to demonstrate how DataSpace can be utilized for study design. Lastly, we perform a meta-analysis of vaccine durability to highlight how to align metadata across studies, a very powerful feature of DataSpace (Figure).

Conclusions/Next steps: By publishing, collating, and annotating the immunological data from these studies, DataSpace is an invaluable resource for investigators and scientists to build upon HIV vaccine science. Cross-assay or cross-study comparisons are streamlined by ensuring that all study data are quality controlled and follow a standardized format. As we demonstrated, access to metadata is made easy, and studies with complex schemas can be easily aligned by final vaccination time points to analyze vaccine durability (Figure). The API allows seamless access to the data, facilitating more advanced statistical analysis that may require sophisticated methods from statistical programming languages. DataSpace is continually adding new studies and data, with 110 studies expected to be available by the end of 2018.

Monitoring and reporting in the SDG era

TUPEE736
Roll out and scale up of WHO-endorsed TB diagnostic technologies to diagnose TB and MDR-TB in African: From Stop TB to End TB Strategy era

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Background: To roll out and scale up diagnostic tests for TB and MDR-TB in 47 African countries requires coordinated efforts at all levels of stakeholders. The End TB Strategy aims at early diagnosis with universal management systems in place towards accreditation. In 2017, up-dated National TB Reference Laboratories with 60% of them having quality management systems in place towards accreditation. Out of 42 countries, 35 (83%) had dedicated TB laboratory network have been assessed using excel sheet and checklist. Laboratory indicators before 2015 and after 2015 were considered using excel sheet and checklist. Laboratory data analysis was carried out in 47 members States. The implementation of diagnostic tests and scale-up through the laboratory network have been assessed using excel sheet and checklist. Laboratory indicators before 2015 and after 2015 were considered using data collected from countries for 2016 and 2017 WHO Global TB Reports.

Lessons learned: DOTS and Stop TB Strategies resulted in 28 member states achieving benchmark of one microscopy center per 100,000 populations, while 15 achieved 1 culture and 1 DST laboratory to 5 million populations. By the end 2015, the coverage with diagnostic technologies was still sub-optimal. Out of 42 countries, 35 (83%) had dedicated National TB Reference Laboratories with 60% of them having quality management systems in place towards accreditation. In 2017, the uptake of WHO-endorsed diagnostic tests for TB showed slower progress in some countries against 2015 as a baseline. All 47 member states in Africa have been procured with GeneXpert instruments. Beside all, fifteen countries lack capacity to diagnose and confirm XDR-TB.

Conclusions/Next steps: New diagnostic tests should be accompanied by the “know how to” implement. Political commitment to rapidly scale up tests and improve the quality of laboratory services is a key. The laboratory indicators within the End TB Strategy should be kept in mind to better monitor progress against the targets. Three phases need to be considered as important to achieve implementation and rapid uptake: laboratory preparedness, technology transfer and routine testing.

TUPEE737
Completeness rates of HIV indicator data reporting through District Health Information Software (DHIS2): Experience from military sites in Uganda

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Background: Health facility-generated data reported through routine health information systems are the source for programmatic monitoring and evaluation in Uganda. Since 2013, the Uganda People’s Defence Force (UPDF) has adopted the District Health Information Software (DHIS2), contributing to improved availability of routine health facility data at 26 military health centers. Funded by the United States President’s Emergency Plan for AIDS Relief (PEPFAR), RTI International supported the UPDF to assess completeness reporting on 13 PEPFAR core HIV indicators by 26 military health centers during the past two years of implementation of DHIS2. (January 2016 to December 2017).

Methods: Data on the 13 HIV indicators reported quarterly, by 26 antiretroviral treatment (ART) military health facilities (seven military hospitals and 19 lower level health centers) were extracted from the Ugandan DHIS2 database. Completeness of reporting was analyzed for each indicator (as shown by respective cells in the database) and expressed as the percentage of data values reported over those expected. All ART-accredited health facilities are expected to report data for each indicator for each quarter. Completeness rates were calculated quarterly, and trends were measured over time. Data were extracted from DHIS2 and analyzed in MS Excel 2016.

Results: On average, completeness of reporting increased significantly by 16.8% for all HIV indicators (75-95% p<0.0001 for TX_NEW and TX_CURR, 45-55% p<0.0001 for TX_RET, 65-100% p<0.0001 for TX_PVLS, 65-85% p<0.0001 for TB_STAT, TB SCREEN, TB ART and PMTCT EID, 90-100% p<0.0001 for HTS_TST, HTS_TST_POS and PMTCT STAT). (See PEPFAR Monitoring, Evaluation and Reporting Indicator Reference Guide (Version 2.0, 2017) for definitions of the above indicators). Data on voluntary medical male circumcision completeness increased significantly from 85-98%, p<0.0001. Completeness during the period at lower-volume units was higher than that at high-volume units (95% and 85% respectively).

Conclusions: Completeness of data reporting for most key HIV indicators improved after the adoption of DHIS2, notwithstanding that other support from RTI (e.g. staff training, coaching) also contributed to improvements. However, major data gaps were identified for the treatment retention, TB, and EID indicators. Periodic orientation and on-site mentorship of all health workers on key indicator definitions need strengthening.
Wednesday 25 July

Oral Abstract Sessions

WEEA01 Poking, prodding and purging the final reservoir frontier

WEEA01 Chidamide reactivates and diminishes latent HIV-1 DNA in patients on suppressive antiretroviral therapy

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Background: A proposed strategy to purge HIV reservoir is to reactivate provirus transcription with latency-reversing agents (LRAs), inducing viral antigen expression and allowing immune-mediated clearance of reservoir cells in the presence of combination antiretroviral therapy (cART). Here we evaluated the safety and efficacy of chidamide, a benzamide histone deacetylase inhibitor, in patients on suppressive cART.

Methods: Seven aviremic HIV-1-infected patients received eight oral doses of 10 mg chidamide twice a week (Tuesday/Friday) for 4 weeks while maintaining baseline cART. Safety was evaluated at each visit and plasma concentrations of chidamide was measured by liquid chromatography-mass spectrometry. Histone acetylation levels in CD4+ T cells were analyzed by flow cytometry. Plasma HIV RNA was determined using Cobas Taqman HIV-1 test, v2.0. Cell-associated HIV RNA (CA-HIV RNA) and total HIV DNA (CA-HIV DNA) were quantified by the SupBio PCR test in PBMCs. Thirteen plasma biomarkers of inflammation were evaluated by luminex multiplex assays and ELISA. Changes from baseline to specific time points were compared using Wilcoxon matched-pairs signed-rank tests, and a two-sided p-value of less than 0.05 was considered significant.

Results: All participants (6 male, 1 female) completed full chidamide dosing, and showed acceptable drug tolerance with only grade 1 adverse events presented. No drug accumulation effects were detected per chidamide dosing. In addition, the cyclic increase of histone acetylation in CD4+ T cells was observed. All participants showed robust and cyclic viremia (peak viremia range 147-3850 copies/mL) as well as increased CA-HIV RNA (median peak increase 9.4-fold vs. baseline, range 2.0-fold to 34.9-fold) during chidamide treatment. At day 56, plasma HIV RNA of all participants recovered to undetectable level. Furthermore, we discerned the significant reduction of CA-HIV DNA (day 27 vs. baseline, p < 0.018; and day 56 vs. baseline, p < 0.028). Equally important was that chidamide exhibited an anti-inflammatory property as evidenced by inhibition of pro-inflammatory cytokines: MCP-1, MMP-9, IP-10, LBP, P-selectin, and CD40 ligand.

Conclusions: Chidamide can safely disrupt the latency of HIV DNA resulting in the clearance of reactivated reservoirs, which makes it a promising candidate toward the eradication of HIV reservoir.

WEAA0102 The antiretroviral CCR5-inhibitor maraviroc effectively reverses HIV latency by phosphorylation of NF-B

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Background: One strategy to eliminate latently infected cells in HIV-infected individuals on antiretroviral therapy (ART) is to induce HIV transcription with latency reversing agents (LRAs). Potent non-toxic LRAs are urgently warranted. The clinically approved CCR5-inhibitor maraviroc (MVC) demonstrated an increase in HIV transcription in vitro and may therefore act as an LRA. We investigated the effect of MVC on HIV transcription and its mechanism of action in vitro, ex vivo and in vivo during a MVC-intensiﬁcation trial.

Methods: Activated PBMCs were infected with HXB2 (MOI 0.02) and cultured with MVC. Seven days post-infection 100 µg was measured in supernatant by ELISA (n=9). Changes in NF-B phosphorylation were assessed by densitometry Western-Blot (n=2). 5 million resting CD4+ T-cells were isolated from HIV infected individuals on ART, treated with MVC or vorinostat and unsuppled (US) and multiply spliced (MS) HIV-RNA were quantified by qPCR (n=6). In a double-blind, placebo-controlled trial, MVC or placebo was added to suppressive ART in immune non-responders (MVC=10, Placebo=5). Changes in cell-associated ICAI-US HIV-RNA and NF-B regulated gene mRNA were quantified by droplet-digital-PCR (ddPCR). Mann-Whitney-U-test and paired T-test were performed using GraphPad-Prism.

Results: In vitro, a significant increase in HIV production was observed when MVC (p=0.014 vs. Placebo) was added to infected PBMC. A 2.5-fold increase in phosphorylated NF-B was observed in infected MVC treated CD4+ T-cells. Additionally, in vivo, a significant difference between MVC and placebo, in NF-kB regulated gene expression, including IFN-g, IL6 and TNF-a, was observed (p=0.02, 0.03, 0.05 respectively). Patients baseline characteristics did not differ between the MVC-intensiﬁcation and placebo-group. A signiﬁcant difference in CA-US HIV-RNA expression was detected between baseline and week eight (MVC 1.8-fold increase; placebo 2.5-fold decrease; p<0.012). Ex vivo, MVC induced a 3.5 and 1.7-fold increase in US HIV-RNA compared to DMSO (p=0.0004) and vorinostat (p=0.0496) respectively. Additionally, MVC induced a 2-fold increase in transcription of MS HIV-RNA compared to DMSO (p=0.0245).

Conclusions: MVC activates phosphorylation of NF-B and increases HIV-RNA transcription in resting CD4+ T-cells. Potency for latency reversal ex vivo was more effective than vorinostat. Given the excellent safety proﬁle of MVC, further studies of MVC as an LRA are warranted.
WEAA0103
Activation of latent HIV and SIV RNA transcription in vitro and in vivo in ART suppressed SIV-infected rhesus macaques by the Ingenol-based protein kinase C agonist, GSK445A

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Background: Induction of HIV gene expression in latently-infected CD4+ T cells is an essential step for the clearance of proviral reservoirs in vitro by suppressed individuals. Activation of NF-κB signaling pathway by Protein kinase C agonists (PKCα) is a potent mechanism for HIV latency disruption in vitro. However, significant toxicity risks and the lack of evidence supporting their activity in vivo have prevented further evaluation of PKCα. Extending prior results, we sort to confirm that GSK445A, a stabilized Ingenol-B PKCα derivative, can induce HIV/SIV transcription in vitro and demonstrate pharmacological activity in vivo in ART suppressed SIV-infected RM.

Methods: CD4+ T cells from 3 virally suppressed humans were exposed in increasing concentrations of GSK445A for 30 min to measure cell-associated multiply spliced (tat/rev) RNA after 18 hours. Next, CD4+ T cells from virally suppressed humans (n=3) and RM (n=3), were exposed to virally suppressed humans (n=5) and RM (n=3), were exposed for 30 min at an optimal dose of 25μM GSK445A to quantify cell-associated RNA and cell free RNA in the supernatant at 18 hours. Pharmacological activity and tolerability of GSK445A IV was assessed in 5 healthy RM at doses from 10 to 20mg/kg. Finally, 4 adult RM were IV inoculated with SIVmac239, and placed on ART (tenofovir/emtricitabine/dolutegravir) starting 56 days post-infection. After 34 weeks, RM received 3 biweekly doses of GSK445A IV at 15mg/kg. SIV RNA and DNA in cells and plasma were quantified by qPCR/qRT-PCR.

Results: CD4+ T cells exposed to GSK445A produced unsuppressed HIV and SIV RNA (gap) and viral particles, indicating that GSK445A efficiently reverses HIV/SIV latency in vitro. In vivo, GSK445A tolerability was established around 10-15mg/kg and pharmacological activity demonstrated by CD69 upregulation in CD4+ T cells in blood. In suppressed RM, 3 of 4 individuals showed biops in plasma viral loads -0.5-1 log above threshold (15 RNA copies/ml). All but 1 RM showed increases in unsuppressed SIV RNA in PBMC and increases in SIV RNA/DNA ratio (average transcription per infected cell) following each dose of GSK445A.

Conclusions: These results indicate that GSK445A is a potent latency-reversing agent in vitro and is amenable to testing latency disruption strategies in vivo in RM models of HIV cure/remission.

WEAA0104
The RNA-binding proteins, SRp14 and HMGB3 play a crucial role in controlling HIV replication and latency

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Background: HIV latency is known to be reinforced by many impediments to RNA transcription, however translational blocks to HIV replication are less well characterised. The transactivator of transcription Tat protein is essential for progeny virion production in natural infection of HIV. RNA-binding proteins that facilitate translation of Tat may be absent or downregulated in resting CD4+ T cells, the main reservoir of latent HIV.

In this study, we examined the role of Tat RNA-binding factors in expression of Tat and control of latent and productive infection.

Methods: Affinity purification-mass spectrometry analysis (nanoLC-MS/MS) was used to detect binding partners of MS2-tagged tat mRNA in a T cell-line model of HIV latency (J-Lat6.3). 243 interactions were identified with high confidence using the MST three parameter scoring system at a threshold cutoff of 0.7. 13 proteins were chosen for follow-up. The effect of knockdown and overexpression of the proteins of interest on Tat transcription and translation was assessed by luciferase-based reporter assays, and infections with a dual colour HIV reporter virus allowed investigation of the dynamics of latent (BFP+/?mCherry+) and productive (EGFP+?BFP/EGFP+?mCherry+) infection. Changes over time in the levels of mRNA and protein in activated CD4+ and resting CD4+ T cells after NL4-3-GFP infection were determined.

Results: After preliminary studies, two candidate proteins, SRp14 and HMGB3 were selected for detailed investigation. Knockdown of SRp14 negatively affected translation of Tat and Tat-mediated transcription, which led to an increase in latent infection (BFP+ expression), while the knockdown of HMGB3 resulted in an increase in Tat transcription and translation as well as an increase in productive infection (EGFP+BFP+/ mCherry+ expression). Interestingly, these effects correlated with the levels of the proteins in CD4+ T cells following HIV infection as we observed a decrease in SRp14 levels while HMGB3 peaked very quickly after infection in CD4+.

Conclusions: Our study revealed that SRp14 is a positive regulator of Tat expression and negative regulator of latent infection, whereas HMGB3 is a negative regulator of Tat expression and positive regulator of latent infection. The role of these proteins in controlling HIV gene expression during latency will be further assessed as potential drug targets.

WEAA0105
Using the PPARγ antagonism to block/lock HIV reactivation in Th17 cells

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Background: The Th17-polarized cells represent a subset of CD4+ T-cells that orchestrate mucosal immunity against pathogens. The transcriptional profile of Th17 cells is compatible with optimal HIV replication. Th17 are strategically located at mucosal barrier surfaces and represent the first HIV infection targets during sexual transmission. Finally, Th17 cells are long lived and support HIV reservoir persistence during anti-retroviral therapy (ART). Of note, the nuclear receptor PPAR is a negative regulator of HIV replication and a transcriptional repressor of the Th17 master regulator RORγt. In an effort to identify novel Th17-targeted therapies, we investigated the potential use of PPAR antagonism for viral latency reversal and/or boosting Th17 functions.

Methods: Memory CD4+ T cells were isolated from peripheral blood by negative selection. Cells of HIV-uninfected individuals were stimulated via CD3/CD28 during 3 days, exposed to replication-competent or single round VSVG-pseudotyped HIV, and cultivated in presence/absence of PPAR antagonist T0070907 for 12 days. HIV reactivation from CD4+ T-cells of ART-treated individuals was measured using a viral outgrowth assay. HIV replication was monitored by HIV-DNA real-time PCR and ELISA/FACS. CCR5 expression was measured by FACS. Genome-wide transcriptional profiling was performed using the Illumina RNA-Seq technology followed by RT-PCR validations.

Results: The PPAR antagonist T0070907 increased IL-17A production, but unexpectedly inhibited HIV replication by acting at multiple levels including CCR5-mediated entry. HIV transcription and lipid metabolism. Transcriptional profiling and RT-PCR validations revealed that T0070907-mediated effects coincided with the induction of cholesterol-25-hydroxylase (CH25H), an enzyme converting cholesterol into 25-hydroxycholesterol (25HC), a broad inhibitor of viral replication and also an intrinsic ligand of RORγt. Finally, T0070907 inhibited HIV reactivation and increased IL-17A production in CD4+ T-cells from ART-treated HIV+ individuals.

Conclusions: Together, our results identify PPAR as a new therapeu-
lic target to reduce HIV replication/reactivation in CD4+ T-cells, while boosting the Th17 effector functions. These effects are explained by the possibility of T070907 to induce the synthesis of 25HC, while preventing PPAR-mediated RORγt repression. These findings demonstrate the possibility to disconnect HIV replication from effector functions in Th17 cells and open the path for new therapeutic interventions to restore Th17-mediated mucosal immunity in HIV-infected individuals receiving ART.

WEAA02 Killers or helpers: The double life of T cells

WEAA0201
Increase in restriction factor expression in response to viral rebound after analytical treatment interruption in HIV-infected patients

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Background: Restriction factors are host proteins interfering at different steps of HIV replication cycle in an attempt to limit viral production and spreading. We conducted a longitudinal analysis of the expression profile of antiviral restriction factors and cofactors in a cohort of eleven HIV-1 infected, long-term treated patients who underwent analytical treatment interruption (ATI). The HIV-STAR study (NCT02541751). The expression of known HIV-1 restriction factors (APOBEC3G, SAMHD1, MX2, PAF1, SLFN11, TRIM5 and BST2/tetherin), cofactors (NLRX1 and PSIP1) and interferon interferon stimulated genes (ISGs) IPIT1 and MX1, were evaluated at four well-defined time points: on ART (T1), after ATI (VL<200 copies/ml, T2), at rebound (VL>1000 copies/ml, T3) and after treatment restart (VL<20 copies/ml, T4).

Methods: Peripheral blood mononuclear cells were isolated from all patients at the four time points. Quantitative real-time PCR was performed to determine the expression of these HIV-1 restriction factors, cofactors and ISGs. Statistical Friedman’s and post hoc Dunn’s analysis were performed and Spearman correlation was employed to identify associations between restriction factor/cofactor, ISG expression levels and patient clinical characteristics.

Results: For two restriction factors a significant increase in expression between T1 and T2 (APOBEC3G, SLFN11) was observed. Furthermore, upregulation of MX2 and both ISGs were observed between T1 and T3 (p<0.05). Significant positive correlations between ISG and restriction factor/cofactor expression were identified at T1, T3 and T4. In addition, a correlation between high HIV DNA load and IFIT1 at T2 and high viral load zenith and SLFN11 at T4 was found, suggesting that these virological characteristics drive a more robust restriction factor response. Furthermore, a low CD4 nadir was correlated with a higher expression of the viral co-factor PSIP1 at T2. No associations were found between the expression of restriction- or co-factors and time to viral rebound.

Conclusions: A significant difference in restriction factor expression between at least two time points was identified for SLFN11, APOBEC3G and MX2 and a trend towards difference in expression levels for most of the other restriction factors studied. In contrast to the ISGs, our data indicate that restriction factors increase earlier after ATI before time of viral rebound, potentially implicating them as markers/predictors of rebound.

WEAA0202
RhCMV-induced, SIV-specific MHC-E-restricted T cells recognize SIV through the T cell receptor


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Background: RhCMV/Gag vaccine vectors expressing SIV antigens demonstrate a profound ability to control post-challenge viremia with subsequent SIV clearance in over half of all vaccinated rhesus macaques (RM). The T cells induced by these vectors are effector-memory T cells unconventionally MHC restricted by MHC-II or MHC-E molecules. To effectively deploy these responses against HIV/SIV it is essential to garner a better understanding of how these cells function. However, the unique nature of these terminally differentiated cells complicates conventional analytical methods, e.g. antigen-specific T cell lines. Here, we employ bulk and single-cell sorting with downstream mRNA sequencing of SIV-specific MHC-E-restricted CD8+ T cells to derive full length, paired T cell receptor (TCR) sequences and to characterize their transcriptional phenotype.

Methods: We stimulated PBMC from strain 68-1 RhCMV/Gag vaccinated RM with optimal peptide epitopes from previously identified T cell responses in the presence of TAP-0. Antigen-specific T cells dually expressing CD69 and membrane-bound TNF-α were sorted using a FACSAria. Whole transcriptome sequencing was used to identify the CD3γ amino acid sequence and VDJ usage. Paired TCR chains were exquisitely expressed in siliocious CD8+ T-Cells from RhCMV/Gag-naive RM.

Results: Using our system we were able to identify sequence, and subsequently express paired TCRs, from MHC-E-restricted, SIV-specific CD8+ T cells. We confirmed that siliocious CD8+ T cells transduced with these exogenous TCRs secreted effector cytokines upon encountering antigen in the context of MHC-E. MHC-E TCR transductants also recognized SIV infected CD4+ T cells derived from autologous or allogeneic sources, demonstrating the presence of MHC-E-bound minimal optimal epitopes on the surface of infected cells. Total transcriptome analysis revealed distinct populations within the MHC-E restricted cells, and expression of canonical Th markers, consistent with conventional MHC-la-restricted SIV-specific CD8+ T cells.

Conclusions: Our data demonstrate that Mamu-E-restricted T cell specificity is derived from its cognate TCR, and that the mRNA profiles of these cells resemble conventionally MHC-restricted T cells. This new system facilitates downstream transcriptomic analysis of antigen-specific T cells independent of knowledge of the restricting allele and tetramers, and will shed light on the phenotype and function of unconventionally MHC-restricted CD8+ T cells induced by RhCMV vaccination.

WEAA0203
Genetic factors leading to loss of viral control in HIV elite controller patients

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Background: Despite the ability of HIV elite controller patients (EC) to spontaneously maintain undetectable HIV plasma viral load (pVL), some of them lose this ability over time. The mechanisms underlying this phe-
nomenon are not completely understood. We investigated the association of genes related to HIV pathogenesis, with the loss of spontaneous virological control in EC.

Methods: A retrospective longitudinal study was performed in 13 EC: Six experienced loss of virological control (at least two consecutive measurements of VL above 50 copies/mL over 12 months of follow-up), named transient-controllers (TC), and 7 maintained virological control during follow-up (named persistent-controllers, PC). Cell samples were obtained at two timepoints: 1-2 years before (T1) and 1-2 years after (T2) loss of virological control for TC, and separated 1-2 years for PC. We assessed the expression of 43 genes related to HIV pathogenesis by real-time qPCR. Differential gene expression between TC and PC at the two timepoints and between timepoints was analyzed using StatMiner software (Applied Biosystems) applying a false discovery rate (FDR) < 0.05. Principal component analysis (PCA) was employed to discriminate between TC and PC at different timepoints.

Results: PCA was able to discriminate between TC and PC at T1 when both groups presented undetectable pVL. However, the discrimination was not so clear at T2 when TC already had detectable levels of pVL. On the other hand, PCA discriminated T1 and T2 samples from TC but it was not for T1 and T2 samples from PC. Interestingly, several genes involved in HIV control such as CDA, CDNA (p < 0.05), CTR (p < 0.006) and IFI16 (p = 0.049) were down-regulated in TC compared to PC at T1, whereas there were no significant differences at T2. Moreover, gene expression did not change between T1 and T2 in PC, whereas several genes (ABC1A, IL10, IL21, PAF1, TRIMZ32) significantly increased its expression at T2 compared to T1 in TC.

Conclusions: Our results demonstrate a down-modulation of different genes with anti-HIV activity in EC patients that precede the loss of natural HIV replication control. These genes could be considered potential biomarkers of loss of natural control and could provide new insights for the clinical management of these exceptional patients.

WEAA0205

Initiation of antiretroviral therapy during hyperacute HIV infection preserves germinal center T follicular (GCTfh) helper cell function

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Abstracts

WEAA0205

Initiation of antiretroviral therapy during hyperacute HIV infection preserves germinal center T follicular (GCTfh) helper cell function

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Background: T follicular helper (Tfh) cells are important for the development of antibody responses against HIV infection. Paradoxically, the pathologic expansion of Tfh is associated with hypergammaglobulinemia and B cell dysfunction. Many HIV induced immune dysfunctions are reversed or attenuated by antiretroviral therapy (ART) but it is unclear if early treatment restores germinal center (G) Tfh delivery of help to B cells leading to the establishment of GC reactions and effective antibody responses.

Methods: Excisional lymph node and paired blood samples were collected from 20 treated persons at the onset of plasma viremia, in many when viral loads are less than 1000 RNA copies/mL. 10 HIV negative and 8 untreated individuals were included as controls. GCTfh and B cell phenotype and in-situ microscopy was performed on all study subjects. MHC class II tetramer staining, digital droplet PCR and intracellular cytokine staining were used to quantify and phenotype HIV-specific GCTfh responses is a subset of donors based on MHC class II haplotype expression and sample availability.

Results: Despite prompt plasma viral suppression there was significant expansion of GCTfh frequencies in lymph nodes from early treated persons compared to HIV negative donors. Class II tetramer staining and intracellular flowcytometry analysis revealed 1% to 5% of expanded GCTfh cells was HIV-specific. Expansion of plasmablasts (p=0.0336) and GC B cells (p=0.0571) correlated with GCTfh cell frequencies (p=0.0003, r=0.9321). GCTfh/B cell cultures induced higher IgG production in early treated compared to untreated donors. HIV Gag p24 antigen was detected in CXCR3+ GC Tfh and follicular dendritic cells, almost exclusively within GCs.

Conclusions: These results demonstrate that GCTfh responses induced during treated hyperacute are qualitatively superior compared to responses untreated hyperacute HIV infection. Our results also provide hints of persistent low-level viral replication in the lymph nodes of early treated individuals despite sustained plasma viral suppression. These results have implications for HIV cure and for vaccine strategies aimed to inducing long lasting anti-HIV antibody responses.
WEAB01 Keep your eyes on OIs and STIs

**WEAB010**

Evaluation of a national cryptococcal antigen screening program for HIV-infected patients in Uganda: A cost-effectiveness modeling analysis

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**Background:** Cryptococcal meningitis accounts for 15% of AIDS-related mortality. Cryptococcal antigen (CrAg) is detected in blood weeks before onset of meningitis, and CrAg positivity is an independent predictor of meningitis and death. CrAg screening for patients with advanced HIV is recommended by the World Health Organization, though implementation remains limited. Our objective was to evaluate costs and mortality reduction (lives saved) from a national CrAg screening program across Uganda.

**Methods:** We created a decision analytic model to evaluate CrAg screening. CrAg screening was considered for those with a CD4< 100 cells/µL per international guidelines, and in the context of a national HIV test and treatment program where CD4 testing may not be available. Costs ($2016 USD) were estimated for screening, preemptive therapy, hospitalization, and maintenance therapy. Parameter assumptions are based on large prospective CrAg screening studies in Uganda, and clinical trials from sub-Saharan Africa.

**Results:** In the base case for 1 million persons with a CD4 test annually, $128,000 with a CD4< 100 cells/µL were screened, and 8,233 were asymptomatic CrAg+ and received preemptive therapy. Compared to no screening, CrAg screening and treatment in the base case costs $23,367,724, and saves 7,733 lives, for a cost of $3,459 per life saved. Within a national HIV test and treat program, of 1 million HIV-infected persons, 5,920 were incident CrAg positive (CrAg prevalence 1.5%). The total costs of a CrAg screening and treatment program was $31,42 million dollars, with 2,293 known deaths. Conversely without CrAg screening, the cost of treating meningitis was $5,45 million dollars with 6,712 deaths. Thus, benefit vs cost were concluded.

**Conclusions:** CrAg screening and treatment programs are cost saving and lifesaving and could be adopted and implemented by ministries of health to reduce mortality in those with advanced HIV disease. Even within HIV test and treat programs where CD4 testing is not performed, and CrAg prevalence is only 1.5%, CrAg screening is a worthy investment.

Table 1. Input parameters for base case model

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<td>7,733</td>
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<tr>
<td>Cost per life saved</td>
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Figure 1. Cost of CrAg screening and preemptive treatment with differential levels of implementation. With 100% CrAg screening and treatment, 1,900 lives are saved (44%) and $860,000 dollars, compared to no screening.
WEAB0103

Burden of sexually transmitted infections and prevalence of HIV among key population individuals presenting with STIs in Nepal

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Background: Under the current global vision to control the HIV epidemic the through expanded provision of antiretroviral medications, relatively little attention has been devoted to sexually transmitted infections (STIs). Unfortunately, STIs remain a major cause of morbidity among people living with HIV, and STIs are associated with increased risk for HIV infection. This analysis assessed the burden of STIs among key populations (KPs), as well as prevalence of HIV among STI patients attending LINKAGES/Nepal-supported clinics.

Description: LINKAGES/Nepal — led by FHI 360 with support from the U.S. Agency for International Development and the U.S. President’s Emergency Plan for AIDS Relief — provides HIV and STI diagnostic and care-management services to female sex workers (FSWs), men who have sex with men (MSM), male sex workers (MSWs), and transgender people in 16 districts of Nepal. The STI case-management services include counseling and syndromic management, syphilis screening using the rapid plasma reagin (RPR) test and treatment with benzathine penicillin, condom distribution to all KP members, and preventive treatment of cervicitis for FSWs.

Lessons learned: From October 2015 to September 2017, 23,454 individuals (49 percent males, 50 percent females, and 1 percent trans people) were screened for STIs, of whom 5,475 (23 percent) were diagnosed with any STI. The most common diagnoses were vaginal discharge syndrome (69 percent) followed by syphilis (14 percent), urethral discharge syndrome (9 percent), and genital warts (4 percent). HIV prevalence among STI patients was 0.8 percent. HIV prevalence was highest among patients with syphilis at 3 percent, followed by patients with genital warts, at 2 percent; and vaginal discharge syndrome, at 0.4 percent. Out of 42 HIV-positive cases among STI patients, 21 (50 percent) had syphilis, 16 (38 percent) had vaginal discharge syndrome, 4 (10 percent) had genital warts, and one (2 percent) had urethral discharge syndrome.

Conclusions/Next steps: The STI burden among KP program beneficiaries is high, and many HIV-positive KP members are co-infected with an STI. Providing integrated services helps to link a large number of KP individuals to needed STI services in this resource-limited setting.

WEAB0104

Natural history of anogenital HPV infection and related disease among HIV-positive men: Findings from a Cohort Study in South Africa

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Background: Persistent anogenital HPV infection causes anogenital warts (AGW), penile and anal cancers. We determined persistence of anogenital HPV infection, squamous intraepithelial lesions (SIL) and AGW among men living with HIV (MLHIV).

Methods: We enrolled 304 sexually-active MLHIV ≥18 years from Johannesburg. We collected socio-behavioral data, blood (CD4+ counts and HIV-1 plasma viral load [PVL]), anal, genital swabs (HPV DNA genotyping with Roche Linear Array and HPV16/18 viral load [VL] with RT-PCR on 22 swabs), and anal smears and examined for AGW at enrolment and 6-monthly follow-up visits for 18 months. Time to AGW incidence or clearance was estimated by Kaplan-Meier method. Correlates of persistent HPV infection, SIL, and AGW clearance were evaluated with generalized estimating equations, logistic and Cox regressions respectively. ROC analysis evaluated performance of HPV16/18 VL in predicting persistent SIL.

Results: A total of 250 (86%) and 259 (86%) MLHIV had anal and genital HPV results at both enrolment and final visits respectively. The median age was 38 (IQR: 22-59) years, 25% reported ≥1 sexual partners in the past 3 months and 5% reported ever having sex with other men. Most participants (65%) were on ART, with median CD4+ count 445 cells/µL (IQR: 278-672). Prevalence of anal and genital HPV infection was 39% (88/227) and 75% (224/283) respectively. The prevalence of anal SILs and AGW were 49% (120/244) and 12% (36/304) respectively. Persistence for anal and genital HPV infection were 26.2% (21/80) and 35.4% (68/192) respectively. HPV persistence was strongly associated with low enrolment CD4+ count (< 200 vs. ≥200 cells/µL, aOR=2.08; 95%CI: 1.83-2.37) and 30% (36/120) respectively. Prevalent anal HPV infection (aOR=5.08; 95%CI: 2.04-12.68) was associated with persistent SILs. AGW incidence was 1.4 per 100 person-years. Median time to AGW clearance was 0.7 (IQR: 0.5-1.1) years. AGW clearance was strongly associated with CD4+ count (< 350 vs. ≥350 cells/µL, aOR=3.69; 95%CI: 1.44-9.47). Enrolment HPV16/18 VL performed poorly in predicting persistent SILs.

Conclusions: MLHIV have high persistence of anogenital HPV infection and related disease. HPV vaccination among boys and effective use of ART with immunological reconstitution could reduce this burden.
cancers in HIV infected patients. We report our experience of KD occurring in patients despite sustained virological suppression.

Methods: This observational and national study reported all cases of individuals with a first episode or a relapse of KD, on ART for at least 12 months, with a plasma viral load (pVL) < 50cp/ml at the time of KD diagnosis.

Results: The French ONCOVH MDC registered a total of 72 KD cases between 05/2014 and 11/2017. We included for analysis the 22/72 (31%) who fulfilled inclusion criteria, whereas 38/72 (53%) had pVL > 50cp/ml at the time of KD diagnostic, and 12 had missing data. They were 18 male and 4 female, born in France for 10 of them and in Africa for 12, with a median age of 51 years (IQR 34-61). HIV infection was diagnosed 12 years earlier (IQR 5-14). CD4 count was 200/mm³ (IQR 73-290), and median duration of virological suppression 4 years (IQR 2-5). A KD was a relapse in 59% of cases, and a first episode in 41%. KD localisations involved skin (100% of cases), lymph nodes (27%), bronchi (18%), oesophagus/stomach (59% of cases, and a first episode in 41%). KD therapy had included anthracyclines in 43% of cases and/or taxanes in 27% of cases. In November 2017, from the follow up of 16/22 patients, all were alive, with a KD in partial remission in 31% of cases, stability in 38% and progression in 31%.

Conclusions: Kaposi disease is observed in aging patients with suppressed viremia either as relapse or new case. HIV-8 as main cause for KD need to be further investigated. Follow up should bring information towards treatment response. Anti PD1 may deserve a pilot investigation in patients failing standard anti-KD chemotherapies.

WEAB0201 Developmental and cognitive effects of type of antepartum and postpartum ARV exposure for Ugandan and Malawian IMPACT PROMISE HIV-exposed versus unexposed children at age 12, 24 and 48 months

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Background: Triple ARVs during pregnancy and breastfeeding dramatically decrease the risk of HIV transmission from mothers to infants. However, prolonged antepartum and postpartum exposure to Triple-ARV prophylaxis may disrupt infant neurodevelopment. The present study evaluates developmental outcomes for HIV-exposed uninfected (HEU) and unexposed uninfected (HUU) Ugandan and Malawian children enrolled in the IMPACT PROMISE RCT study.

Methods: Pregnant HIV-infected mothers were randomized to Triple-ARV prophylaxis (TTC-ZDV/LPV-RTV or FTC-TDF/LPV-RTV) versus Zidovudine (ZDV) Postpartum, the mother/newborn dyads were randomized to maternal Triple-ARV or infant Nevirapine (NVP) during breastfeeding. 942 children were enrolled between 9 and 12 months of age: 452 were unexposed/uninfected (HUU) and 490 were girls. HEU and age-matched HUU children were enrolled at the two IMPACT PROMISE study sites: 452 (49%) in Blantyre, Malawi, and 477 (51%) in Kampala, Uganda. Mullen Scales of Early Learning (MSEL) was used for developmental assessment at 12, 24 and 48 months of age, and the Kaufman Assessment Battery for Children (KABC) for cognitive assessment at 48 months only.

Results: Controlling for sex, study site, and age at assessment, there were no significant MSEL differences among PMTCT antep- and postpartum treatment arms at 12 and 24 months (Table 1). There were significant differences among the treatment arms at 48 months for the MSEL composite cognitive score (p=0.00) and Fine Motor scale (p=0.001). For the KABC at 48 months, there were significant differences among the study groups for all the global scales except the nonverbal index. However, the maternal Triple-ARV (antepartum and postpartum) children were not at a significant disadvantage to the HUU group on any of the pairwise comparisons. Among all significant p values in Table 1, only MSEL fine motor remained significant after a Bonferroni adjustment for multiple comparisons. Again, the maternal Triple-ARV exposed children were not at a significant disadvantage.

Conclusions: Both antep- and postpartum maternal triple-ARV exposure did not result in greater developmental or cognitive risk for their HEU children through 48 months of age compared to HUU children. Overall, HUU and HEU children were developmentally comparable. These findings are reassuring as PMTCT programs using maternal ART are widely rolled out in resource-constrained settings.
WEAB0202

Central nervous system toxicity of efavirenz in HIV-infected children in Tanzania

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Background: The World Health Organization recommends efavirenz as part of the first-line combination antiretroviral therapy (cART) for HIV-infected children. Awareness of central nervous system (CNS) side effects in adults is increasing. Reliable data on CNS toxicity in children, however, remain sparse. We compared neuropsychological symptoms, cognitive performance as well as adherence between long-term treated HIV-infected Tanzanian children on efavirenz vs. control regimens.

Methods: Cross-sectional observational study among HIV-infected children (6-12 years) on cART for 6 months and with viral loads ≤ 1000 copies/ml in Kilimanjaro, Tanzania. We used the Child Behavior Checklist (CBCL6-18) to evaluate behavioral and emotional problems. Cognitive performance was assessed using the Raven’s Colored Progressive Matrices and the Digit Span test. Non-adherence was defined as any missed doses over the previous 3 days or <100% adherence measured at one and two years after initiation of second-line ART.

Results: Of 85,389 children who started first-line ART, 3,955 (4.7%) switched to second-line, primarily with protease inhibitors (2,935). Median interquartile range (IQR) age at second-line ART initiation varied from 4.1 (4, 7.9) years in North America to 10.3 (6.7, 13.8) years in Latin America (Table). The lowest CD4 counts at second-line initiation were in SSA and the longest in North America (63 [32, 101] months). In the first year after initiation of second-line ART, observed mortality was higher in Latin America (0.7% [0.3, 1.4]); progression to AIDS was highest in SSA (12.1% [9.4, 15.1]), followed by Asia (4.6% [2.3, 8.0]). Median CD4 counts one year after second-line initiation improved and were ≥500 cells/mm3 in all regions. No deaths were observed between one and two years after follow-up of second-line ART initiation in North or Latin America, while there were increases in cumulative mortality through two years in the other regions. There were continued improvements in CD4 counts in most regions at two years of follow-up.

Conclusions: Overall, we did not see differences in emotional and behavioral problems, cognitive performance scores or adherence between efavirenz-treated children and controls, which is in contrast to earlier studies in adults. The lower school performance scores in efavirenz-treated children, however, warrant further study.

WEAB0203

Outcomes of second-line antiretroviral therapy (ART) in HIV-infected children: A CIPHER cohort collaboration global analysis

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Background: Outcomes of second-line antiretroviral therapy (ART) in HIV-infected children: a CIPHeR cohort collaboration Duration of Second-line Prog

Results: Of 85,389 children who started first-line ART, 3,955 (4.7%) switched to second-line, primarily with protease inhibitors (2,935). Median interquartile range (IQR) age at second-line ART initiation varied from 4.1 (4, 7.9) years in North America to 10.3 (6.7, 13.8) years in Latin America (Table). The lowest CD4 counts at second-line initiation were in SSA and the longest in North America (63 [32, 101] months). In the first year after initiation of second-line ART, observed mortality was higher in Latin America (0.7% [0.3, 1.4]); progression to AIDS was highest in SSA (12.1% [9.4, 15.1]), followed by Asia (4.6% [2.3, 8.0]). Median CD4 counts one year after second-line initiation improved and were ≥500 cells/mm3 in all regions. No deaths were observed between one and two years after follow-up of second-line ART initiation in North or Latin America, while there were increases in cumulative mortality through two years in the other regions. There were continued improvements in CD4 counts in most regions at two years of follow-up.
WEAB0204

Pellets’ formulation of Lopinavir/ritonavir in children: 48-week evolution of viral suppression across age categories in the LIVING study

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Background: The pellets’ formulation of LPV/r which is palatable, heat-stable and easy-to-administer has received tentative USFDA approval for use in infants and young children. However, there is a paucity of clinical data on its effectiveness and safety in routine care. The LIVING study is evaluating the effectiveness, safety, PK and acceptability of LPV/r pellets + ABC/3TC (or AZT/3TC) dispersible tablets, in HIV+ children unable to swallow tablets in Kenya and Uganda.

Methods: An open-label, single-arm, prospective, multi-centre, phase-3b implementation study. Inclusion criteria: ARV naive, on liquid LPV/r-based or failing NNRTI based ART; Weight ≥ 11 kg, 12-24 months, ≥25 kg; Intent to follow up until W48. Intensive PK was evaluated at W2 or W4. PK parameters were compared to B/F/TAF-treated adults to confirm transfer inhibitor (INSTI) with a high barrier to resistance and low potential for drug interactions, has been coformulated with the recommended NRTI backbone of emtricitabine/tenofovir alafenamide (TAF) into a once-daily (QD) single-tablet regimen (STR). We report pharmacokinetic (PK), safety and efficacy in children who switched from a stable antiretroviral regimen to B/F/TAF.

Results: As of 31/10/2017, 273 patients had been enrolled, of whom 459 and 303 had reached WK24 and WK48 respectively, with a cohort retention of 88.6% (1 follow up on-going, 7 deaths). Baseline and WK 48 VL available in 266 children 13.6% (51.0%)females, median age 43 months (95% CI 25-62), 5.4% (9.4%) ART naive, 229 (86.1%) switched from LPV/r syrup, and 12 (4.5%) from NVP based ART. Viral load parameters were as follows: median (IQR) (log10 cp/ml) and proportion with VL< 50 and < 400 cp/ml across age categories were 4.7(2.7-5.1), 14.0% and 28.5% in the 5-11 months, 3.4(1.7-5.3) , 25.0% and 45.0% in the 12-24 months, 2.1(1.6-4.2) 27.0% and 57.0% in the ≥ 49 months.

Conclusions: We found wide regional variations in age and CD4 count at second-line ART initiation among children. Immunological restoration was observed in all regions after switch to second-line. However, deaths continued to be observed in some regions through two years of follow-up.

WEAB0205

Pharmacokinetics, safety, and efficacy of bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) single-tablet regimen in HIV-1-infected children (6 to < 12 years)


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Background: Bictegravir (BIC, BI, a novel, unbossted integrase strand transfer inhibitor (INSTI) with a high barrier to resistance and low potential for drug interactions, has been coformulated with the recommended NRTI backbone of emtricitabine/tenofovir alafenamide (TAF) into a once-daily (QD) single-tablet regimen (STR). We report pharmacokinetic (PK), safety and efficacy in children who switched from a stable antiretroviral regimen to B/F/TAF.

Methods: We conducted a prospective, single-arm, open-label, 2-part, 48-week (W) clinical trial to evaluate switching to the adult formulation of B/F/TAF (50/200/25 mg) QD in virologically suppressed children (6 to < 12 years) weighing ≥25 kg. Intensive PK was evaluated at W2 or W4. PK parameters were compared to B/F/TAF-treated adults to confirm BIC dose. Adverse events (AE), laboratory tests, HIV-1 RNA were assessed. We report follow up data through W12.

Results: 25 children enrolled; median [IQR] age 10 [6-11] yrs, median [range] weight 28.4 (25.0-35.0) kg, 52% female. 64% Black, median CD4 count 928 cells/µL. BIC AUC0-tau was similar, Cmax was 77% higher, and Cτ 22% lower in children ≥25 kg than adults. BIC Cmax was well above protein-adjusted effective concentration for wild-type virus (≥262 ng/mL) in all children. FTC and TAF exposures were within safe and efficacious ranges of adults (table). Through median (Q1, Q3) exposure to study drug of 16.1 (15.9, 17.7) weeks, most common AEs were grade 1 diarrhoea and upper respiratory tract infection (each 16%, 4/25); no other AEs occurred in >2 participants. No participant discontinued for an AE. All (100%) had HIV-1 RNA < 50 c/mL at W12; none met criteria for resistance testing.

Conclusions: B/F/TAF maintained virologic suppression and was well tolerated in children through at least 12 weeks. Similar to adults, therapeutic plasma concentrations of all B/F/TAF components of B/F/TAF were achieved. Efficacy and safety in children are consistent with phase 3 B/F/TAF results in adults and adolescents, showing high proportions with viral suppression, excellent tolerability, and no resistance. B/F/TAF may be an important unboosted INSTI, STR option for HIV-infected children due to its small tablet size, high barrier to resistance and lack of food requirement.
WEAC0101
Reaching out to hidden population in Malaysia: MSMs, transgender and sex workers in Muslims majority setting where sex is a crime

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Background: Malaysia has 31 million populations with 61.3% Muslims. Homosexuality and sex out of marriage are illegal and criminalised under both civil and Shariah laws. Because of this criminalisation, MSM, Sex Workers and Transgender go hidden. In 2016, Malaysia estimated number of MSM is 170,000 and number of transgender remains unknown, however a Delphi exercise in 2014 determined that there were 24,000 transgender sex workers and 21,000 female sex workers. MSM saw HIV prevalence rise from 3.9 to 8.9% between 2009 and 2014. Sexual transmission of HIV in general, has recorded a 2.5 fold increase, accounts for 84% of new HIV infection in 2016 compared to 32% in 2006. We recurrently transmission of HIV in general, has recorded a 2.5 fold increase, accounts for 84% of new HIV infection in 2016 compared to 32% in 2006.

Methods: We aimed to describe the hidden population regarding MSM, Transgender and Sex Workers in Muslims setting. Our study aimed to describe app use among MSM in China reducing HIV and rectal sexually transmitted infections. We aimed to develop a prediction model of MSM who are likely to use an app for HIV testing and prevention.

Results: A total of 639 subjects were enrolled (mean age=27.9 years, SD=5.7). Some 80% of MSM had ever used an app, 76.7% of whom had been using an app for more than 12 months, and 41.6% spent >30 minutes per day on apps. The proportion of app use increased significantly with increasing age, longer time of stay in the study city, higher educational level and more frequent alcohol use (P<0.05 for all). MSM engaging in receptive anal intercourse were more likely to use an app over the last 6 months (P<0.001). There was no difference in the proportion of patients with or without regular partner who used an app (P>0.348). App users had more sex partners (P=0.001), higher usage of Rush (P=0.001) and marijuana (P=0.046), and more HIV tests (P=0.001) in the past 6 months, compared to non app users. Prevalence of HIV (10.7% vs 7.1%), syphilis (9.9% vs 5.8%), urethral chlamydia (2.6% vs 8.3%), rectal gonorrhea (3.5% vs 2.4%), urethral gonorrhoeae (3.1% vs 4.1%) and anogenital warts (5.0% vs 3.3%) were similar in the two groups (P>0.1 for all). App users had significantly more rectal chlamydia (15.6% vs 6.6%, P=0.039).

Conclusions: The majority of MSM had frequent and long-term use of GSN app. Partnered status did not affect men’s app use behaviors. GSN app should be used as a platform to carry out interventions aimed at reducing HIV and rectal sexually transmitted infections.

WEAC0103
Extended risk network testing to find HIV cases among key populations in Ukraine: Predicting recruitment of HIV-positive clients with machine learning

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Background: Alliance for Public Health implements extended risk network testing during community-based outreach to improve HIV case-finding among key populations. We aimed to develop a prediction model for finding HIV-positives in the recruitment network using machine learning.

Methods: Since 2016, 31,069 people who inject drugs and their extended risk network peers were recruited in 12 regions of Ukraine. Initial recruitment started from HIV positive cases found in harm reduction program. Enrollment criteria for seeds were 14+ years, people who inject drugs, HIV positive rapid test. Participants got coupons to invite their peers defined as an injecting partner, sexual partner, sexual or injecting partner of somebody from the social network who can be also at risk of HIV. Recruitment was stopped if there were two HIV-negative cases next to each other.

Results: A total of 639 subjects were enrolled (mean age=27.9 years, SD=5.7). Some 80% of MSM had ever used an app, 76.7% of whom had been using an app for more than 12 months, and 41.6% spent >30 minutes per day on apps. The proportion of app use increased significantly with increasing age, longer time of stay in the study city, higher educational level and more frequent alcohol use (P<0.05 for all). MSM engaging in receptive anal intercourse were more likely to use an app over the last 6 months (P<0.001). There was no difference in the proportion of patients with or without regular partner who used an app (P>0.348). App users had more sex partners (P=0.001), higher usage of Rush (P=0.001) and marijuana (P=0.046), and more HIV tests (P=0.001) in the past 6 months, compared to non app users. Prevalence of HIV (10.7% vs 7.1%), syphilis (9.9% vs 5.8%), urethral chlamydia (2.6% vs 8.3%), rectal gonorrhea (3.5% vs 2.4%), urethral gonorrhoeae (3.1% vs 4.1%) and anogenital warts (5.0% vs 3.3%) were similar in the two groups (P>0.1 for all). App users had significantly more rectal chlamydia (15.6% vs 6.6%, P=0.039).

Conclusions: The majority of MSM had frequent and long-term use of GSN app. Partnered status did not affect men’s app use behaviors. GSN app should be used as a platform to carry out interventions aimed at reducing HIV and rectal sexually transmitted infections.
WEAC0104
When and why? Timing and determinants of post-migration HIV acquisition among sub-Saharan immigrants in France

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Background: Mounting evidence has recently highlighted the fact that many HIV-positive immigrants in Europe acquired their infections post-migration, in relation to experiences of social hardship that entail at-risk sexual behavior e.g. transactional sex. However, the timing of these infections is not known. This study aims to estimate the timing of post-migration HIV infection among Sub-Saharan immigrants in France, who are particularly affected by HIV, and to understand the correlates of post-migration infection.

Methods: Life-event and clinical information were collected in 2012-2013 from a random sample of 277 HIV-infected outpatients infected after arrival in France and 431 patients not diagnosed with HIV, born in Sub-Saharan Africa and living in the Paris area. The 6th year in France was chosen as the settlement delay based on previous analysis. We assumed HIV infection after six years (i.e. after the settlement period) in France if at least one of the following criteria was fulfilled: (i) HIV diagnosis at least 11 years after the six years in France, (ii) at least one negative HIV test in the 6 first years in France, (ili) sexual debut after 6 years in France. Otherwise, time of HIV infection was based on statistical modeling of first CD4 T-cell count. We assessed the determinants of HIV acquisition after six years in France using multinomial logistic regression models.

Results: Overall, 58% of Sub-Saharan immigrants who acquired HIV in France had been infected during the first six years in the country (55% of men and 61% of women). Conversely, about 42% of immigrants had contracted HIV after settlement. Factors associated with post-settlement infection were arrival in France at a younger age (between 18 and 27 years old versus later [OR=2.401[1.08-5.31] and arriving with a long-term permit versus being undocumented [OR=2.23[1.12-4.43]]. Bivariate models showed that post-settlement infection was associated with occasional and transactional relationships [OR=1.981[1.04-3.79]] and concurrent partnerships [OR=3.96[1.37-11.76]]

Conclusions: The majority of post-migration HIV acquisition occurs during the settlement period. Therefore, HIV prevention efforts should target newly arrived immigrants. However, long-term immigrants are also at risk for HIV, and specific prevention tools and interventions should be directed at this population.
WEAD01 Justice on the margins: Legal strategies to address barriers to HIV services

WEAD0101
Innovative paralegal and advocacy program enhancing access to justice and harm reduction services in Mombasa county

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Background: Criminalization of drug use, denial of health services, gross human right violations by law enforcers and community increases PWUD risk of premature death and morbidity. Kenya has an estimated 18,327 People Who Inject Drugs (PWIDs), of whom 8500 are in Coast region. Their HIV prevalence is 18.6% compared to 6.6% for general population. In 2014, growing threat of terrorism in Kenya triggered Presidential directive to control drug menaces in Mombasa. This led to massive indiscriminate arrests of PWUDs and also threatening the safety and security of Outreach workers, thereby triggering disruption in service delivery. Scarcity of drugs led to shift in to injecting while shortage of HIV preventive commodities resulted it to sharing and unprotected sex. Over 300 PWUDs incarcerated in three days, some of whom were under HIV, TB, treatment and care and on OST/MAT Program.

Description: MEWA initiated Paralegal and Advocacy Program, whereby its staff, Judiciary and law enforcers were trained on provision of harm reduction services, health and human rights of PWUDs in accordance to Kenya Constitution. MEWA also provided hygiene kits and legal aid, set up support groups and lobbied for alternative sentencing for PWUDs in prison, with assurance to secure national identity cards. MEWA with Judiciary and Kenyan Prison Services established a framework for improved PWUDs access to justice, fair trials, alternative sentencing and access to MAT.

Lessons learned: The Climax of our achievement is the issuance of court order obliging the Prison service, the MAT Clinic and MEWA to ensure accused PWUDs are enrolled on MAT and access all other relevant Harm Reduction services. A total of 2493 (F:365;M:2228) PWUDs reached with biomedical and harm reduction services, 305(F:35;M:270) with legal aid and 194(F:14;M:180) economic empowerment and 99(F:15;M:84) supported to receive identity cards and 5 male children with birth certificates. Hundreds of PWUDs understand their constitutional rights, can now vote, access revolving funds and freely move without police harassment.

Conclusions/Next steps: However, rogue law enforcers and routine public servants transfer undermines effective service delivery. There is need to scale up Paralegal training to enforce respect of health and human rights of PWUD in Mombasa County.

WEAD0102
Paralegal community in the epidemic of injustice: The role of paralegals from drug users communities in the fulfillment of drug users rights

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Background: In the beginning 2015, President Joko Widodo declared the “War on Drugs” as response to “Drugs Emergency Situation” in Indonesia. This declaration further enhances repressive actions and punitive policies for drug users. The lack of access to justice (access to legal aid) resulted in the increasing number of drug users ending up in prison. This resulted in overloading in prisons, which in turn resulted in further larger impacts. The lack of access to health toward drug users with special needs, for example, the lack of Anti Retroviral Therapy (ART) for drug users living with HIV/AIDS, lack of Opiate Substitution Therapy (OST), and sterile needles has resulted in the deteriorating health of drug users and resulting in deaths from other infectious diseases.

Description: In 2017, Persaudaraan Korban Napza Indonesia (PKNI) as a national network of 26 drug users communities spread across the country implement community paralegal program in 10 cities. As an effort in breaking the barriers, community paralegals are giving legal assistance to drug users when they are dealing with the law to promote the access to justice. In addition to legal assistance, paralegals are also trying to meet access to health services for drug users with special needs such as with HIV/AIDS and Hepatitis C, and drug users who require OST. From 145 drug users assisted, there are 133 men and 12 women, and the age average of drug user was 18-35 years old. Paralegals have a role to minimize the use of a criminal approach. During the program execution of 53 completed paralegal cases succeeded in stopping criminal proceedings in 37 cases with details of 19 cases declared free in the absence of evidence and 13 cases successfully stopped by encouraging the authority of the investigator to place the client into the rehabilitation site.

Lessons learned: The existence of paralegals contributes significantly to the fulfillment of the right to justice and the right to health of drug users.

Conclusions/Next steps: Community paralegal must remain sustainable, surely with the increasing role and number of paralegals in the region in Indonesia as the front guard of primary justice.

WEAD0103
Street lawyers from the harm reduction project at the ARF and their contribution to the fight for the right to health of PWUD and people living with HIV

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Background: The street lawyers program offers social support and rights protection to PWUD and people living with HIV - based on the only harm reduction project in Moscow: a city of 12 million.

Description: Several years after the launch of the Harm Reduction Moscow project, the problem of stigmatization of drug users and people living with HIV in various spheres of public life in Russia has become more pressing. As a result, rights violations, denial of medical care and criminal prosecution became widespread. To counteract that, a project was launched in 2013 to provide legal assistance and support. Street lawyers are social workers engaged in outreach work and social support who also motivate representatives of vulnerable groups to protect their rights and dignity.

The work of street lawyers includes several consecutive stages:
- Informing
- Mediation
- Official appeals to the authorities
- Judicial protection

In 2017, 591 clients received legal advice. 149 violations of rights were documented, a total of 58 appeals to the authorities were filed and 44 clients achieved the desired result.

Lessons learned: Four years of work have shown that social workers play a key role in protecting the rights of vulnerable groups. They motivate, offer support and provide a link between lawyers, legal knowledge in general and stigmatized groups. During the course of the project, an algorithm was developed to protect the rights of clients, which proved an effective model of interaction between representatives of vulnerable groups, social workers and lawyers. Important and successful cases are those where the client feels motivated to resist stigmatization and stand up for their rights when making decisions and acting on them.

Conclusions/Next steps: The project showed that the most effective way to provide legal assistance to vulnerable groups is to link clients with social workers and lawyers, where the main role for the protection of rights lies with the client and the social worker. This approach helps achieve positive results in rights protection at the same time empower-
WEAD0104
A novel method of working with judges to build their capacity on HIV and human rights in Africa

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Background: In 2014, judges in Africa with the United Nations Development Programme (UNDP) created the Regional Judges’ Forum for Africa. The goal of the Forum, led by a small number of senior judges from African countries, was to develop the HIV/TB and related human rights expertise of a core group of judges, who would then sensitize fellow judges nationally and regionally, and support institutionalizing this expertise.

Description: The Forum has met annually since 2014, created a database to provide judges with relevant reference materials, and developed an online space for the judges to communicate and share information. Annual meetings cover many topics, including the rights of key populations. Each topic includes discussion of the relevant scientific information, personal experiences from members of the affected population, and latest judicial rulings. The sessions consist of presentations, with time allotted for discussion among the judges. Resource people include HIV/TB clinicians and scientists, PLHIV, members of key populations, lawyers, and judges.

The number of judges in the Forum and the countries represented in the Forum increased from 11 to 23 and from 8 to 19, respectively.

Lessons learned: Such Forums should be convened and run by judges with the support of non-judicial organizations. Judges were most interested in learning about the developments in HIV-related jurisprudence; the science related to HIV and TB and their treatments; and hearing directly from key and vulnerable populations about their lived realities. The Forum resulted in numerous, rights-respecting judicial decisions; training of judicial officers by members of the Forum; increased personal awareness and development on key HIV legal issues; greater judicial access to reference materials; a stronger relationship between judges and civil society; and the organisation of judicial oversight of prisons to address overcrowding.

Conclusions/Next steps: To ensure sustainability, UNDP and the South African Judicial Education Institute ISAJEI are working to institutionalise the HIV-related judicial capacity building within the SAJEI and other national judicial training institutions. This model is a low-cost method for effectively building the capacity of judges, and it can and should be replicated in other regions.

WEAD0105
Assessing HIV key populations’ participation in seeking justice to test the effectiveness of human rights redress mechanism in Indonesia

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Background: Indonesia has established several redress mechanisms to address human rights violations; many of which are relevant to the problems faced by HIV key populations. However, the effectiveness of these systems is still in question. This research documented human rights violations witnessed by HIV key populations (people living with HIV, drug users, sex worker, and men who have sex with men) and their efforts to seek justice in order to understand the potentials and weaknesses of utilizing Indonesian redress mechanisms.

Methods: This research used quantitative data collected by thirty enumerators in seventeen districts in Indonesia. They were selected from HIV key population groups who had received training on human rights, redress mechanism, and documentation method. They were tasked to document human rights violations in their districts which took place between January 2016 and October 2017 using structured interview. In total, this research documented 151 human rights violations.

Results: Only 46 out of 151 victims seek remedy after violations occurred (30.46%). Thirty of them (65.22%) reported their cases to non-governmental organizations (NGO), where twenty eight reports were then followed up seriously to the relevant state agencies by asking clarification, condemning the abuse, reprimanding the perpetrators, or demanding compensation. Seven victims directly complained to the institution whose employ were not caught, or they were unable to gain remedy. Victims are satisfied when they got information about the follow-up, they could access antiretrovirals which they were unable to obtain before, and discriminations ceased.

Conclusions: Key populations who experienced human rights abuses mostly did not pursue remedy or protection. They believed that redress would be useless and even harmful - a belief that is proven true by more than one third of victims who sought justice. However, many victims were satisfied with NGOs which did not hesitate to remprimad the government and demand compensation.
Conclusions: Incarceration may represent a particularly severe stressor for young men with multiple marginalized identities—HIV-positive, MSM, and racial/ethnic minority—and put them at higher risk for engaging in transactional sex. Tracing the relationship between incarceration and transactional sex highlights a potential key source of health disparities among HIV-positive YMSM. It also identifies important targets for subsequent intervention studies—e.g., housing, mental health, employment—that place this population at risk of incarceration and transactional sex. Facilitating HIV-positive YMSM’s engagement with community-level and HIV clinic-specific services may serve as a key strategy to promote health and mitigate harms related to incarceration and transactional sex.

WEAD0203
Ethnographic study for HIV prevention reveals a typology consisting of five distinct types among South African adolescents and young women

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Background: The uptake of HIV prevention products among adolescents and young women in Sub-Saharan Africa has been problematic. Suboptimal product use in recent prevention trials highlights the challenges for conferring protection to targeted users. It has become clear that current methods of assessing acceptability are not useful at predicting actual use by this population. New approaches are needed to better understand the sociocultural context of young women in Sub-Saharan Africa.

Methods: We conducted a detailed ethnographic study among low-income South African girls and women between the ages of 14 and 25 in three urban and peri-urban locations (Living Standards Measure 4-7). Data were collected for each participant through a qualitative study consisting of interviews with 11 industry experts, 32 depthnographic interviews and observations with low-income females across both in-home and out of home contexts, 8 auto-ethnographic interactions (including digital and social media autobiographies), 12 hostess focus groups and influencer in depth interviews, and finally 6 partner in-depth interviews. Data were analyzed using qualitative methods including discursive and thematic analysis.

Results: Our data revealed a psychographic typology derived out of the complex dynamic between female vulnerability and socio-economic privilege. "The Good Girl," "Responsible Mother," "Material Girl," "Protection Savvy," and "Gender Prisoner." Each type carries a distinctive psychographic profile. home life, critical events related to sexual activity and family life, and relationship statuses. Together, the unique attributes that define a type are associated with different forms and levels of vulnerability to sexually transmitted infections. The data also suggest that each type may require differentiated and targeted education reflecting the variability across the typology with regards to sexual education, partners, products, and influences.

Conclusions: Current HIV prevention product promotion strategies have generally adopted a ‘one-size-fits-all’ approach that does not include a nuanced understanding of the context, needs, and motivations underlying the behavior of different user types. Development of typologies for target populations may allow a more targeted approach for designing, marketing, and promoting HIV prevention products to adolescents and young women, and their partners.

WEAD0202
Gendered powerlessness in at-risk adolescent and young adult women: An examination of condom use behavior

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Background: The burden of HIV among adolescent women remains unacceptably high. Although researchers have established that adult women’s social powerlessness influences their ability to negotiate the use of condoms effectively, researchers have seldom examined this effect using multidimensional higher-order models or among adolescents. Informed by Connell’s Theory of Gendered Powerlessness, we derived a developmentally appropriate model of gendered powerlessness for adolescents. Connell proposes three components of powerlessness: cathexis (e.g., gendered social norms and expectations), sexual division of labor (e.g., gendered subordination in sexual situations), and division of labor (e.g., gendered economic subordination).

Methods: Anonymous ACASI surveys were administered in community venues in 14 U.S. cities to at-risk adolescent women aged 12–24 years (N=1,101). The young women in this sample were primarily Black (82%) and heterosexual (87%). We used exploratory and confirmatory factor analyses to determine the dimensionality of gendered powerlessness and structural equation models to examine its association to condom use.

Results: Three latent factors (financial independence, sexual division of labor, and family life) predicted powerlessness. Together, the unique attributes that define a type are associated with different forms and levels of vulnerability to sexually transmitted infections. The data also suggest that each type may require differentiated and targeted education reflecting the variability across the typology with regards to sexual education, partners, products, and influences.

Conclusions: Our data revealed a psychographic typology derived out of the complex dynamic between female vulnerability and socio-economic privilege. "The Good Girl," "Responsible Mother," "Material Girl," "Protection Savvy," and "Gender Prisoner." Each type carries a distinctive psychographic profile. home life, critical events related to sexual activity and family life, and relationship statuses. Together, the unique attributes that define a type are associated with different forms and levels of vulnerability to sexually transmitted infections. The data also suggest that each type may require differentiated and targeted education reflecting the variability across the typology with regards to sexual education, partners, products, and influences.

Conclusions: Current HIV prevention product promotion strategies have generally adopted a ‘one-size-fits-all’ approach that does not include a nuanced understanding of the context, needs, and motivations underlying the behavior of different user types. Development of typologies for target populations may allow a more targeted approach for designing, marketing, and promoting HIV prevention products to adolescents and young women, and their partners.
WEAD0204
Should I take PrEP? A mental models assessment of young African women’s motivations for and barriers to PrEP initiation and adherence

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Background: Young women in sub-Saharan Africa have among the highest HIV incidence rates globally, yet in previous trials they have exhibited some of the lowest PrEP uptake and adherence. What are the motivations for and barriers to PrEP usage for young African women? How can such knowledge be used to effectively design scalable PrEP demonstration projects?

Methods: Employing the mental models methodology, our team conducted surveys with 15 experts to characterize young women’s decision making about initiation and adherence to PrEP, followed by in-depth interviews with 48 young women (age 16–25) and 45 men (age ≥18) in Kisumu, Kenya and Cape Town and Johannesburg, South Africa. Interviews were coded, theme frequencies were calculated, and linked themes were diagrammed into “mental models.” Expert and women’s models were compared. Lastly, a follow-up survey (n=444; 243 F, 201 M) was conducted at each field site to establish prevalence of beliefs and attitudes identified in the interviews and identify demographic correlates to those beliefs.

Results: While the expert mental models focused on more rational decision themes such as PrEP’s role in health outcomes, the young women’s mental models were driven by present bias (valuing the costs and benefits of now), particularly pertaining to relationships and influenced by feelings of safety, personal and community empowerment, health) as more influential on their decision to try PrEP than potential costs (side effects, clinic visits, family dysfunction, uncertainty, and daily pill-taking). Factors predictive of women’s interest in PrEP included: living in Cape Town, previous knowledge of PrEP, the woman’s perceived risk of HIV in the next year, PrEP efficacy beliefs, and the expectation that she would use a condom less if she takes PrEP.

Conclusions: PrEP messaging should highlight the immediate and positive emotional benefits of PrEP usage. Findings support the creation of a decision tool that would provide women with personalized recommendations based on risk and preferences, allowing them to answer the question of whether PrEP would be good for them before introducing questions about how it will work in their life.

WEAD0205
Experiences and outcomes of group psychotherapy as an antiretroviral adherence support intervention among young people failing on ART at Newlands Clinic, Harare, Zimbabwe

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Background: Adherence to antiretroviral therapy (ART) is a major challenge faced by young people living with HIV (YPLHIV). We examined the experiences and outcomes of an Enhanced Adherence Counselling Group Intervention (EACGI) prior to regimen switch among adolescents failing first line ART.

Description: We analysed records for (YPLHIV) aged between 13 and 25 years with confirmed virological failure (VF) who were invited to EACGI. This intervention was a 12-week curriculum of weekly 1.5-hour sessions which accommodated 8-15 people per group. The aim of the intervention was to facilitate readiness to switch treatment to second line ART, and improve adherence through Phenomenological, Motivational Interviewing and Cognitive Behavioural Therapy principles. Each participant had an HIV viral load (VL) test pre and post EACGI and at 3, 6, 9 and 12 months post switch to assess virological outcomes.

Lessons learned: Fifty-nine patients (57.6% female, n=34) were followed up for 45.8 person-years. Median duration of first line ART was 6 years (IQR: 4 - 8) at time of initiation to EACGI. Twenty-two patients (37.3%) did not attend a session, 8 were female and 14 were male. The most common reasons for not attending were lack of interest and school or work schedules. The main reasons for poor adherence among the 37 attendees were hopelessness, family dysfunction, lack of illness, an aversion to a daily routine attached to stigma, and medication side effects. Among patients who attended >75% of sessions, 76%, 95%, 94% and 87.5% achieved virological suppression (VL<100 copies/ml) at 3, 6, 9 and 12 months, respectively, compared to 63%, 55%, 55% and 50% among those who attended at least one but <75%. Those who did not attend any session had suppression rates of 32%, 41%, 41% and 39%, respectively.

Conclusions/Next steps: Patients who attended >75% EACGI had better second-line virological outcomes compared to those who attended less or none in this small cohort. EACGI is a promising tool for preparing patients within this key population for second line treatment, increasing the likelihood for improved adherence and improved treatment outcomes for second line therapy.

WEAD0301
A political economy of HIV treatment policy: Drivers of health policy diffusion

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Background: Why do some countries rapidly adopt policies suggested by scientific consensus while others are slow to do so? HIV treatment is a particularly salient case in point. Scientists, physicians, and the World Health Organization (WHO) spend significant effort identifying the optimal standards of medical care—and the guideline policies that govern public health and medical practice often lag far behind evidence. Efforts to address differences in adoption of evidence-based policy focus on variation in the capacities for adoption and interpretation of scientific evidence. We challenge this view, hypothesizing that socio-political institutions are often decisive in how quickly countries will adapt science into policy.

Methods: We used a mixed methods strategy. First, we constructed a database of national HIV treatment guidelines, collecting 290 published national ART guidelines for adults and adolescents from 122 countries (98% of global HIV burden). Using this database, we built a model to reflect the epidemiologic, economic, and political context and used a Cox-Proportional Hazards Model to test our hypothesis. Second we conducted interviews with 24 key informants with direct knowledge of guideline processes to establish causality in our study.

Results: Neither HIV prevalence nor national wealth is a significant driver of policy change in our quantitative or qualitative results. Qualitative analysis shows neither interpretation of medical evidence nor formal cost-benefit analysis explains differences. Instead, the formal structures of government and the degree of ethnic cleavages predict the speed with which new medical science is translated into policy. More veto points in government is strongly associated with faster policy adoption—with a full swing in the data associated with a 275% increase in adoption speed. HIV policy change is slower in contexts with complex racial/ethnic divisions—as much as 60% cetnén porus.

Conclusions: Our findings challenge expectations in scholarship and practice that policy divergence and inequities are primarily addressed through greater evidence and dissemination channels. That political
factors are systematic, rather than random, suggests a new approach is needed by agencies such as the WHO and UNAIDS. Building diffusion strategies, messages, and policy networks that are tailored to national political context is possible when systematic socio-political factors are identified.

WEAD0302
Using TRIPS-flexibilities as a leverage to improve access to HIV and hepatitis C medicines in Ukraine
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Background: Significant treatment gaps persist for HIV (63%) and hepatitis C (99%) in Ukraine. High prices for patented ARVs and DAAs contribute to inequality of country HIV and hepatitis C response.

Description: To ensure better affordability of HIV and hepatitis C medicines, the All-Ukrainian Network PLWHA (the ‘Network’) used patent oppositions and compulsory licensing (CL) request as leverage in negotiations with patent holders. The national HIV program experienced a funding gap in HIV medicine procurement in 2015.

In February 2016, in response to potential drug shortages the Network organized a meeting with the Ministry of Health and originators (AbbVie, GileadSmithKline, MSD, and Janssen). The network shared information about treatment gap, called the companies to lower the prices and called government consider using CL. As the response to this action, ViV included Ukraine in the MPP DTG license (April 2016). In addition, the Network requested GSK/ViV to include Ukraine in the license for ABC for adults in May 2016. The negotiations with GSK were conducted simultaneously with preparation of a patent opposition on ABC.

The Network repeatedly emphasized to MSD and GSK representatives with preparation of a patent opposition on ABC. The Network emphasized the impact on competition and patent oppositions influencing price negotiations and consequent temporary generic competition for SOF may improve access to HIV and hepatitis C treatment.

WEAD0303
America’s $10 billion overspend on sofosubivr-based hepatitis C treatment resulting from unmerited patents
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Background: About one quarter of the estimated 1.2 million HIV-infected persons in the United States are also infected with Hepatitis C virus (HCV). Co-infection of HCV is especially common (50%-90%) among HIV-infected injection drug users. With the introduction of direct-acting antiviral sofosbuvir (Sovaldi™, SOF) in 2013, and additional SOF-based combination therapies since, the cure for HCV became reality. To date, SOF-based therapies have accounted for approximately three out of four of all DAA prescriptions written for HCV patients in the U.S.

However the high price of the SOF-based therapies has resulted in payer rationing and limited access to the medicines, particularly among HCV patients on Medicaid and those in the correctional systems.

Methods: Our team of patent lawyers, scientists and health market experts
a) Examined the patent portfolio of sofosbuvir,
b) Analyzed the commercial market dynamics for sofosubivr-based products,
c) Assessed the current landscape of patient access to HCV medicines in the U.S., and
d) Modeled the projected overspend on SOF-based products in the U.S.

Results:
1) Nearly all (26 of the 29) of the patents on Sovaldi™ are secondary patents that relate to various prodrugs, processes, and crystalline forms that are distinct from the base compound sofosubovir. These along with the three patents on the base compound were analyzed by technical experts and found to be likely unmerited given obviousness and prior art in the field.
2) The average net price paid in the U.S. across all SOF-based products by public and private payers from Q316 to Q317 was $40.200. Our analysis suggests that net prices will continue a downward trend toward $30,000 for 2018.
3) 85% of patients in the U.S. that have been diagnosed with HCV will not get access to treatment in the coming year.
4) U.S. payers are projected to spend an excess of $10 billion for branded SOF-based products in 2021-34 as compared to treatment costs with generic sofosbuvir.

Conclusions: Unmerited patents have been identified on Sovaldi™ resulting in prolonged exclusivity periods that prevent generic product entry, burden payers with billions in overspend, and generate significant access problems for HCV patients in the U.S.

WEAD0304
Dolutegravir and the universal antiretroviral regimen: Good may be the enemy of perfect
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Background: Tenofovir, Lamivudine and Dolutegravir (TLD) is the best potential global universal treatment regimen. Dolutegravir’s tolerability, durability, effectiveness, simplicity, cost-savings and high resistance barrier could accelerate progress towards 90-90-90.

Methods: We searched Internet, PubMed, national surveillance reports, UNAIDS/WHO reports, President’s Emergency. Plan for AIDS Relief (PEPFAR) 2017 operational plans, and conference abstracts for nationally representative information regarding DTG. We describe policy/ implementation status for the 94 low- and middle-income countries (LMICs) with published national guidelines (92% global HIV burden). We compare PEPFAR 2019 and 2018-2019 cost savings for Tenofovir-Lamivudine-Efavirenz (TLD) 700 vs. TLD for people living with HIV on ART for 26 PEPFAR supported countries in sub-Saharan Africa. A similar comparison was done assuming achievement of 90-90-90.
Results: DTG is already widely used in the higher income settings and increasingly a first-line drug in LMICs (Table 1). DTG is recommended in all of the high-income countries as part of an optimal first line regimen, as an alternate option in WHO 2016 guidelines, and in 17 LMICs including Botswana, Lesotho, Nigeria, Uganda and Zambia. Despite not having formal published recommendations, DTG is already being prescribed in Kenya, Zimbabwe and other LMICs. Although 2018 transition to TLD will likely be incomplete, transitioning all patients supported by PEPFAR in 16 countries in sub-Saharan Africa to TLD ($175,700) when compared with current TLE costs ($71,400) could save $63,900 per annum for 2020 to 2020, respectively. Assuming achievement of the 90-90-90 target, cost-savings for 2020 for the 16 countries would be $24,411,100. DTG and alternative service delivery models (e.g., reduced clinic visits, laboratory testing and viral load costs), could reduce overall treatment costs to well below $200 per person per year in Sub-Saharan Africa. Cost savings that would accompany the decrease in the development and transmission of resistant virus are likely to be even greater.

Conclusions: Rapidly transitioning from current 1st line treatment to the DTG universal regimen represents an opportunity to make a major impact on the epidemic of HIV if done swiftly. Other disease control efforts have made concerted efforts across multiple regions and countries when faced with the need for quick action, why not HIV?

WEAD0305
Review of national guidelines in 16 sub-Saharan African countries for inclusion of the adolescent HIV care continuum

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c
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Background: Adolescents living with HIV (ALHIV) have poorer HIV-related outcomes than adults due to unique developmental, psycho-socio-cultural, and clinical needs that are often not addressed. The 2016 WHO consolidated HIV guidelines recommend provision of adolescent-friendly HIV services to improve these poor outcomes. The purpose of this review was to assess national HIV/ART guidelines from sub-Saharan African countries for inclusion of recommendations targeting services for ALHIV along the HIV cascade.

Methods: National ART/HIV guidelines from PEPFAR-supported countries in sub-Saharan Africa that have pediatric/adolescent HIV programs were reviewed. All documents were publically available and in English. Pertinent information on five areas (Table 1) were abstracted by two authors (JK and SH) and inconsistencies resolved.

Results: Data were available and abstracted for 16 countries (Table 1). Kenya was the only country whose guidelines included all five recommendations. Recommendations on frequency of HIV testing in sexually active adolescents were included in 50% of countries (n=8); however, the recommended frequency was not consistent (annual testing n=6, every 6-12 months n=1, every 3-6 months n=1). Although 14 countries (88%) included a section on disclosure to children/adolescents, only 8 (50%) included recommended age of full disclosure. The age varied across countries: 8-10 years (n=1), 10-12 years (n=4), 10-14 years (n=1), 11-14 years (n=1), and 13 years (n=1). Age of consent for treatment initiation was clearly defined in only 3 countries (19%), all recommending 12 years old. The majority (n=15, 94%) included recommendations on frequency of viral load (VL) testing. Three countries (19%) recommended more frequent VL testing every 6 months in ALHIV due to higher rates of virologic failure. 44% (n=7) included guideline on transition to adult services, although only 25% (n=4) included recommended age of transition which varied from 15 to 20 years.

Conclusions: There is currently a lack of consistency in national HIV/ART guidelines to address the unique needs of ALHIV. More specific guidance should be included in national guidelines for healthcare workers to provide appropriate adolescent-friendly HIV services to improve clinical outcomes in ALHIV.
WEAE0102

Cracking the code to increase men’s uptake of HIV testing: Providing convenient and confidential outreach HIV testing services through mobile clinics

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Background: In Malawi only 66% of men age 15-64 have been tested for HIV compared with 76% of women. With funding from the Elizabeth Taylor AIDS Foundation, in July 2014, Global AIDS Interfaith Alliance (GIAA) introduced a program to increase rates of male testing by reaching out to men with weekend HIV testing services (HTS) at convenient times and locations.

Description: Working in partnership with the District Health Offices, sites in need of HTS are identified. The mobile clinic is staffed by a driver and three trained health providers who travel to where men (and their partners) gather, including markets, tea estates, and churches/mosques, to provide HIV testing. Program data is collected using Magpi, a mobile app on a secured phone. Encrypted data is uploaded in real time using wi-fi or cell connection.

Lessons learned: Through December 2017, there have been 106 male targeted testing events, testing 6,166 people, of which 71% were male, compared to 26% males tested at weekday mobile clinics over the same period. Notably, 38% of males tested were aged 15-24 and of these, 42% had not previously been tested. Across all ages, 30% of males had not been previously tested. Three percent of men were found positive, with 5% of men over 25 testing positive, and all were referred to the nearest clinic providing antiretroviral therapy. The percentage of men attending these events has increased over time from 65% in 2014 to 78% in 2017. Convenience of location (38%), publicity surrounding the event (35%) and convenience of time (23%) were cited as primary reasons for attending.

Conclusions/Next steps: Men can effectively be reached for HIV testing in order to achieve the first UNAIDS “90” target by making testing convenient, providing a gender-segregated space, and providing male counselors. Using a secure mobile data collection app allows for real time data analysis to improve program performance and target geographical areas where incidence is high and enables rapid in home follow up visits for those who consent. The next phase of the project will link treatment initiation and adherence data with testing data to assess time from diagnosis to treatment to adherence.

WEAE0103

Engaging young men in health care and HIV testing: The SHAZ! HUB youth drop-in-centre

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Background: HIV testing efforts in sub-Saharan Africa have focused on young women. However, studies show that young men face challenges in accessing preventative health care, including HIV testing, tending to be diagnosed late and presenting for HIV treatment with advanced disease. At the SHAZ! HUB, a youth drop-in center and clinic in urban Zimbabwe, the majority of the clients are male.

We explored factors contributing to this high uptake of services among young men.

Methods: We summarized information from clinical intake forms and conducted four focus group discussions, two with males aged 16-19 years and two with males aged 20-24, on topics related to health seeking behavior, facilitators and barriers to accessing services, and favorable and facilitative aspects of service delivery.

Results: From July 2016, the SHAZ! HUB provided sexual health and HIV testing services to 2,243 clients, 1,332 (60%) of whom were male. Seventy percent were between the ages of 16-19 years, and the majority of clients sought HIV testing. The main barriers mentioned to seeking services generally were lack of confidentiality, fears of being embarrassed or made to feel uncomfortable, and the notion that clinics are “for women and babies.”

When asked about favorable aspects of the SHAZ! HUB, participants cited factors focusing on environment, health care workers, and additional recreational services/benefits offered. For example, participants highlighted the privacy afforded by the HUB, and that services were “male friendly” - meaning the young men were not judged and given factual information and support on how to reduce risk that focused on the male perspective (e.g., no judgement when disclosing multiple sex partners). Participants also appreciated that they were allowed to be “loud,” and that they were not chastised for “misbehaving.” Other appealing aspects of the HUB included being able to access wi-fi, relax with friends and watch satellite TV, and access workshops on life skills and financial literacy.

Conclusions: These lessons learned suggest that programs seeking to engage young men could consider combining health services with recreational opportunities, non-judgmental information and support within a private, youth-friendly environment. Such factors create openings for young men to engage in prevention and care.
Results: 49,693 participants did not know or have documentation of their negative HIV status in the prior 3 months and were tested for HIV with home (19,349; 39%) or mobile (30,344; 61%) testing. Among these, 1,870 (3.8%) were newly diagnosed. Similar absolute numbers of women and men, 956 and 916 respectively, were diagnosed (Table 1). The proportion of new diagnoses was higher in the older age categories as compared to the 16-24 year olds (p < 0.001). Older males yielded the highest proportion of new diagnoses across all categories (p < 0.001). When examining testing by venue, home represented 39% of the total tests conducted and yielded 46% of the new positives identified. The testing yield for new HIV diagnoses in the home (4.5%) was significantly higher than the 3.3% yield with mobile testing (p < 0.001). Similar absolute numbers of males and females were newly diagnosed with the 2 testing modalities. However, home testing yielded more new diagnoses among older persons compared to mobile (p < 0.001).

Conclusions: In this rural and semi-urban population, home testing yields were greater than mobile testing yields particularly among older males, suggesting that this strategy remains important for identifying HIV-infected individuals in a country with high HIV identification coverage. While a similar absolute number of males and females overall were identified with each strategy, absolute numbers and proportionate yield varied across age-sex categories and testing approach. Similar granular data may be used to select testing strategies specific to the first 95 gap across age-sex categories within local geographic areas.

Table 1. Newly Diagnosed Participants Identified in 15 Rural and Semi-Urban Botswana Communities. By Age, Sex, and Testing Venue

<table>
<thead>
<tr>
<th>Total</th>
<th>Total New</th>
<th>Females</th>
<th>Females 20-24</th>
<th>Females 25-34</th>
<th>Females 35-44</th>
<th>Females 45+</th>
<th>Males 20-24</th>
<th>Males 25-34</th>
<th>Males 35-44</th>
<th>Males 45+</th>
<th>New HIV</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>942 (2.2%)</td>
<td>346 (3.7%)</td>
<td>279 (2.2%)</td>
<td>308 (4.6%)</td>
<td>93 (1.5%)</td>
<td>9 (0.3%)</td>
<td>201 (0.9%)</td>
<td>203 (0.8%)</td>
<td>94 (1.5%)</td>
<td>9 (0.3%)</td>
<td>762 (4.7%)</td>
<td>554</td>
<td>266</td>
</tr>
<tr>
<td>Male</td>
<td>3,126 (5.0%)</td>
<td>1,184 (3.8%)</td>
<td>903 (5.5%)</td>
<td>1,319 (5.1%)</td>
<td>218 (3.3%)</td>
<td>33 (2.0%)</td>
<td>1,010 (5.0%)</td>
<td>890 (3.4%)</td>
<td>202 (3.0%)</td>
<td>13 (0.9%)</td>
<td>1,306 (5.0%)</td>
<td>865</td>
<td>441</td>
</tr>
</tbody>
</table>

Figure 1: Number of men tested for HIV, diagnosed as HIV-positive, and initiated on ART before and after introduction of the Men’s Clinic, by age.

Conclusions: Providing male-only comprehensive clinical services is a promising strategy for increasing men’s access to HIV testing and linkages to care. Future scale-up of Men’s Clinics could help in identifying large numbers of men who are living with HIV.

WEAE02 Tough choices, smart decisions, maturing responses

WEAE0201 Impact of the PEPFAR geographic pivot on HIV & non-HIV health services in Uganda

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Background: In Uganda, PEPFAR implemented a geographic prioritization (GP), which discontinued support for outreach, training, supervision, and staff incentives to roughly 730 health facilities, shifting them to government central support (CS). CS facilities are located in low HIV-prevalence districts or did not provide high-volume HIV care.

Methods: In order to assess the impacts of the GP, we fielded a survey at 262 health facilities across Uganda in mid-2017. The survey collected information on PEPFAR support, service delivery, commodities, laboratory, time-allocation, motivation, and human resources. We also obtained DHIS2 records on select HIV and non-HIV services (2013-2017) and HRHIS staffing data (2015-2017). We conducted difference-in-difference analysis comparing CS facilities to those maintained on PEPFAR before and after GP using random intercept regression models.

Results: Relative to maintained facilities, CS facilities are significantly more likely to report termination of workers, declining frequency of supervision, and worsening financial status. CS facilities are also signifi-
cantly more likely to report discontinuing HIV outreach (52% vs 4%, p< 0.001), worsening quality of HIV care (42% vs 0%, p< 0.001), less improvement in the quality of maternal neonatal and child health care (34% vs. 70%, p< 0.001), and increased disruption of viral load (23% vs 5%, p<0.002) and sputum (22% vs 6%, p<0.026) testing. More workers at CS facilities report less time on HIV care (32% vs. 11%, p<0.001) and declines in satisfaction (27% vs. 1%, p<0.001) since transition. However, the HRHIS data shows that adjusted difference-in-difference in staffing ratios for CS facilities relative to maintained facilities was small and not statistically significant. According to DHIS2 data, there were no significant differential trends in volume of HIV tests, current on ART, OPD visits, ANC visits, Facility-based deliveries, or DPT/Pentavalent-3rd dose. Conclusions: Early results suggest that the PEPFAR GP in Uganda has had limited immediate impacts on service delivery and staffing levels, at CS facilities, despite the impacts reported in our survey. However, discontinuation of outreach, reduced access to supervision, weakened links to lab hubs, and declining time-allocation for HIV care may ultimately hinder the ability to identify and retain HIV patients and jeopardize Uganda’s progress towards the 90-90-90 goals.

WEAE0202
From 90-90-90 towards HIV elimination with boosted-integrated active HIV case management (B-IACM) in Cambodia
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Background: The National HIV Program in Cambodia has been successful in reducing HIV prevalence in the general adult population from 1.7% in 1998 to 0.6% in 2016 with strong prevention programs, expansion of HIV testing, and optimization of the continuum of care with ART coverage reaching more than 80% PLHIV. In 2016 AEM modeling, 70,498 individuals were estimated to be HIV infected, 58,338 (83%) knew their status, and 56,754 (97%) of these on ART but 12,000 PLHIV do not yet know their HIV status and new approaches are needed to find them. Cambodia’s HIV program, having achieved UNAIDS 90-90-90 goals, is focused on elimination of HIV transmission by 2025 and B-IACM is central to that plan.

1. Spectrum/AEM modeling 2016
2. Description: The BIAICM strategy, implemented at the Operational District (OD) level, involves an HIV Case Management Coordinator (CMC) assisted by a Case Management Assistant (CMA) work daily with HIV Case Management Service Providers (CMPs) who coordinate, communicate, and share information concerning HIV cases. Their efforts ensure timely enrollment in care and initiation of ART and support adherence and achievement of viral load suppression. Pregnant women, HIV-exposed infants, and PLHIV partners are targeted for testing, enrollment in HIV care and treatment if HIV+. Coordination meetings between CMCs and CMPs and broader stakeholders review site performance and identify solutions to improve care and retention. Direct data reporting to the National Center for HIV/AIDS, Dermatology and Sexually Transmitted Infections (NCHADS) is used to generate a dashboard that allows offsite monitoring and intervention as necessary.

Lessons learned: B-IACM has doubled previous yield, increasing new HIV case detection from 444 (pre-B-IACM from February 2014 - September 2015) to 753 (B-IACM from October 2015 to May 2017) in Battambang and Siem Reap. The B-IACM strategy has improved targeting for HIV testing and the achievement of the first 90% (i.e., increased ART initiation rates to 96% (1,577/1,627), the second 90%; and, increased adherence achieving viral load suppression to undetectable levels in 97% of cases, the third 90.


Conclusions/Next steps: NCHADS will scale up B-IACM implementation to all provinces in Cambodia as it moves toward achieving 95-95-95 by 2025.

WEAE0204
Monitoring viral load for the last mile: What will it cost?
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Background: Routine viral load testing is the WHO-recommended method for monitoring HIV-infected patients on ART, and many countries are rapidly scaling up testing capacity. Providing testing access to the most remote populations (the “last mile”) is especially challenging. Using a geospatial optimization model, we estimated the incremental costs of reaching the hardest-to-reach 20% of patients in Zambia by expanding the transportation network required to bring blood samples from ART clinics to centralized laboratories and return results to clinics. Methods: The model first optimized a simple transportation network (STN) that can transport 80% of anticipated sample volumes to centralized viral load testing labs on a daily or weekly basis, in line with the Zambia 2020 viral load targets. Data incorporated into the model included the location and infrastructure of all 2,500 Zambian health facilities and laboratories, measured distances and drive times, expected future
viral load demand by health facility, and local cost estimates. We then continued to expand the modeled STN in 5% increments until 100% of sample volumes were met.

**Results:** The cost per viral load test when reaching 80% patient volumes using centralized viral load testing was a median of $23.43 (IQR $20.92-$25.60). With an expanded STN, the incremental cost per test rose to $24.72 ($23.08-$26.90) for 80–85%, and $24.82 ($21.28-$26.94) for 85–90%. Above 90% coverage, the incremental cost per test increased substantially to $35.17 ($31.17-$38.35) for 90–95% and $57.23 ($52.67-$63.15) for 95–100%. The high numbers of kilometers driven per sample transported increases the costs dramatically for reaching the clinics that serve the last 5% of patients.

**Conclusions:** Providing sample transport services to the most remote clinics in low- and middle-income countries is likely to be cost-prohibitive. Other strategies are needed to reduce the cost and increase the feasibility of making viral load monitoring available to the last 10% of patients. The cost of alternative methods for reaching the last patients, such as optimal point-of-care viral load equipment placement and usage, dried blood spot specimen utilization, or use of drones in geographically remote facilities, should be evaluated.

**WEAE0205**

The impact of PEPFAR PMTCT funding on reduced infant mortality and improved ANC care in Kenya: A quasi-experimental evaluation

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**Background:** From 2004-2014, the President’s Emergency Plan for AIDS Relief (PEPFAR) invested over $2.2 billion in Prevention of Mother to Child Transmission of HIV (PMTCT) in Kenya. During this same time, child mortality in Kenya decreased by half. The extent to which this decrease is attributable to PEPFAR is unknown.

**Methods:** We mapped annual PEPFAR funding for PMTCT to Kenyan provinces using 2004-2014 Country Operational Reports and linked funding to Demographic and Health (DHS) and AIDS Indicator Surveys (AIS). We used a quasi-experimental dose-response analysis to evaluate the impact of annual (ANN-PCF) and cumulative (CUM-PCF) per capita PEPFAR funding for PMTCT on infant mortality, neonatal mortality, and HIV counseling, testing, and receipt of test results during antenatal care (HIV testing at ANC). Risk ratios were estimated using generalized estimating equations, and regression models were adjusted for year, province, and respondent characteristics.

**Results:** Our secondary analysis included 30,424 infants and 21,048 mothers. We found that a $0.33 increase in ANN-PCF, or the difference between the 75th and 25th (IQR) percentiles of annual funding levels, was significantly associated with an 11% (95% CI 2-21%) reduction in infant mortality after a 1-year lag. This reduction was sustained after a 2-year lag. An $0.83 increase in CUM-PCF, or the IQR of cumulative funding levels, was significantly associated with a 31% decrease in infant mortality (95% CI -11-46%), with the estimated associations attenuating with successive lags. A $0.33 increase in ANN-PCF was also associated with a 6% increase in HIV testing at ANC after a 3-year lag (95% CI -2-10%), with similar findings for CUM-PCF. As expected, funding was not associated with neonatal mortality.

**Conclusions:** We found evidence that PEPFAR funding for PMTCT may be causally associated with reduced infant mortality and increased HIV testing at ANC in Kenya. The full impact of PMTCT funding may not be felt for several years after it is allocated. Our methods, paired with routine, publicly available data sets like DHS and AIS, can be extended to other countries and health challenges to demonstrate the impact of large-scale donor programs like PEPFAR and to inform resource allocation by policymakers.

**WEAE03 Money, money, money: Dynamic financing solutions**

**WEAE0301**

Global optimization of the transition to HIV

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**Background:** Over $20 billion is spent annually on HIV programs in low- and middle-income countries. The allocation of resources by country and intervention depends on a mixture of need, funding sources, capacity, effectiveness, policy, politics and social factors. We investigated how well the current allocation is optimized for cost-effectiveness.

**Methods:** We applied an HIV simulation model, Goals, to 55 countries accounting for about 90% of all new infections to determine the cost per infection, death and DALY averted for each of 13 interventions. Unit costs were based on Investment Cases for each country. The models were fit to surveillance and survey data and UNAIDS official estimates. Cost-effectiveness ratios were calculated by country and intervention by scaling up each intervention, one-at-a-time, over five years and recording the incremental costs, infections, deaths and DALY's compared to a counterfactual of no scale up of any interventions. The results comprise a database of total cost and cost-effectiveness measures for 716 country/intervention pairs.

**Results:** Cost-effectiveness varies widely across countries and interventions as shown in Figure 1 for cost per infection averted. Six percent of these combinations are cost savings because the total cost of the
intervention is less than the savings generated due to treatment costs averted. ART dominates cost per death and DALY averted and also ranks high in cost-effectiveness for infections averted. The most cost-effective prevention interventions are generally VMMC, PMTCT, outreach to sex workers and condom promotion. These programs currently receive about 14% of direct intervention funding, which is about two-thirds of the need. The most cost-effective programs are in East and Southern Africa where incidence is high and costs are generally low. Currently almost 60% of all resources and 70% of donor resources are focused on ESA. About 15% of donor resources go to West and Central Africa where cost-effectiveness can be considerably worse.

Conclusions: Resources for HIV prevention and treatment are generally targeted appropriately but more focused allocation of resources could improve cost-effectiveness by about a quarter. Resource allocations should be continually assessed because cost-effectiveness can change significantly as incidence patterns change.

Conclusions: Our analysis suggests that the declines in HIV/AIDS aid over the past five years are associated with decreases in the domestic financing available for HIV/AIDS. Domestic sources of HIV/AIDS funding are not filling the financing gaps created. If the decreases in development assistance continue, and are accompanied by sustained declines in government financing, treatment and prevention efforts and the major reductions in incidence and mortality achieved over nearly two decades may be at risk.

**WEAE0302**

**How does domestic HIV/AIDS financing respond to declines in development assistance for HIV/AIDS?**

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**Background:** Development assistance for HIV/AIDS aims to complement and enhance domestic spending. However, prior analyses have shown that development assistance displaces government financing, as aid grows, increases in government spending are not as large as they would be in the absence of aid. Furthermore, when aid retracts, government funds do not necessarily fill the gap in financing. While this dynamics has been studied for the health sector overall, we know little about whether it extends to the HIV/AIDS sector. We analyze this relationship using newly available HIV/AIDS financing data.

**Methods:** Our data consist of estimates of HIV/AIDS financing by source and treatment generated by IHME. The number of people living with HIV (PLHIV), quantifying future antiretroviral therapy (ART) needs is vital for HIV program design and financing. With the present study we summarize the expected cost of financing ART for each country through 2040 by predicting the price of ART, projecting funding under different scenarios, and modeling the HIV epidemic for each scenario.

**Results:** We estimated ART prices using a frontier analysis based on Global Price Reporting Mechanism data. We projected current levels of government health expenditure and development assistance for health for HIV treatment based on 15th (pessimistic), 50th (reference), and 85th (optimistic) percentile rates of change across 46 countries, which then informed ART coverage projections by translating predicted funding into expected treatment using our cost projections. We used each scenario as inputs into Spectrum, a cohort component model that applies disease progression parameters to an age- and sex-specific population over time. Spectrum results provided a full time series of HIV prevalence by country through 2040.

**Conclusions:** Estimated median annual ART price per patient was projected to decrease from $282.12 USD in 2016 to $25.74 in 2040. Country-specific ART cost varied considerably, from $210.30 to $415.64, with the highest prices predominantly in western sub-Saharan Africa (SSA). In the reference scenario, the number of PLHIV in SSA increased from 14.3 million in 2015 to 40.5 million in 2040, a trend primarily fueled by population growth and extended survival of PLHIV. Conversely, incidence was projected to decrease from 1.4 per 1,000 population in 2016 to 0.75 per 1,000 in 2040. Compared with the reference scenario, by 2040, the optimistic scenario estimated 29.4 million PLHIV in SSA whereas the pessimistic scenario projected 81.5 million. Cumulatively, the estimated cost of purchasing ART for SSA exceeded $30 billion for the 2016-2040 reference scenario.

**WEAE0303**

**Forecasting the cost of financing ART in sub-Saharan Africa under differential funding scenarios**

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**Background:** Amid stagnated international funding for HIV and longer lifespans for people living with HIV (PLHIV), quantifying future antiretroviral therapy (ART) needs is vital for HIV program design and financing. With the present study we summarize the expected cost of financing ART for each country through 2040 by predicting the price of ART, projecting funding under different scenarios, and modeling the HIV epidemic for each scenario.

**Methods:** We estimated ART prices using a frontier analysis based on Global Price Reporting Mechanism data. We projected current levels of government health expenditure and development assistance for health for HIV treatment based on 15th (pessimistic), 50th (reference), and 85th (optimistic) percentile rates of change across 46 countries, which then informed ART coverage projections by translating predicted funding into expected treatment using our cost projections. We used each scenario as inputs into Spectrum, a cohort component model that applies disease progression parameters to an age- and sex-specific population over time. Spectrum results provided a full time series of HIV prevalence by country through 2040.

**Results:** Estimated median annual ART price per patient was projected to decrease from $282.12 USD in 2016 to $25.74 in 2040. Country-specific ART cost varied considerably, from $210.30 to $415.64, with the highest prices predominantly in western sub-Saharan Africa (SSA). In the reference scenario, the number of PLHIV in SSA increased from 14.3 million in 2015 to 40.5 million in 2040, a trend primarily fueled by population growth and extended survival of PLHIV. Conversely, incidence was projected to decrease from 1.4 per 1,000 population in 2016 to 0.75 per 1,000 in 2040. Compared with the reference scenario, by 2040, the optimistic scenario estimated 29.4 million PLHIV in SSA whereas the pessimistic scenario projected 81.5 million. Cumulatively, the estimated cost of purchasing ART for SSA exceeded $30 billion for the 2016-2040 reference scenario.

**Conclusions:** The large disparity in the number of PLHIV in 2040 between the optimistic and pessimistic scenarios underscores the vital impact of HIV funding. Despite declines in projected HIV incidence, demographic factors and greater survival stresses the importance of sustained - if not heightened - HIV funding in the future.
WEAE0304 Achieving sustainable Workplace HIV/AIDS Programmes through a phased out catalytic financing model: Case of Swedish Workplace HIV/AIDS Programme in sub-Saharan Africa

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Background: The Swedish Workplace HIV and AIDS Programme (SW/HAP) is a joint initiative by the International Council of Swedish Industry (NIRI) and the Swedish Industrial and Metalworkers’ Union (RF Metalli). It is a strategy to contribute to the establishment and/or support of HIV workplaces programmes in sub-Saharan Africa; an example of how management and employees can contribute to a successful intervention that saves lives and secures future markets. The programme helps companies invest in workplace programmes that reverse the negative impact of HIV and AIDS making the programmes sustainable and best practice. It is a case of how transitional funds can establish sustainable programmes and catalyse further investments from private sector into HIV/AIDS and wellness programmes.

Description: The funding model entails a three phase formula where after the start-up engagement, the activity budgets are funded 80% during the first phase, 50% in the second phase and 40% during the third and final phase of the co-funding. This scaled-down approach ensures commitment to continuation of the programme through mainstreaming into the company sustainability plan. The funding is also on reimbursable claims based on actual implementation and expenditure thus a result based financing.

Lessons learned: During 2016, 361 workplaces in 116 companies benefited from the transitional financing. A total of 29,705 employees got information and awareness with HIV testing at 52% average. 9,793 family members were educated on HIV/AIDS and tested. 8,704 key populations reached while 367,830 contacts were distributed. On transition, 90% of the companies funded have sustained the programmes becoming best practice examples in contribution to the National frameworks of HIV/AIDS responses and winning various awards. Examples of workplaces that uphold rights of infected employees and non-discrimination practices. The steering committees in the various workplaces have promoted social dialogue even in addressing matters pertaining to management/workers relationship leading to harmonious working environment.

Conclusions/Next steps: This transitional financing model exemplifies how to start sustainable programmes past the partnership speaks to the business benefits, leading to increased funding from the companies and into sustainability plans. Next is to share the model widely with development partners in Public-Private Partnerships. The model infrastructure is applicable for other programmes for sustainability.

WEAE0305 Optimizing resource allocation for HIV prevention programs: Proof of concept of an analytical framework using data from Mexico

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Background: Annually, the National Centre for the Prevention and Control of HIV/AIDS of Mexico (CENSIDA) invites Civil Society Organizations (CSOs) to apply for funding to implement HIV prevention projects. Given Mexico’s concentrated epidemic in key populations, CSOs play a fundamental role in delivering prevention services to these communities. Even though this program has been implemented for a long time, there is no evidence regarding its performance. The present analysis shows how decision-makers can use monitoring data to improve the allocation of domestic resources to HIV prevention interventions.

Methods: The conceptual framework proposed by Bautista-Arredondo et al. (2008) was used to evaluate the program’s efficiency. The approach assesses the level of efficiency considering three dimensions: cost-effectiveness, targeting and technical efficiency. The approach consists of comparing an observed indicator to a normative one (benchmark). Data from 142 funded projects in 2016 were analysed from the CENSIDA’s monitoring tool. Data abstracted from the records included input costs by category, number of outputs by key populations and interventions delivered by each project. These facets were identified through content analysis and used to calculate unit costs. Benchmarks for the cost-effectiveness and targeting dimensions were constructed based on prior literature and HIV prevalence data; minimum unit costs were considered the benchmark for the technical efficiency dimension. Observed indicators were compared with each respective benchmark.

Results: Current literature suggests that interventions to diagnose HIV are the most cost-effective in contexts of concentrated epidemics; yet, only 24% of interventions implemented in the sample focused on testing. Regarding targeting, men who have sex with men and male sex workers received less funds proportional to their HIV prevalence and size. There was considerable heterogeneity in unit costs within interventions, suggesting significant inefficiencies in service delivery.

Conclusions: These findings allowed stakeholders to re-design the 2017 call to incentivize CSOs to: propose a higher number of the required interventions, intervene in difficult-to-reach key populations, and carry out cost-effective prevention services. This study highlights how monitoring data has the potential to better inform the decision-making process. Moreover, it is an example for middle-income countries in which a financial transition from international donors to domestic funding is occurring.

WEAE0401 Factors influencing initiation, continuation & discontinuation of oral PrEP at selected facilities in South Africa

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Background: Sex workers (SW) and men who have sex with men (MSM) in South Africa are at substantial risk of HIV. Hence oral pre-exposure prophylaxis (PrEP) was launched for SW in 2016 and MSM in 2017. Programmatic data shows variability in initiation and continuation between these populations. This study examines factors related to PrEP initiation, continuation, and discontinuation during the national PrEP rollout.

Methods: A cross-sectional survey was administered September 2017-January 2018 among clients (ages 18-62) and providers at 9 facilities implementing oral PrEP in South Africa. The client survey captured PrEP initiation, continuation and discontinuation. The provider survey captured knowledge, attitudes and practiced behaviors towards PrEP. Descriptive analyses were performed on survey data. Continuation and discontinuation questions allowed for multiple responses.

Results: 288 clients (152 SW, 88 MSM, 68 others) and 30 providers (3 clinicians, 13 nurses, 6 counselors, 8 peer-educators) participated. Of 152 SW, 57 (37.5%) self-identified as current PrEP users and 46 (30.2%) as past users. Of 68 MSM, 25 (36.8%) self-identified as current PrEP users and 34 (50%) as past users. Primary reasons current and past users initiated PrEP included: being sexually active (SW 33%; MSM 18.6%), having multiple sexual partners (SW 26.2%; MSM 8.5%), and perceiving HIV risk (SW 22.3%; MSM 8.6%). Reasons current users continued PrEP were similar to initiation reasons: being sexually active (SW 50.3%; MSM 76.5%), having multiple sexual partners (SW 35.1%; MSM 24%), and perceiving HIV risk (SW 40.4%; MSM 40%). The primary reason for past users discontinuing PrEP was that side effects were too great (SW 71.7%; MSM 79.4%). The
majority of providers (n=29, 96.7%) said that participants experienced minimal side effects on PrEP and only 8 (26.7%) identified side effects as a barrier.

Conclusions: SW and MSM in South Africa identify their sexual behavior and perception of HIV risk as reasons to initiate oral PrEP. However, side effects appear to be a challenge among users for oral PrEP continuation, and appear underestimated by providers. This highlights the need to better sensitize providers on user perceptions about side effects in order to inform their counseling messages and side effect management.

WEAE0402

PrEP uptake among pregnant and postpartum women: Results from a large implementation program within routine maternal child health (MCH) clinics in Kenya

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Background: Very few examples of PrEP delivery to pregnant and postpartum women have been reported. The PHYA Program provides real-world evidence on delivering PrEP to pregnant and postpartum women in Kenya.

Methods: PHYA is part of the DREAMS Innovation Challenge funded by PEPFAR managed by JSI Research & Training Institute. Inc. We approached HIV-uninfected pregnant women seeking routine antenatal (ANC) and postnatal (PNC) services at 16 maternal and child health clinics in Kisumu, Kenya from June to December 2017. At each patient encounter, screening for behavioral risk factors and willingness to consider PrEP was conducted per national PrEP guidelines. Those who were willing to consider PrEP were assessed for medical eligibility and those eligible were offered PrEP at the same visit. Logistic regression models determined correlates of PrEP initiation.

Results: In total, we conducted 9,704 assessments among pregnant/postpartum clients for behavioral risk factors and willingness to consider PrEP. The median age was 24 years (IQR 21-28); 31% did not know their HIV status and 84% were married. Overall, 1,856 (19%) of encounters led to PrEP initiation; only 6 women (< 0.1%) were medically ineligible (creatinine clearance < 50 min/mL). Frequency of PrEP initiation differed by male partner HIV status (HIV-negative 7%, unknown 43%, HIV-positive 79%, p<0.001). PrEP initiation was more common in the postpartum period than during pregnancy (23% vs 16%, p<0.001). Women younger than 24 years of age were more likely than older women to initiate PrEP (OR=1.18, 95% CI 1.08-1.28, p<0.001). Initiating PrEP was also associated with having an STI (OR=2.66, 95% CI 1.48-4.77, p=0.001) and being forced to have sex in the last 6 months (OR=3.69, 95% CI 1.69-8.06, p=0.001). The most frequently reported reasons for declining PrEP were the perception that HIV risk was low (46%) and the partner was HIV-negative (43%). Few women accepting PrEP feared intimate partner violence as a result (2%).

Conclusions: In this pregnant and postpartum population, a substantial number of women desired and started PrEP. PrEP initiators were younger and more likely to have HIV risk factors than those who declined PrEP.
WEAE0404 Cost and impact of PrEP implementation in Haiti to adopt WHO recommendations: Results from EQUIP

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Methods: Goals module of Spectrum, the UNAIDS analytical software, was used for estimating the effects of interventions on HIV infections and resource requirements. Key parameters included: unit cost, population size estimates, epidemiological and behavioral data, intervention coverage by sex, risk group, year, and effectiveness. The Haiti Integrated Biological and Behavioral Surveillance survey for KPs was used. Comparison made of 3 scenarios for annual direct service costs between 2019 - 2023; proportion of KP-initiated on PrEP and HIV infections averted by 2023. A 3-step process estimated potential costs and impact of PrEP implementation.

- A cost component-based approach identifying the specific cost elements to estimate an annual unit cost per person on PrEP.
- Simulations with different adherence rate measures and HIV treatment coverage assumptions with increments from 2018-2023.
- Estimating the impact and cost of scaling up condom use in the general population, and comparing result against the current status.

Results: The estimated first-year PrEP unit cost per client is $238.87 that declines to $173.85 annually thereafter. Of the 3 scenarios, the 2nd was feasible for Haiti assuming 80% adherence and 5% coverage in 2017 with a 10% increase from 2018-2023. The total direct cost was estimated at $2.9-5.31 million annually for direct service provision to 10% of KPs initiated within 2 years between the 2018-2023 period. This translates to 16,263 people on PrEP with a projected HIV aversion of 2,528 cumulative infections by 2023.

Conclusions: The study results informed policy decision for PrEP implementation in Haiti. In the future, the proposed scenarios must consider integrated services and health system issues affecting implementation.

WEAE05 I want you back: Improving retention on HIV programmes

WEAE0501 10 years of Community ART Groups (CAG): Retention and viral load uptake in Tete, Mozambique

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Background: Community ART groups (CAG), peer support groups involved in community ART distribution and mutual psychosocial support, were piloted by MSF in 2008 to respond to staggering ART attrition in Tete, Mozambique. 10 years later, outcomes of CAG were analyzed whether community-based care in rural setting has improved retention and improved clinical outcomes.

Methods: Retrospective cohort design was used with data from HIV electronic register and CAG group register. A total of 2167 patients from 2008 to 2017 ever registered in CAG in Changara and Marara districts were included in the analysis. Kaplan-Meier techniques were used for estimating mortality and lost to follow-up (LTTFU) rates per 100 person-years. Individual level predictors of attrition were assessed using logistic regression and chi-square tests.

Results: Mortality, LTTFU and returning to individual care rates among 2567 CAG members were, respectively, 2.3, 1.6 and 1.6 per 100 person-years. Long-term retention in HIV care was found high: 93.1% at 2 years, 90.2% at 4 years and 87.5% at 9 years. Retention did not decrease significantly after 4th year (p = 0.0006) in care. Patients who never had viral load (VL) monitored (OR 4.265, 95%CI 3.34-5.46) or had unsuppressed VL (OR 3.954, 95%CI 2.58-6.07) were at higher risk of LTTFU or death. 33.9% of patients with VL <1000 cp/ml were part of CAG, while unsuppressed VL was CAG exclusion criteria. 15.32% of patients had joined CAG with advanced HIV (CD4 < 200 cells/µl); these patients were at higher risk of attrition (OR 1.816, 95%CI 1.36-2.44).

In this paper we estimate the cost-effectiveness of combinations of candidate multi-purpose prevention technologies (MPTs), in South Africa among general population women and female sex workers (FSWs).

Methods: We combined a cost model with a static model of product impact based on incidence data in South Africa to estimate the cost-effectiveness of five candidate co-formulated or co-provided MPTs: oral PrEP intravaginal ring, injectable ARV, microbicide gel, and SILCS diaphragm used in concert with gel. We accounted for the preferences of end-users by predicting uptake using a discrete choice experiment (DCE). Product availability and protection were systematically varied in five potential rollout scenarios. The comparator for each scenario was current levels of male condom use, while a health system perspective was used to estimate discounted lifetime treatment costs averted per HIV infection. Product benefit was estimated in disability-adjusted life years (DALYs) averted. Benefits from contraception were incorporated through adjusting the uptake of these products based on the DCE and through estimating the costs averted from avoiding unwanted pregnancies.

Results: At central incidence rates, all single- and multi-purpose scenarios modeled were cost-effective among FSWs and women aged 16-24, at a governmental willingness-to-pay threshold of $1,175/DALY averted (range: $241 to $810/DALY averted among non-dominant scenarios), however none were cost-effective among women aged 25-49 (minimum $1,706/DALY averted). The cost-effectiveness of products improved with additional protection from pregnancy. Estimates were sensitive to variation in incidence assumptions, but robust to other parameters.

Conclusions: To our knowledge, this is the first study to estimate the cost-effectiveness of a range of potential MPTs, suggesting that MPTs will be cost-effectives amongst higher incidence FSWs or young women but not lower incidence older women. More work is needed to make attractive MPTs available to potential users who could use them effectively.
WEAE0502
Increasing retention in care through community systems strengthening: Lessons learned from 15 districts in South Africa

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Background: The United States Agency for International Development-funded Care and Support to Improve Patients Outcomes Project (CaSIPO) aims to maximize the quality of life for patients on antiretroviral treatment (ART) through provision of comprehensive care and support services in the community. As the South African Government vows to provide access to treatment to all people living with HIV and AIDS, adherence to treatment and retention in care are critical to the sustainability of the ART program.

Description: CaSIPO works with 15 high burden Districts to strengthen community systems to promote patients’ retention in care. Community adherence clubs (CACs) offer a much-needed adherence support structure to stable patients on ART along convenient access to their medications. CaSIPO uses innovative approaches to adapt to local context and establish CACs in rural, semi-rural and urban settings. Working closely with community based organizations (CBOs), ward based outreach teams and clinics, CaSIPO developed their skills and knowledge to provide adherence support, health promotion, nutrition assessment counselling and support, screening for tuberculosis and sexually transmitted infections, family planning education and active referral.

Lessons learned: CaSIPO undertook various capacity development strategies to strengthen the CBOs’ systems and structures and empower them with the necessary tools to provide patients-centred sustainable adherence support. Between June 2016 and December 2017, CaSIPO empowered 194 CBOs across 15 Districts to provide quality comprehensive care and support services to 110,994 HIV stable patients attending 4,526 CACs. Quality is a key driver of retention in care. Through training, mentoring and intensified technical assistance program, CaSIPO established a quality assurance system for community based services resulting in 96% retention in CACs (n=106,781; n= 110,994; December 2017). Over 18-month period, 4,213 of 110,994 CACs patients had exited them, with 692 (12.9%) transferred to other decentrating modalities and only 7% (390) lost to follow up.

Conclusions/Next steps: South Africa unique and complex public health dynamic led CaSIPO to adopt a mixed approach to provide sustainable and scalable community adherence support structure to ART patients. Strengthening the community system and facilitating linkages between community and health facilities has proven to be critical in promoting retention in care.

WEAE0503
Same day ART initiation does not reduce 12-month retention among HIV-infected children in Uganda

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Background: Countries have adapted the WHO Test and START guidelines for antiretroviral therapy (ART) initiation, but there is limited evidence on how soon to start ART in children without jeopardizing retention. Uganda has implemented Test and START guidelines for children which included same day initiation since 2014. We compared 12-month probability of retention in HIV-infected children aged <15yrs initiated on ART on the same day of diagnosis versus 2-14 days or >14 days from diagnosis during HIV Test and START policy implementation in Uganda.

Methods: We retrospectively reviewed clinic charts for HIV-infected children diagnosed and initiated on ART from June 2014 to March 2015 in 42 health facilities in Uganda. Retention was defined as being alive and on ART during the 12th month on ART. Kaplan-Meier estimates were used to calculate the 12-month probability of retention overall and stratified by health facility level and age at diagnosis and the log-rank test to compare groups.

Results: Of 899 HIV infected children, 115 (12.8%) were excluded for missing diagnosis date and 784 (87.2%) were included in the analysis. Of these 784 children, 54% were girls, median ages (IQR) at diagnosis and ART initiation was 3.1 (7.1) years and 4.1 (7.1) years respectively. Three hundred and seventeen (40.4%) children started ART on the same day they were diagnosed. 155 (19.8%) started within 2 to 14 days and 312 (39.8%) started >14 days after initiation. The overall probability of retention on the same day of diagnosis versus 2-14 days or >14 days from diagnosis was 89.9% (95% CI), 92.6% (95% CI) and 89.7% (95% CI) respectively. The overall 12-month probability of retention was 89.9% (95% CI), 92.6% (95% CI) and 89.7% (95% CI) for children initiated ART on the same day of diagnosis versus 2-14 days or >14 days from diagnosis.

Conclusions: Starting ART in children on the same day of diagnosis does not jeopardize retention on treatment.
WEAE0504
Community patient tracking by Lay Community Health Workers (CHWs) is an effective strategy towards the 2nd & 3rd 90
FHI 360, APC Botswana Project, Gaborone, Botswana

Background: In June 2017, Botswana introduced ‘Treat all’ to facilitate universal coverage of antiretroviral treatment (ART) towards the 90-90-90 targets. Treat all provides access to ART to Botswana citizens irrespective of CD4 count. FHI 360, Advancing Partners and communities (APC) project, funded by PEPFAR through USAID in Botswana built the capacity of communities towards epidemic control by introducing community health workers (CHWs) to support health facilities trace patients with known sero-positive status who never started ART and defaulters, in eight districts. Health facility staff traditionally trace defaulters through phone calls.

Description: Working in collaboration with the Ministry of Health & Wellness (MoHW) District Health Management Teams (DHMTs), CHWs were trained on community HIV care including patient tracking strategies and provided standard operating procedures (SOPs) for guidance. Senior Community Health Workers (SCHWs) were posted in health facilities and together with nurses in the infectious Disease Control Centres (IDCC) identified patients that were in the registers but never started ART or defaulted.

A team of CHWs was assigned a caseload of patients to track in the community. Successfully traced patients were linked to facilities through unaccompanied and accompanied referrals. They were also provided information on ‘Treat all’ to support them to opt for ART initiation.

Lessons learned: During the period October 2016 to September 2017, out of 1,277 clients referred to APC CHWs for tracing, 584 (46%) included sufficient information in their clinical file for tracing. From those traced, 317 (54%) linked back to health facilities and initiated on ART, 126 (25%) were found already on ART, 46 (8%) were referred but did not link, 40 (7%) had changed physical address, 27 (5%) declined to be linked back to care, and eight were reported deceased.

Conclusions/Next steps: Implementation of community patient tracking contributed to linkage of PLHIV to ART and updating patient facility records. Home visits by CHWs increases uptake of ART services. CHWs are critical to fill the human resource constraints within the health system and their knowledge of their community ensures successful tracing of those lost by the health system. Tracking patients that have defaulted from ART is resource intensive but worth it.

WEAE0505
‘My best friends and my worst enemies’: Understanding the roles of families in retaining South African adolescents living with HIV in care
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Background: Adolescents living with HIV (ALWH) are less likely than their child or adult peers to be retained in HIV care and adhere to their medication regimens. While familial involvement is critical to the treatment success of ALWH, most of interventions for this group focus only on individual-level factors and do not include family members. This current study investigated the role of families in ALWHs’ treatment retention and adherence and solicited strategies from ALWH, their caregivers, and local stakeholders to better integrate families in intervention efforts.

Methods: Fifty-nine semi-structured, in-depth interviews were conducted to qualitatively determine how the families of ALWH support or hinder their treatment retention and adherence and to determine how best to include them in intervention efforts. Participants were ALWH (n=20; 13-19 years of age), their caregivers (n=19), and local stakeholders (n=20) from Cape Town, South Africa. Data were coded and analyzed using inductive content analyses. We then grouped codes into perceived positive and negative familial roles, and suggestions on how families could help to improve ALWH treatment retention and adherence.

Results: Findings revealed several positive roles that family members served in supporting ALWH, including reminding them to take their pills, reinforcing notions of personal accountability, providing informational, instrumental, and emotional support; assisting youth when their primary caregiver was unavailable; and normalizing pill taking. While most participants identified their families as sources of support, a number of participants expressed negative familial roles, including being sources of discrimination, ridicule, and discord; and lacking a role entirely. Moreover, participants reported that HIV disclosure within families is often challenging, leaving many ALWH with no one with whom they can confide within their social networks, limiting their family’s ability to provide critical support. ALWH suggested that their families assist with retrieving medications from pharmacies and commit to unconditional acceptance, regardless of whether they adhere to their treatment regimens.

Conclusions: Families play an important role in the adolescent HIV treatment cascade and could both facilitate and derail treatment retention and adherence. This study highlights the need for systematic, intergenerational approaches that incorporate socio-structural factors in efforts to retain ALWH in HIV care.
WePDA0101
Antiretroviral treatment did not restore functionality of cervical mucosal cells for Th17-related cytokines altered after HIV infection

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Background: Th17 and Treg cells play a key role in HIV infection and mucosal defenses. A reduction of Th17 cells in the female genital mucosal (FGM) of HIV- women has been previously described.

Aim: To analyze the effects of antiretroviral treatment (ART) in these T-cell subsets in FGM in different groups of individuals.

Methods: Cervical mononuclear cells/CMCs and exocervical swabs from FGM were obtained from the following groups: HIV- (n=21), HIV+ART- (n=32) and HIV+ART+ (n=12). Cycokines (CKs) secreted by CMCs after stimulation with PMA+Ionomycin and chemokines in exocervical swabs were quantified by Cytometric Bead Array.

Results: CMCs production of Th17-related-CKs (IL17A, IL17F and IL21) was evaluated in HIV+ART+ group showed diminished proportions of positive responses for Th17-related-CKs compared to HIV- (IL17A, IL17F and IL21: p<0.01). Th17-related-CKs proportion were still found in HIV+ART- group (IL17A and IL17F: p<0.05). In Treg-related-CKs, reduction was only found for IL21 in both HIV+ groups (p<0.05).

Analysis of global pattern of secretion of Th17-related-CKs, indicated that in HIV+ART- the secretion pattern was severely modified (p<0.007). Differences in both HIV+ groups vs HIV- were detected: minor levels of CXCL5 and CXCL1 (neutrophil recruitment); major levels of CCL17 (homing of T-cells).

Conclusions: Th17-related-CKs pattern was compared none significant differences were found. Thirteen different chemokines were evaluated in exocervical swabs. Differences in both HIV+ groups vs HIV- were detected: minor levels of CXCL5 and CXCL1 (neutrophil recruitment); major levels of CCL17 (homing of T-cells).

WePDA0102
Effect of ART on reducing fungal translocation in HIV-infected patients

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Background: LPS, LBP, and sCD14 are validated markers of microbial translocation in HIV-infected persons. (1→3)-β-glucan (DG) is a major component of most fungal cell walls that binds to the extracellular domain of myeloid cells. Dectin-1. We and others have shown that DG plasma levels may be considered as a marker of gut fungal translocation in HIV-infected persons. However, the contribution of ART in improving gut fungal translocation remains to be defined. Herein, we look to assess the role of ART on normalization of DG levels when initiated during acute (AHI) and chronic HIV infection (CHI).

Methods: 177 participants (42 AHI, 93 CHI, and 42 controls) without suspicion of fungal/bacterial infection nor colitis were assessed in a cross-sectional analysis. 32 AHI patients were longitudinally assessed. Plasma levels of DG were quantified using Fungitell® assay and were compared with age, sex, viral load, CD4, CD4/CD8 ratio, marker of gut damage (I-FABP), microbial translocation (LPS, LBP and sCD14), and inflammation (IL-6, IL-8, IL-8, TNF-β).

Results: The mean age of participants was 47.9±12.6 years with 86.4% being male. Plasma DG levels were elevated during AHI (59.4±13.6 pg/mL, p<0.002) and further increased in CHI (135.6±41.6 pg/mL, p<0.001) vs. seronegative controls (26.7±19.7 pg/mL). We observed a positive correlation of DG with age (r=0.351, p=0.002) and with viral load (r=0.429, p<0.001) as well as a negative trend for CD4 counts (r=-0.135, p=0.125). DG levels correlated with sCD14 (r=0.404, p=0.002), IL-6 (r=0.240, p=0.001), and IL-8 (r=0.640, p<0.001) among HIV-infected persons. DG levels increased over 2 years in the untreated AHI (111.2±9.4 pg/mL, p<0.001) and remained stable in the early treated group. Similarly, CHI persons on 13±7.19 years of ART did not show a decrease in their DG levels (135.2±47.3 pg/mL, p<0.001). Multivariate analysis showed DG elevation was independent of age, sex, CD4 and CD8 counts.

Conclusions: The elevation of plasma DG levels observed during acute and chronic infection did not decrease with early ART initiation nor long-term ART usage. Elevated DG levels, which correlated with markers of immune activation, may be directly involved in HIV pathogenesis via Dectin-1 mediated protein kinase C pathway in myeloid cells.
Results: 183 samples (88 HIV-infected and 75 HIV-uninfected controls) were evaluated. The median baseline viral load at ART initiation was 738,500 copies/ml. Median CD4 percentage at baseline was 36.9% (range: 23.1-57.1%). At 7-8 years of age, there were no significant differences between the CD4 percentage of the HIV-infected (38.3%) and control groups (40.0%) (p=0.261). HIV-infected children showed highly significant (p<0.001) levels of IL-1, IL-6, IL-8, IL-10, INF- γ, TNF-α, TGFβ1, sCD14, sCD55, GC52, C5MC52, and chemokines (MCP-1, MIP-1α, MIP-1β, LBP) involved in monocyte/macrophage activation and trafficking were measured using LumineX® Multiplex assays. Age-matched controls were measured for the same biomarkers. A subset of HIV-infected participants was tested for total HIV-1 DNA using qPCR targeting a conserved region in HIV integrase. Statistical analysis employed a Wilcoxon matched-paired test for nonparametric data.

Conclusions: Despite early therapy initiation, long-term viral suppression, low cell-associated HIV-1 DNA detection and normalized CD4 counts, HIV-infected children display persistent myeloid-cell-associated inflammation which may drive ongoing low-level replication. The increase in sCD14 and LBP levels implicate bacterial gut translocation. This increase in sCD14 and LBP is linked to ongoing inflammation (IA/INFL). Tissue factor (TF) and its downstream thrombin generation and disease progression. In ART virally-suppressed individuals, the latter group has a significantly larger number of NCDs, an effect that increases with age (p=0.0069). These two groups can be distinguished based on diverging immune parameters such as CXCR10 and IL2RA.

Background: Immune activation is a significant contributor to HIV-persistence and low-level immune activation has been linked to several non-infectious comorbid diseases (NCDs). However, such studies have not been systematically performed in sub-Saharan Africa and thus the impact of demographics, ART and regional endemic co-infections on immune activation is not known. We therefore comprehensively evaluated in a large multinational African cohort markers for immune activation and its distribution in various settings.

Methods: In total, 7487 specimens from 2240 HIV-positive (1492 on cART) and 757 HIV-negative individuals from the observational African Cohort Study (AFRICOS) were analyzed for 13 immune activation parameters (CD45RA, CD154, IL-1κ, IL-6, IL-8, IL-10, TNF-α, TGFβ1, sCD14, sCD55, GC52, C5MC52, and chemokines (MCP-1, MIP-1α, MIP-1β, LBP) involved in monocyte/macrophage activation and trafficking were measured using LumineX® Multiplex assays. Age-matched controls were measured for the same biomarkers. A subset of HIV-infected participants was tested for total HIV-1 DNA using qPCR targeting a conserved region in HIV integrase. Statistical analysis employed a Wilcoxon matched-paired test for nonparametric data.

Conclusions: Immune activation was markedly different between HIV-positive with detectable viral load and HIV-negative individuals across five regions (p<0.001). These two groups can be distinguished based on diverging immune parameters such as CXCR10 and IL2RA.

Background: Cardiovascular disease remains one of the leading non-AIDS causes of death among chronically HIV-infected subjects, fueled by a hypercoagulable state along with persistent immune activation and inflammation (IA/INFL). Tissue factor (TF) and its downstream thrombin
production may bridge IA/INFL and hypercoagulation via protease-activated receptor (PAR) signaling. We hypothesize that anticoagulant therapies targeting these coagulation pathways can break the vicious cycle of hypercoagulation and IA/INFL and reduce the risk of cardiovascular comorbidity in HIV infection.

Methods: We experimentally administered a thrombin inhibitor (Dabigatran) and a PAR-1 inhibitor (Vorapaxar) in five SIV-infected pigtail macaques (IPTMs) each, and compared with a TF inhibitor (Ixolaris) treatment in IPTMs reported before. Five untreated SIV-infected IPTMs were used as controls. Treatments were initiated at the time of infection for at least 80 days. Coagulation markers (D-dimer, sTF, endothelial and platelet activation markers sCAM-1, s-selectin), as well as immune activation (CD80/HLA-DR; Ki-67; CD86) and inflammation markers (IL-12, tumor necrosis factor [TNF], proinflammatory and anti-inflammatory cytokines) were measured throughout and after treatment.

Results: All three anticoagulant therapies resulted in a different extent of reduction in hypercoagulation, measured by lower levels of D-dimer, sTF, sCAM-1 and s-selectin compared with controls after SIV infection. Treated PTMs also showed lower CRP, lower proinflammatory cytokines and chemokines (IL-1, IL-17, Eotaxin, MIP-1, VEGF) and higher protective cytokine IL-12. Meanwhile, treated PTMs had lowered activated monocytes marked by CD80 and CD86. Among the anticoagulant therapies, Ixolaris had the best effect in reducing D-dimer levels and IA/INFL markers. Additionally, besides reduced monocyte activation, Ixolaris also lowered T cell activation (CD38: HLA-DR: coexpression). Ixolaris-treated PTMs also had a better survival, with no progression to AIDS within 100 days post infection.

Conclusions: Our results reinforced the close causative relationship between hypercoagulation and IA/INFL in SIV pathogenesis. Anticoagulant therapies may thus represent effective strategies not only for reducing hypercoagulation but also to alleviate IA/INFL. Targeting TF directly, exerted a better effect compared with anticoagulant therapies targeting downstream players of the coagulation pathway, indicating that interventions prior to the establishment of coagulation-inflammation vicious cycle may be more successful. Future studies to the effect of anticoagulants in viral-suppressed setting are warranted.

WEPC0102 Favorable clinical phenotype reached in less than half of people treated in acute HIV infection

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Background: Antiretroviral therapy (ART) in acute HIV infection (AHI) improves immune recovery. Viral load (VL) suppression. CD4 T cell count (CD4) and CD4:CD8 ratio are clinical markers for HIV-associated morbidity and mortality. There are limited data on the proportion of treated AHI individuals who attain a favorable clinical phenotype (FCP).

Methods: Analysis included data from participants in the RV254/SEARCH 010 AHI cohort in Thailand who were enrolled between 02/2009 to 06/2017 and were ART naive at enrolment and on ART for ≥ 24 weeks. FCP was defined as fulfilling all 3 criteria: (1) VL < 20 copies/ml at all visits from week 24 onwards, (2) Last CD4 > 500 cells/mm3, (3) Last CD4/CD8 ratio > 1.

Results: 246 AHI participants in Fiebig stages 1 to V were included of whom 96% were male. Baseline median (IQR) VL were age were age of 27 (23-32) years. CD4 of 376 (267-505) cells/mm3, CD4:CD8 ratio of 0.8 (0.4-1.1), and VL of 5.8 (5.3-6.8) log copies/mL. The majority (95%) initiated efavirenz-based regimen. The median (IQR) ART duration was 3.2 (2.6-4.4) years. FCP was achieved in 40% with differences between Fiebig I and Fiebig V (p=0.046). (Figure)

Conclusions: Fiebig I-AHI individuals who attain a favorable clinical phenotype (FCP).

ABSTRACT BOOK • WWW.AIDS2018.ORG
**WEpdb0103**

**Increasing contribution of integrated forms to total HIV-1 DNA in blood, in primary infection during natural history - ANRS PRIMO and SEROCO cohorts**

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**Background:** HIV-DNA persistence in infected cells is the main hurdle preventing eradication. Markers estimating HIV reservoir size have been mostly studied in treated patients but less in natural history. Total cell-associated HIV-DNA includes integrated forms and more labile unintegrated forms, while integrated HIV-DNA represents the most stable and productive form in infected cells. This study aimed to describe the blood dynamics over years of total HIV-DNA and integrated HIV-DNA during primary infection (PHI) and in recent to chronic infections and to AIDS, in untreated patients.

**Methods:** Both markers were quantified from frozen PBMC of 74 PHI patients from the ANRS-PRIMO cohort and 97 recent seroconverters (<12 months since contamination) from the ANRS-SEROCO cohort for whom at least two cell samples were available. Total HIV-DNA and integrated HIV-DNA evolutions were modeled (mixed-effect linear models) and their predictive values were studied (Cox models).

**Results:** High levels of total HIV-DNA (median 3.9 log., copies/10^6 PBMCs [IQR 3.2-4.0]) were observed at PHI with low levels of integrated forms among total HIV-DNA for most patients (2.15 log., copies/10^6 PBMCs [IQR: 0.9-3.16]), suggesting a major proportion of unintegrated forms in PHI. Among recent seroconverters, those who progressed towards AIDS during the study (Rapid Progressors, n=34) had higher total HIV-DNA and integrated HIV-DNA levels at inclusion compared to others (Progressors, n=63), and higher integrated/total HIV-DNA ratio (100% vs 44%, respectively). In a multivariate analysis, integrated HIV-DNA load was strongly associated with the risk of developing AIDS (AHR-2.8, p=0.002). A total of 340 sequential samples were available. Parallel rates of increase were observed for both markers over six years up following in Rapid Progressors and Progressors, with the highest levels observed in patients with AIDS (ratio at 100%).

**Conclusions:** The low contribution of integrated forms at PHI indicates that the stable reservoir is not completely established. These results may partly explain the high benefit of early treatment on total HIV-DNA, preventing its progressive increase and controlling formation of unintegrated HIV-DNA. The risk of “rapid” or “slow” progression seemed to be determined early in the course of infection, enhancing the crucial need for early diagnosis and treatment implementation.

**WEpdb0104**

**Intermittent viremia after treatment interruption increased risk of ART resumption in post-treatment HIV-1 controllers. ANRS VISCONTI study**


**Background:** Some HIV-1-infected individuals achieve durable virologic remission after discontinuation of antiretroviral therapy (ART). Because remission is a major objective in the global strategy towards an HIV cure, a better characterization of this phenomenon is necessary. We report here the long-term outcome of 23 post-treatment controllers (PTC) since their enrolment in a French study.

**Methods:** PTC were defined as HIV-1-infected individuals who achieved viral suppression (plasma viral load <400 copies/ml) for at least 12 months after treatment interruption. These cases have been prospectively followed in the ANRS VISCONTI study since 2008. Intermittent viremia was defined after treatment interruption as a transient pVL >400 copies/ml and virologic failure (VF) as 2 consecutive pVL >400 copies/ml. Inflammation markers (IL-18, sCD14, CRP, IP-10, I-FABP and sCD163) were analyzed in plasma from 11 PTC at enrolment in the VISCONTI study.

**Results:** Twenty-three PTC (one case of mother-to-child transmission) were included, all of whom had started ART at the time of primary-infection (PHI). Main characteristics (median or %) at PHI were: age = 34 years, sex male = 65%, Caucasian = 70%, MSM = 48%, symptomatic PHI = 87%, pVL = 5.2 log copies/ml. ART was stopped after a median 3.7 years. Thereafter, PTC were followed-up for a median 11.0 years (until last visit or ART resumption). Overall, CD4 count and CD4/CD8 ratio were stable over time. Median total HIV-DNA was 1.85 log copies/10^6 PBMC at enrollment. Intermittent viremia was noted in 7 PTC (30%). Five patients (22%) resumed ART after a median 8.6 years off-ART, four because of VF, one for a non-AIDS defining cancer. Patients who had intermittent viremia were more likely to resume ART than those without: 5/7 versus 0/16, respectively (p=0.0006). PTC without intermittent viremia presented low levels of inflammation when compared to HIV controllers or HIV-infected individuals on ART (p<0.05 for IL-18, sCD14 and sCD163) and sCD14.

**Conclusions:** Among PTC, one third presented an intermittent viremia after treatment interruption and were at increased risk of ART resumption. By contrast, the other PTC who had tighter control of viral replication maintained their status during follow up and had close to normal inflammation levels.

**WEpdb0105**

**Auranofin plus nicotinamide impact HIV reservoir among ART suppressed HIV individuals**

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**Background:** Multiple interventional strategies may be fundamental to decrease the size of HIV-1 reservoir along with antiretroviral therapy (ART). To measure the impact of isolated and combined strategies in decreasing total HIV-1 DNA, we investigated the effect of treatment in-
tensification with Dolasetravir (DTG) with and without Maraviroc (MVC), Nicotinamide (NA), and Auranofin. NA is a class III HDAC inhibitor with anti-lymphoproliferative effect, and Auranofin induced decay in viral DNA of ART treated SIVmac251-infected macaques.

Methods: Data from six arms of NCTo926829 with 9 patients each followed every 4 weeks for a total of 48 weeks were analyzed. Selected patients were ART suppressed for >2 years, with CD4 nadir >350. Groups were: 1) continuation of ART, 2) intensified ART (ART+DTG and MVC), 3) intensified ART and HDACi (ART+DTG+MVC-NA), 4) intensified ART and Auranofin (ART+DTG+MVC+Auranofin), 5) partially intensified ART (ART+DTG), 6) partially intensified ART (DTG)+NA+Auranofin. Auranofin was used for the first 24 weeks of the study in G4 and G6. After week 48, Total viral DNA was measured by qPCR in PBMCs and rectal biopsy tissues, this latter performed at baseline.

Results: Treatment intervention was well tolerated, and main adverse events (AE) were anxiety and sleep disorders, attributable to efavirenz/dolutegravir interaction. There were transient non-statistic significant decreases in CD4 counts at weeks 8 and 12 from baseline in auranofin groups, (week 8: -119.3 ±194.7; week 12: -187 ±210.7 cells/mL). A decrease in viral DNA was observed in G6 as compared to all other groups. (p=0.022; Odds ratio: 9.75, 95%CI: 1.1-72.39). Intensified ART with DTG+MVC presented higher decrease in the total DNA as compared to intensified ART with DTG only (G2 vs G5, p=0.014). All individuals presented undetectable viral loads throughout the study, but G1 showed a significant linear trend towards an increase of the viral reservoir (p<0.05). There was no correlation between proviral DNA from PBMCs and rectal biopsy tissues at baseline.

Conclusions: The interim analysis of this phase II trial suggests that NA+auranofin administration in combination with intensified ART is well tolerated, and an impact on the proviral reservoir size is possible.

WEPDB0202 Efavirenz plasma exposure and immunological outcome during anti-tuberculosis co-therapy: Role of ethnicity and pharmacogenetic variations


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Background: Efavirenz (EFV) containing antiretroviral therapy (ART) is the regimen of choice for tuberculosis (TB-HIV co-infected patients on anti-TB therapy. Efavirenz is primarily metabolised via hepatic cytochrome P450 2A6 and has considerable interpatient variability. We investigated the role of ethnicity and pharmacogenetic variants in EFV plasma exposure.

Methods: We conducted a multi-centred prospective cohort study of TB-HIV co-infected adults with a CD4 count of <200 cells/mL in Ethiopia and Tanzania. Patients were initiated on rifampicin-based anti-TB therapy, and 4 weeks later EFV-based ART was also initiated and there patients were followed for 1 year. Efavirenz plasma concentrations were measured at 4 and 16 weeks post ART initiation. Genotyping for functional CYP2B6, CYP3A5, ABCB1, UGT2B7, and SLCO1B1 variant alleles was conducted.

Results: A total of 427 TB-HIV co-infected patients were included in the analysis (23 Tanzanians and 194 Ethiopians). In the sample 44% of the patients had smear positive TB and 64% of patients had a CD4 count of <100 cells/mL. Genotypic distribution of CYP2B6 was similar between the two countries with 50% having the CYP2B6*1/*1 genotype; however, there was a significantly larger proportion of CYP3A5*1/*0 among the Ethiopians compared to Tanzanians (61% vs 28%). In the sample 28% and 35% of patients had EFV levels <1000ng/mL at weeks 4 and 16 respectively. In multivariate regression analysis, participants with CYP2B6*1/*6 and 6/*6 allele had 0.59 (95% CI:0.29-0.87) and 0.23 (95% CI:0.05-1.03) times the risk of EFV concentrations <1000ng/mL at 4 or 16 weeks as compared to those with “1/2” respectively. In addition, 44% of patients with both CYP2B6*1/*1 and CYP3A5*0/*0 had EFV <1000ng/mL which is a 2.2 higher risk compared to those who did not have both alleles.

Conclusions: CYP2B6 and CYP3A5 appear to be the primary determinants of plasma EFV concentrations among TB-HIV patients. After adjustment for these alleles there was no difference in EFV concentration by country, suggesting other genetic differences may not significantly impact on efavirenz disposition.

WEWPB0201 Antiretrovirals: Pharmacokinetics and generics


1University of Stellenbosch Tygerberg Hospital and Family Clinical Research Unit, Department of Pediatrics and Child Health, Cape Town, South Africa; 2University of Cape Town, Division of Clinical Pharmacology, Cape Town, South Africa; 3Drugs for Neglected Diseases Initiative (DNDi), Geneva, Switzerland

Background: The available data describing the pharmacokinetics and efficacy of abacavir given with super-boosted lopinavir (LPV/r plus additional ritonavir), rifampicin, and other anti-TB drugs is limited. Our objective was to compare pharmacokinetics of abacavir during treatment with standard doses of LPV/r vs. anti-TB treatment and super-boosted lopinavir.

Methods: 87 TB/HIV-infected South African children (median age 2.8, 0.25-6 years; weight: 9.4, 4-16 kg) were sampled on 3 separate visits: after at least 2 weeks on TB treatment and super-boosted lopinavir during the intensive phase and end of TB treatment; and one month after TB treatment completion on standard doses of LPV/r dose without additional ritonavir. Abacavir twice-daily was co-administered throughout. All drugs were dosed according to the South African weight-based dosing recommendations. At each visit, blood samples were collected immediately before dosing and 1, 2, 4, 6, 8, and 10 hours after. NONMEM 7.3 was used to develop a population pharmacokinetic model.

Results: Abacavir pharmacokinetics was best described by a two-compartment model with first-order elimination and transit compartment absorption. Allometric scaling was used to adjust for the effect of body size, which maturation could be identified: clearance was predicted to reach half its mature value at around 2 months after birth and to be fully mature by around 2 years of age. The typical clearance in a 9 kg child co-treated with normal dose LPV/r is estimated at 8.8 L/h. During co-administration of TB treatment with lopinavir super-boosting, a 38% decrease in bioavailability (and AUC) was found. Finally, the trough concentrations observed just before the morning dose were higher than the extrapolated values predicted 12 h after morning dose, best explained by a 24% reduction in clearance overnight.

Conclusions: The proposed model successfully characterised the PK of abacavir, including the effect of body weight and age. Abacavir exposure was decreased by concomitant administration of rifampicin and super-boosted lopinavir. Larger trough concentrations were observed in the morning, possibly indicating circadian variation in the pharmacokinetics. Although 67 (82%) children were virologically suppressed at the end of TB treatment compared to 6 (6%) at study entry, further investigation should address whether dosing adjustments are necessary.
WEPDB0203

A randomized, open-label, balanced, two-treatment, single-dose, crossover oral bioequivalence study of Lopinavir/Ritonavir Granules 40mg/10mg with KALETRA® (Lopinavir/Ritonavir) Oral Solution 80 mg/20mg per mL in normal healthy adults under fed conditions

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1Mylan Laboratories Limited, R&D, Hyderabad, India. 2Mylan Laboratories Limited, Clinical Research Center, Hyderabad, India. 3Mylan Laboratories Limited, Clinical Research Center, Hyderabad, India

Background: The development of pediatric fixed-dose combinations (FDCs) for all lines of therapy has become a priority to simplify dosing, increase adherence and thus improve pediatric care. The use of LPV/r oral solution is limited by taste aversion and requires special storage conditions - refrigeration. Alternative palatable oral solid formulations as granules/pellets for small children are wanted. The objective of this study was to evaluate the relative oral bioavailability and safety profiles of Lopinavir/Ritonavir Granules 40 mg/10 mg (2 Sachets with 40/10 mg, Mylan Laboratories Limited, India) with KALETRA® (Lopinavir/Ritonavir, AbbVie Inc) Oral Solution 80 mg/20 mg/mL.

Methods: In this open label, 1:1 randomized, two-period, two-treatment, cross-over, single dose evaluation, the relative oral bioequivalence was tested in 68 healthy adult subjects under fed conditions. In each study period, a single oral dose of either test product (T) or reference product (R) was administered orally under fed conditions. Subjects were monitored for safety and tolerability until completion of the study. Serial blood samples from pre-dose 0.00 hour up to post-dose 36.00 hours were collected in each period.

Results: The 90% confidence interval for the ratio of the test and reference product averages pharmacokinetic parameters Cmax, AUClco-t and AUClco-inf were between 80% and 125% for the in-transformed data with respect to Lopinavir and Ritonavir.

Both the test and reference products were well tolerated, when administered as single dose under fed conditions.

Conclusions: Under fed conditions, the test product Lopinavir/Ritonavir Granules 40 mg/10 mg of Mylan Laboratories Limited, India was bioequivalent to the Reference product KALETRA® (Lopinavir/Ritonavir) Oral Solution 80 mg/20 mg/mL of AbbVie Inc., USA, with regard to rate and extent of absorption. This new pediatric FDC could provide an easy-to-use treatment for small children.

WEPDB0204

Single-dose fed bioequivalence study of Lamivudine, TenofovirDisoproxilFumarate and Dolutegravir tablets (300mg/300mg/50mg) versus EPIVIR® tablets (300mg; ViiV-Healthcare), VIREAD® tablets (300mg; Gilead Sciences) and TIVICAY® tablets (50mg; ViiV-Healthcare) in healthy adult volunteers

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1Mylan Laboratories Limited, R&D, Hyderabad, India. 2Mylan Laboratories Limited, Clinical Research Center, Hyderabad, India. 3Mylan Laboratories Limited, Clinical Research Center, Hyderabad, India

Background: Dolutegravir (DTG) is one of the most frequently used recommended antiretroviral for the treatment of HIV in high-income countries. WHO and several national guidelines recommend DTG/TDF/3TC as an alternative first- and third-line in low- and middle-income countries. The objective of this study was to compare the relative bioequivalence and safety profile of Mylan’s lamivudine, tenofovirdisoproxilfumarate and dolutegravir tablets, 300 mg/300 mg/50 mg FDC tablets (T) with the reference combination (R) of EPIVIR® (300 mg), VIREAD® (300 mg) and TIVICAY® (50mg).

Methods: In this open label, randomized, two-period, two-treatment, cross-over, single dose evaluation, the relative oral bioequivalence was tested in 33 healthy adult human subjects under fed conditions. In each period, each subject received a single, oral dose of T (Mylan’s 3TC/TDF/ DTG tablets) or R. Serial blood samples were collected pre-dose and at 21 timepoints until 72 hours post dose. Subjects were monitored for safety and tolerability. Single-dose pharmacokinetic parameters for FTC/TAF/DTG were calculated using non-compartmental methods.

Results: All statistical analyses of these data reveal that the 90% confidence intervals are within the acceptable bioequivalence range of 80.00% and 125.00% for the natural log transformed parameters LNAUCL, LNAUCINF, and LNCPEAK for lamivudine, tenofovir and dolutegravir. (Table 1)
The AEs were mild in severity. Overall both R and T were well tolerated administered as a single, oral dose under fed conditions.

**Conclusions:** This study demonstrates that Mylan’s 3TC/TDF/DTG 300 mg/300 mg/50 mg tablets are bioequivalent to a combination of 3TC 300 mg, TDF 300 mg and DTG 50 mg as separate tablets following administration of a single, oral dose administered under fed conditions.

**WEPDB0205**

Population pharmacokinetics of cabotegravir in adult healthy subjects and HIV-1 infected patients following administration of oral tablet and long acting intramuscular injection

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**Background:** Cabotegravir is an integrase inhibitor currently in Phase 3 development as an oral tablet and an intramuscular long-acting injection (LAI) for HIV treatment and prevention. The aim was to characterize cabotegravir population pharmacokinetics (PopPK) using data from Phase 1 and 2 studies, evaluate the association of intrinsic and extrinsic factors with the variability of cabotegravir PopPK, and perform simulations to inform dosing strategies.

**Methods:** All analyses were implemented in NONMEM 7.3 and R. Covariate relationships were evaluated using a forward addition (p<0.01) and backward elimination (p<0.001) approach. Model adequacy and predictive performance was assessed using bootstrapping and visual predictive check. Clinical relevance of covariates was assessed using tornado plots. Simulations were performed using parameter estimates from the final model.

**Results:** A total of 12,294 cabotegravir plasma concentrations were collected from 881 healthy (44%) and HIV infected (56%) adults in 11 studies at 9 dose levels (5mg to 60mg for oral tablet, 100mg to 800mg for LAI). LAI was administered in 66% of the subjects. A two-compartment model with first-order oral and intramuscular absorption and elimination including inter-occasion variability adequately described the data. Clearances and volumes were scaled to body size. Relative bioavailability of the oral to LAI formulation was 70%. Residual variability was higher following LAI administration. Race and age were not significant covariates. LAI absorption rate constant was lower in females, in subjects with higher BMI and if the LAI dose was given as one single intramuscular injection (LAI IM) for HIV treatment. The AEs were mild in severity. Overall both R and T were well tolerated administered as a single, oral dose under fed conditions.

**Conclusions:** This study demonstrates that Mylan’s 3TC/TDF/DTG 300 mg/300 mg/50 mg tablets are bioequivalent to a combination of 3TC 300 mg, TDF 300 mg and DTG 50 mg as separate tablets following administration of a single, oral dose administered under fed conditions.

**WEPDC0102**

Implementation and impact of a technology-based HIV risk-reduction intervention among Thai men who have sex with men using ‘Vialogues’: A randomized controlled trial

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**Background:** To conduct a randomized control trial to evaluate the impact of a novel technology-based intervention on HIV/AIDS knowledge, self-perceived risk, condom use attitudes, self-efficacy intentions, sexual risks and condom use behaviors among Thai MSM.

**Methods:** The technology-based HIV risk reduction intervention was piloted by Adam’s Love (www.adamslove.org). Participants aged 18 years or above, and having engaged in unprotected sex in the past six months were enrolled and randomly assigned to control or intervention arm, and received private clinic-based HIV counseling and testing at baseline, month 6 and month 12. Intervention arm participants engaged in 12 monthly HIV/STI prevention and educational sessions delivered via Vialogues.com using online time-based videos followed by time-stamped discussions around the video content with a health educator, focusing on applying knowledge and skills learned during the session in setting long-term goals to reduce sexual risks). The differences in behavioral outcomes between the arms over the 12-month period were assessed.

**Results:** Of 76 MSM enrolled, 37 were randomized to intervention and 39 to control arm. Median age was 28 (IQR 24-32) years. At 12 month intervention arm participants, 33 (89.2%) completed all 12 monthly Vialogues sessions. Mean session duration was 37.45 minutes. Retention rates at month 12 among intervention and control arms were 97.3% and 79.6%, respectively. At month 12, median percentage of condom use for anal intercourse was higher in the intervention versus control arm (100% vs. 93.3%, p=0.023). Over the 12-month period, intervention arm reported significant reduction in self-perceived risk for HIV (3.08 on 5-point Likert scale to 2.6, p=0.001), popper usage (29.7% to 13.9%, p=0.002), seeking sex online (69.5% to 44.4%, p=0.01) median number of sexual partners in the past three months (2 to 1, p=0.003), and increased median percentage of condom use (88.9% to 100%, p=0.006). Process measures yielded high participant satisfaction of Vialogues (mean 4.67 on a 5-point scale SD 0.48).

**Conclusions:** Our study provides clear evidence that ‘Vialogues’ intervention significantly reduced number of sexual partners and increased condom use rates among MSM. HIV program implementers are encouraged to harness the potential of free, online learning technologies used in this study.

### Table 1: Pharmacokinetic Results 3TC, TDF and DTG

<table>
<thead>
<tr>
<th>Product</th>
<th>Parameter</th>
<th>Arithmetic Mean (SCV)</th>
<th>Arithmetic Mean (SCV)</th>
<th>R x Reference</th>
<th>LMEMANS Ratio (R)</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>3TC</td>
<td>AUC (ng•h/mL)</td>
<td>11648 (18.64)</td>
<td>11911 (18.84)</td>
<td>0.98</td>
<td>96.41% - 100.29%</td>
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<tr>
<td>3TC</td>
<td>AUCINF (ng•h/mL)</td>
<td>12062 (19.04)</td>
<td>12206 (18.26)</td>
<td>0.99</td>
<td>96.94% - 101.15%</td>
<td></td>
</tr>
<tr>
<td>3TC</td>
<td>CP(ICEAK (ng•h/mL)</td>
<td>1960 (27.94)</td>
<td>2064 (24.37)</td>
<td>0.94</td>
<td>88.17% - 100.59%</td>
<td></td>
</tr>
<tr>
<td>TDF</td>
<td>AUC (ng•h/mL)</td>
<td>3124 (19.55)</td>
<td>3107 (19.45)</td>
<td>1.01</td>
<td>98.10% - 103.80%</td>
<td></td>
</tr>
<tr>
<td>TDF</td>
<td>AUCINF (ng•h/mL)</td>
<td>3311 (19.74)</td>
<td>3269 (19.85)</td>
<td>1.01</td>
<td>98.69% - 104.32%</td>
<td></td>
</tr>
<tr>
<td>TDF</td>
<td>CP(ICEAK (ng•h/mL)</td>
<td>318.7 (24.99)</td>
<td>278.9 (20.60)</td>
<td>1.11</td>
<td>104.08% - 119.12%</td>
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</tr>
<tr>
<td>DTG</td>
<td>AUC (ng•h/mL)</td>
<td>71099 (24.79)</td>
<td>70780 (26.25)</td>
<td>1.00</td>
<td>95.64% - 104.78%</td>
<td></td>
</tr>
<tr>
<td>DTG</td>
<td>AUCINF (ng•h/mL)</td>
<td>74836 (25.55)</td>
<td>73486 (26.72)</td>
<td>1.01</td>
<td>96.51% - 105.45%</td>
<td></td>
</tr>
<tr>
<td>DTG</td>
<td>CP(ICEAK (ng•h/mL)</td>
<td>4025 (18.75)</td>
<td>3840 (18.14)</td>
<td>1.03</td>
<td>99.05% - 107.71%</td>
<td></td>
</tr>
</tbody>
</table>

**Table 1: Pharmacokinetic Results 3TC, TDF and DTG**

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WEPCD0103

P3 (Prepared, Protected, emPowered): Feasibility and acceptability of a PrEP adherence app featuring peer-to-peer sharing, game-based elements and in-app adherence counseling

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Background: To date, efficacious interventions to promote and sustain pre-exposure prophylaxis (PrEP) adherence among youth are limited. Smartphone apps provide a platform to address adherence barriers by delivering tailored strategies and culturally-relevant content in an engaging format. App-based interventions that also allow for intensified interactions through direct communication with adherence counselors may improve outcomes among nonresponsive youth. We describe the development and initial testing of a PrEP adherence app for young men who have sex with men (YMSM) and young transgender women who have sex with men (YTWSM) that includes provision of adherence counseling delivered within the app through a provider texting interface.

Methods: P3 (Prepared, Protected, emPowered) is an app built upon an established theory-based, health platform, optimized through our teams’ prior work with HIV+ YMSM and with youth advisory board (YAB) members at 7 Adolescent Trials Network for HIV Interventions (ATN) sites. P3 includes interactive components to encourage peer-to-peer sharing and the development of daily medication self-monitoring behaviors. Game-based elements, including virtual and real-world rewards, based on established behavioral economics principles, incentivize engagement. Strengths-based adherence counseling delivered by a centrally-located adherence counselor via two-way text messaging through the app addresses individuals’ unique barriers to PrEP adherence.

Results: Usability testing was conducted with 12 YMSM/YTWSM (mean age 20.9, 10 male), either PrEP experienced or considering, at 2 ATN sites. Most (92%) found the app highly acceptable, particularly the tailored medication reminders, the daily medication tracking with corresponding medication history calendar, and the accessibility, comprehensiveness and tone of the information provided. Youth were enthusiastic about connecting directly with an adherence counselor and provided concrete recommendations for rapport building, session duration and explicitly defining the counselors’ role.

Conclusions: P3 represents, to our knowledge, the first theoretically-based PrEP adherence app for YMSM/YTWSM that includes features to increase intervention engagement (e.g. gamification, financial incentives, social connectivity) and provides in-app adherence counseling. Interventions that capitalize on technology-based platforms have great potential to encourage health promotion behaviors. A technical pilot of P3 will be conducted in Summer 2018 followed by an efficacy trial if feasibility/acceptability is achieved.

WEPCD0104

Effectiveness of community-led sex-positive campaign on HIV testing for young men who have sex with men (YMSM) in Metro Manila (MM), Philippines: TestMNL

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Background: In a predominantly Catholic country like the Philippines, HIV prevention campaigns use stigma and fear to educate the public about HIV. There is an absence of sex-positive HIV prevention efforts in the Philippines that use internet and social media to engage YMSM. This campaign is an attempt to leverage on online platforms to drive sex-positive HIV prevention efforts while engaging YMSM. Due to the concentration of HIV infections in MM, this campaign is focused on young gay men (18-24 years old) who regularly seek out male sexual partners online.

Description: In 2015, TestBK is a successful campaign in Thailand to encourage YMSM to get tested for HIV. LoveYourself, a community-based LGBT organization, partnered with APCOM to test the effectiveness of this sex-positive HIV prevention model in the Philippines. After a series of focus group discussions, LoveYourself and APCOM adapted TestBK’s simple, clear, and easy-to-remember slogan to encourage YMSM to get tested for HIV: “SUCK. F*#K. TEST. REPEAT”. The campaign is promoted in campaign websites, social media, gay networking apps, and offline events.

The campaign reached 46,910 individuals to learn about HIV testing in MM via www.TestMNL.org; 18,369 individuals were tested for HIV (38.25% are YMSM); and 1,343 turned positive (7.31%). On social media, TestMNL created 79,934+ views on campaign videos on Facebook and YouTube, 7,642 Facebook likes, and 3,155 Twitter followers. The effect of the campaign on HIV testing for young men who have sex with men (YMSM) in Metro Manila (MM), Philippines: TestMNL

Conclusions/Next steps: The campaign concludes the need for more community-led sex-positive campaigns that will educate YMSM about their sexual health, and encourage them to get tested for HIV. Scale up of the program is needed to provide more opportunity to develop new campaign messages that address key barriers to HIV continuum of care.
**WEPDC0105**

Internet-based self-testing model - "Easy Test": A cross-sectional survey targeting MSM who never tested before in 14 provinces of China

**Methods:** Three techniques were applied to characterize the online-to-offline cascade in Ho Chi Minh City (HCMC) and Hanoi from 2016-2017 (18 months):
1. an online Facebook user survey,
2. a rapid survey assessing MSM self-reported motivation for HIV testing when they presented for an HIV test,
3. results from online peer influencers and 1 Reserve app, applying an HIV testing-treatment cascade analysis.

**Results:** By December 2017, Rainbow Village had over 232,000 members; 88% were aged 25 or over and 70% were HCMC/Hanoi residents. The Facebook user study (n=424) found 50% of respondents visited Rainbow Village at least once a week; 75% were not in contact with HIV outreach workers/peers, and 36% self-assessed at substantial HIV risk. The rapid survey on primary HIV testing motivators (n=3,489) found that 35% stated online content as the reason for testing, 8% of whom tested HIV-positive—compared to 5% of those motivated by face-to-face peer interactions/referrals. Among 2,454 people reached by online peer influencers or the 1 Reserve app, 73% tested, 11% of whom were HIV-diagnosed and enrolled in treatment (100%). This compares to an overall 6% HIV positivity yield among MSM seeking HIV lay or self-testing.

**Conclusions:** Online interventions effectively reach MSM who may never be contacted through conventional face-to-face peer outreach, and are more effective in reaching higher risk MSM. Online strategies should be further scaled and adapted alongside face-to-face interventions to reach more diverse segments at-risk MSM.

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**WEPDC0106**

From online reach to offline services: Using social media strategies to increase uptake of and access to HIV testing among MSM in Vietnam

**Background:** Rates of HIV are increasing among the estimated 330,000 men who have sex with men (MSM) in Vietnam. Face-to-face outreach only reaches a fraction of at-risk MSM. A 2015 USAID/PATH Healthy Markets (HM) study found that 98% of MSM surveyed across four provinces regularly used Facebook, and preferred social media as a source of HIV and health information. HM and MSM leaders co-created a fun, sex-positive HIV prevention and service awareness, trust, and uptake campaign—"My Future. My Choice"—that utilized a Facebook community (Rainbow Village), online influencers trained as HIV lay testers, and an HIV service booking app (1 Reserve), to allow for a measurable online-to-offline HIV testing-treatment cascade.

**Methods:** The online supervised HIV self-testing identified high HIV yield among Thai men who have sex with men and transgender women

**Background:** Online technology has high potential to enhance access to HIV counseling and testing among members of key populations whose HIV status is undiagnosed. We evaluated HIV-positive/reactive rates and confirmed successful linkage to antiretroviral treatment (ART) among MSM and TGW in an implementation research study (‘Online Supervised HIV Self-Testing’ in Thailand).

**Methods:** During December 2015-January 2017, MSM and TGW self-selected to enroll into 1 of 3 groups:
1) clinic-based HIV testing and counseling (Offline group);
2) online pre-test counseling and clinic-based HIV testing (Mixed group); and
3) online pre-test counseling and supervised HIV self-testing (Online group).

Linkage to ART was provided immediately after HIV-positive/reactive test results were known. Online retention and support were provided to the Mixed and Online groups only. Sociodemographic data, beliefs and experiences around stigma and discrimination related to HIV and/or being MSM or TGW, sexual and drug use behaviors, perceived barriers and facilitators for access to HIV testing were collected by self-administered questionnaires. Factors associated with unsuccessful linkage to ART were identified using binary logistic regression method.

**Results:** Of 564 participants (465 MSM and 99 TGW), 200 selected the Offline group, 166 selected the Mixed group, and 208 chose the Online group. Mean (±SD) age was 27.9 (7.2) years. Baseline HIV-positive/reactive result was higher in the Offline (13.0%) and Online (14.4%) groups, compared to the Mixed group (3.2%), p=0.001. Linkage to ART, however, was least successful in the Online group (42.8%), compared to the Offline (83.6%) and Mixed (75.0%) groups, p<0.02. Being in the Online...
WEPCo2 Sex and drugs: Ongoing syndemics in the PrEP and treatment era

**WEPCo201**

Syndemics predict bio-behavioral HIV sexual transmission risk (TRB) longitudinally in US HIV clinics

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1University of Miami, Psychology, Coral Gables, United States, 2University of North Carolina at Chapel Hill, Chapel Hill, United States, 3University of Washington, Seattle, United States, 4University of California, San Diego, United States, 5Johns Hopkins University, Baltimore, United States, 6University of Alabama at Birmingham, Birmingham, United States, 7University of North Carolina at Chapel Hill, Chapel Hill, United States, 8Brown University, Providence, United States, 9Harvard University, Boston, United States

**Background:** Syndemic conditions are co-occurring psychosocial conditions that interact synergistically to exacerbate the risk for HIV transmission. Little is known about the role syndemics play in HIV transmission risk in resource-rich clinic settings. While antiretroviral therapy (ART) is key to treatment-as-prevention, to attain the go-go-go goals for HIV control, HIV care clinics will likely need to identify individuals most in need of psychosocial interventions. Syndemics could potentially aid providers in identifying these individuals.

**Methods:** Data were obtained from 15,739 HIV-positive individuals receiving care through the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS) at seven US sites between July 2000 and April 2017. Syndemic conditions (substance abuse, at-risk drinking, depression, anxiety) and sexual risk behaviors were collected using validated instruments through patient-reported outcomes completed at clinical visits at least 6 months apart. Because sexual orientation data were only available for some of the sample, sexual risk groups were classified iteratively by examining self-identified sexual orientation and defined syndemic conditions. Syndemics were then categorized for each participant in each time period using a multilevel modeling framework. Syndemics were projected based on the number of syndemics identified in the previous time period and HIV risk group as predictors of bio-behavioral transmission-risk behavior (TRB; condomless anal or vaginal sex while virally detectable [HIV RNA > 400]).

**Results:** Syndemics were included in the model to assess their effect on sexual risk behaviors. Odds ratios for syndemics were calculated using multilevel modeling (odds ratio [OR]=1.32, 95% confidence interval [CI]: 1.22-1.43) and anxiolytics (aOR=0.82, 95%CI: 0.74-0.90) were negatively associated with the outcome.

**Conclusions:** Syndemics can be used to help identify individuals at risk for HIV transmission. Syndemics need to be considered in the development of clinical guidelines and interventions to prevent HIV transmission.

**WEPCo202**

Correlates of benzodiazepine and opioid co-prescription among people living with HIV in British Columbia, Canada

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**Background:** Benzodiazepines (BZDs) and opioids are commonly prescribed medications for the management of symptoms among people living with HIV (PLWH). Benzodiazepines are frequently prescribed for anxiety, insomnia, and post-traumatic stress disorder, and opioids are prescribed for pain in both the acute and chronic setting. The co-prescription of opioids and benzodiazepines is relatively contraindicated due to possible overdose risk. However, people living with HIV (PLWH) may have concurrent psychiatric or chronic pain diagnoses that require the use of either opioids or benzodiazepines for symptom treatment. Consequently, some PLWH may be at-risk for the health harms associated with the co-prescribing of these medications. Given this, the objective of this study was to characterize patient factors associated with the co-prescribing of opioids and benzodiazepines among PLWH in British Columbia (BC), Canada.

**Methods:** Using data derived from the Seek and Treat for Optimal Prevention HIV/AIDS in BC cohort, we used bivariable and multivariable generalized estimating equation models to establish the prevalence of a concurrent opioid and benzodiazepine co-prescription and determine factors associated with this practice.

**Results:** Between April 1996 and February 2015, a total of 14,824 PLWH were included in the study. A total of 3835 (26.5%) participants were prescribed both medications at least once during the study period. At baseline, 45.5% were prescribed opioids only, 19.9% were prescribed benzodiazepines only, and 30.8% were prescribed neither medication. A concurrent opioid and benzodiazepine prescription was independently and positively associated with depression/mood disorder (adjusted odds ratio [AOR]=1.32, 95% confidence interval [CI]: 1.22-1.43) and anxiety disorder (AOR=1.45, 95%CI: 1.27-1.60), whereas female sex (AOR=0.76, 95%CI: 0.64-0.91) and substance use disorder (USD) (AOR=0.82, 95%CI: 0.74-0.90) were negatively associated with the outcome.
Conclusions: Our findings indicate that co-prescription of opioids and benzodiazepines was seen in a high proportion of patients. Concurrent prescription was positively associated with anxiety and depression/mood disorder, but negatively associated with being female and presence of a SUD. These findings hint towards groups to target for prevention of harm stemming from co-prescription. However, given the risks associated with co-prescribing and the common comorbidities among PLHIV where these medications may be indicated, careful consideration should be taken prior to co-prescribing. Future research should seek to further explore co-prescription practices in order to determine their appropriateness in these circumstances.

WEPCD0203 When sex, drugs and violence overlap: Assessing the syndemic and synergistic effects of intimate partner violence, crystal methamphetamine, and depression on HIV sexual risk among women who inject drugs

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Background: Women who inject drugs are disproportionately affected by concomitant intimate partner violence (IPV), depression and substance use. Little is known about the synergistic effects of these conditions on women’s HIV risk in low- and middle-income countries. The Perempuan Bersuara study assessed additive and interactive effects of syndemic health conditions on HIV risk in Indonesia’s largest sample of drug-using women.

Methods: 731 women aged ≥18 years and injecting drugs in the preceding year were recruited from Jakarta and Bandung using respondent-driven sampling. Logistic regressions and marginal effects models tested associations and predicted probabilities of exposure to depression, IPV and crystal meth on sexual risk outcomes. Additive interaction was assessed using relative excess risk due to interaction (RERI), attributable proportion due to interaction (AP) and synergy index (S).

Results: Prevalence of concurrent exposure to IPV, crystal meth and depression was 26%. Relative to the absence of these conditions, simultaneous exposure to all 3 increased rates of HIV risk: STI symptomatology (from 12% to 60%), inconsistent condom use (from 3% to 25%), and survival sex (from 6% to 25%). Additive interaction was detected between: (a) IPV x crystal meth on inconsistent condom use (AP=0.38; p<0.05), such that 38% of inconsistent condom use among women reporting IPV and crystal meth was attributable to the interaction between these exposures; (b) depression x crystal meth on STI symptomatology (RERI=2.04; p<0.01; AP=0.61; p<0.001) and survival sex (RERI=1.20; p<0.01; AP=0.53; p<0.01), meaning that 61% of STI symptoms and 53% of survival sex participation among women reporting depression and crystal meth use was attributable to interaction between those exposures; and (c) IPV x depression on STI symptomatology (RERI=3.01; p<0.01; AP=0.52; p<0.001; S=2.70; p<0.001) and survival sex (RERI=1.23; p<0.05; AP=0.40; p<0.05), suggesting the joint effect of IPV and depression resulted in a 3-fold increase in STI symptoms and 1.2x increase in survival sex compared to each exposure’s main effect.

Conclusions: This study provides new empirical evidence showing the syndemics of IPV, depression and crystal meth interact synergistically to heighten HIV risk among women who inject drugs. Interventions that consider the full scope of syndemic vulnerabilities, rather than addressing individual afflictions separately, are essential.
WEPCO205 Behavioral activation integrated with sexual risk reduction counseling for high-risk MSM with crystal methamphetamine dependence: An initial randomized controlled trial

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Background: Men who have sex with men (MSM) continue to be the largest risk group for HIV infections in the U.S., where crystal methamphetamine abuse heightens risk for HIV infection through greater engagement in condomless anal sex (CAS). One potential contributor to the intractability of existing crystal methamphetamine treatments may be a lack of attention to replacement activities or the role of depressed mood. Behavioral activation (BA) is an evidence-based approach for depression that involves identifying and participating in pleasurable, goal-directed activities. The hypothesis was that, for MSM abusing crystal methamphetamine, re-learning how to engage in non-drug-using aspects of life would facilitate their ability to benefit from sexual risk reduction (SRR) counseling.

Methods: Project IMPACT was a pilot randomized controlled trial. Forty-six MSM at sexual risk of acquiring HIV who met DSM-IV criteria for crystal methamphetamine dependence were enrolled. Of those MSM, 41 were randomized: 21 were assigned to the intervention, consisting of two sessions of SRR, ten sessions of BA with SRR, and one session of relapse prevention (13 sessions total); 20 participants were assigned to a control condition (two sessions of SRR).

Results: At the acute post-intervention visit, intervention participants reported an average of 3.2 CAS acts with men who were HIV-infected or whose status they did not know, compared to 4.5 among control participants (p = 0.36; 95% CI: -0.69, -0.002; p = 0.36). At the 6-month post-intervention visit, intervention participants reported 1.1 CAS acts with men who were HIV-infected or whose status they did not know compared to 2.8 acts among control participants (p = 0.36; 95% CI: 1.44, -0.46; 95% CI: 0.001). Similarly, intervention participants reported 1.0 CAS acts under the influence of crystal methamphetamine with men who were HIV-infected or whose status they did not know compared to 2.5 among control participants (p = 0.87; 95% CI: -1.38, -0.36; 95% CI: 0.005). Lastly, intervention participants reported more continuous days abstaining from crystal methamphetamine compared to control (50 vs. 39.0, respectively) (p = 0.25; 95% CI: 0.34; 0.001).

Conclusions: Findings are encouraging, provide evidence of feasibility (98% retention at 6 months) and acceptability (93% of counseling sessions attended; all participants rated the intervention as “acceptable” or “very acceptable”), and demonstrate initial efficacy for reducing sexual risk for HIV and crystal methamphetamine use. Future testing in a fully-powered efficacy trial is warranted.

WEPCO206 Association between syndemics (of alcohol and drug use, and violence) and HIV-related sexual risk among men who have sex with men in India: Findings from a large-scale national bio-behavioural survey

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Background: Despite more than a decade of HIV prevention interventions among men who have sex with men (MSM) in India, consistent condom use is suboptimal (about 50%). Syndemics theory states that multiple co-occurring psychosocial health problems could synergistically increase negative outcomes (e.g., HIV risk). We examined whether syndemic conditions such as alcohol use, drug use (including injecting drug use), and violence victimisation contribute to HIV-related sexual risk among MSM.

Methods: We used data from a national Integrated Bio-Behavioural Surveillance (IBBS), a cross-sectional survey among 23,081 MSM recruited through probability-based sampling from 24 states in India. We used three syndemic indicators:
1) alcohol use (at least once in the past week);
2) drug use (including injectable drugs in the past year); and
3) violence victimisation (physical and/or sexual violence in the past year).

Inconsistent condom use in anal sex (‘sexual risk’) was assessed by how frequently condoms were used in the past month (very recent condom use). Logistic regression was used predict inconsistent condom use with three syndemic indicators and their interaction terms (alcohol use x drug use x violence victimisation).

Results: Participants’ mean age was 27.6 years (SD: 7.4). Most had completed secondary school, and 37% had paying partners. Prevalences of alcohol use, drug use, and violence victimisation were 48.8%, 11.1% and 24.7%, respectively. With the interaction terms of two syndemic conditions in the model (Table 1), alcohol use (aOR = 0.99, p < 0.01), drug use (aOR = 1.26, p < 0.01), and violence victimisation (aOR = 1.45, p < 0.01) were found to significantly predict inconsistent condom use. Further, the interaction terms of the three syndemic indicators were also significant and positive in sign, indicating the synergistic effect of co-occurring syndemic conditions in heightening the sexual risk.

Conclusions: Syndemic conditions are highly prevalent and synergistically increase sexual risk among MSM. While HIV prevention interventions that address one or two of these syndemic conditions (alcohol and drug use, and violence victimisation) could reduce sexual risk, integrating interventions that jointly screen for and address syndemics, in addition to routine condom promotion interventions, could substantially reduce sexual risk among MSM.

![Image](330x111 to 561x285)

![Image](330x111 to 561x285)

#### Table 1. Multivariable logistic regressions: Sexual risk* regressed on Syndemic variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Intervention terms</th>
<th>B (SE)</th>
<th>OR (95% CI)</th>
</tr>
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<tbody>
<tr>
<td>Alcohol use</td>
<td>A x D x V</td>
<td>0.01 (0.01)</td>
<td>1.00 (1.09)</td>
</tr>
<tr>
<td>Drug use</td>
<td>A x D x V</td>
<td>0.02 (0.01)</td>
<td>1.04 (1.02)</td>
</tr>
<tr>
<td>Violence victimisation</td>
<td>A x D x V</td>
<td>0.30 (0.01)</td>
<td>1.46 (1.25, 1.70)</td>
</tr>
</tbody>
</table>

Note: Adjusted for age, education, marital status and sexual identity (both, neither, double-
<table>
<thead>
<tr>
<th>Confident interval</th>
<th>p value</th>
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</thead>
<tbody>
<tr>
<td>0.05</td>
<td>0.001</td>
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WEPPDD01 Occupy the epidemic: Economic inequality and HIV

WEPPDD0101 Examining the socioeconomic gradient in viral suppression in Malawi

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Background: Achieving viral suppression is associated with better health outcomes for people living with HIV. Studies in some countries have revealed socioeconomic disparities in viral suppression. Due to lack of valid measures of socioeconomic status, most studies construct wealth indices based on household asset variables often collected in population-based surveys. There are, however, multiple techniques for constructing a wealth index and there is a lack of consensus regarding which technique is superior. This study examined the socioeconomic gradient in viral suppression in Malawi, checking robustness of results to choice of method for constructing the wealth index.

Methods: The Malawi Population-based HIV Impact Assessment (MPHIA) was a nationally representative survey conducted in Malawi in 2015-2016. Among 17,187 adults aged 15-64 who were interviewed and tested for HIV using the national algorithm, 2227 (13%) tested positive, and 2220 (99.7%) of these had a viral load test performed. The Erreygers Index (EI) for income-related health inequality was computed for viral suppression under three scenarios based on statistical procedures for deriving the wealth index: Standard Principal Components Analysis (PCA), Multiple Correspondence Analysis (MCA) and Uncentered Principal Components Analysis (UPCA). All analyses were adjusted for the survey’s complex design using jackknife replicated weights. These methods: (PCA), Multiple Correspondence Analysis (MCA) and Uncentered Principal Components Analysis (UPCA).

Results: Across the PCA and MCA scenarios, viral suppression rates appear to slightly increase monotonically from lowest to the highest wealth quintile while in the UPCA scenario, viral suppression rates vary only marginally and non-monotonically across the quintiles. On the other hand, the EI for viral suppression using the standard PCA wealth index was statistically insignificant (EI value= 0.0120; p-value= 0.2860). The EI for the MCA and UPCA indices were also not statistically significant (EI values= 0.0943 and -0.0204; p-values of 0.5218 and 0.0860 respectively).

Conclusions: Based on the inequality index used in this study, there were no substantial differences with respect to the socioeconomic gradient in viral suppression across the three scenarios, which implies there are no socioeconomic disparities in viral suppression among PLHIV in Malawi. This result is robust to choice of method for constructing the asset index.

WEPPDD0102 Food insecurity is common and associated with unsuppressed viral load in HIV-infected pregnant women in Kenya


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Background: Viral suppression in HIV-infected pregnant women is essential to elimination of mother-to-child transmission. Limited data exist on the impact of food insecurity on viral suppression in pregnant women. We evaluated prevalence of food insecurity and its association with viral suppression among pregnant women in Kenya.

Methods: We conducted a cross-sectional analysis of enrollment data from a trial evaluating mHealth strategies to improve ART adherence (Mobile WACHX, NCT02400671). Participants were age ≥14, HIV-infected, pregnant and had daily access to a mobile phone. Participants were recruited from 6 public MCH clinics in Nairobi and Nyanza region. Self-report questionnaires and plasma viral load (VL) were collected. Viral suppression was defined as VL < 1000 copies/ml among women on ART ≥6 months. Food insecurity, depression and social support were assessed using the Household Food Insecurity Access Scale (HFIAS), PHQ and MOS respectively. HFIAS scores were categorized per instrument guidelines and dichotomized into secure/mildly-insecure versus moderately/severely-insecure. Correlates of food insecurity were assessed by univariable Poisson regression with robust standard errors.

Results: Eight-hundred twenty-five women were enrolled: of whom 820 had complete data for this analysis. Median age was 27 (IQR 23-31), gestational age was 24.3 weeks (18.3-29.6), monthly income was 8000 KSh ($80) and 70% were married/cohabiting. Overall, 376 (41.0%) were food secure, 72 (8.8%) mildly insecure, 179 (21.8%) moderately insecure, and 233 (28.4%) severely insecure. Prevalence of moderate/severe insecurity was associated with older age (IRR 1.02, 95%CI 1.01-1.03, per year), lower income (IRR 0.95, 0.94-0.97, per $10 increase), more children (IRR 1.17, 1.12-1.22, per child), mild depression (RR 1.6, 1.44-1.86), and lower social support (RR 0.81, 0.76-0.86, per 1-point increase on 4-point scale). Of 442 women on ART ≥6 months, 385 (87.1%) were virally suppressed. Moderate/severe food insecurity was associated with unsuppressed VL (IRR 1.88, 1.10-3.22).

Conclusions: Our findings suggest that approximately half of pregnant HIV-infected women in Kenya experienced moderate or severe food insecurity. Food insecurity was significantly associated with older age, lower income, more children, lower social support, depression and unsuppressed VL. Nutrition assistance may be useful to support viral suppression in pregnant women.

WEPPDD0103 The impact of homelessness in achieving viral suppression among extremely low-income HIV-infected women living in a well-resourced US city: A longitudinal perspective of overlapping risks


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Background: Current best practices and high-impact interventions focus on retention in care and ART adherence to improve HIV outcomes. Simultaneously, research consistently indicates non-clinical conditions due to poverty as predictors of clinical outcomes. We considered social, structural and clinical factors as predictors of unsuppressed viral load (VL) in a community-recruited cohort of homeless and unstably housed women living with HIV/AIDS (HUU-WLWA). The study was conducted in San Francisco, a well-resourced US city where unsuppressed VL among HIV-infected persons is estimated to be 12-28%.

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Methods: Using three years of biannual data, paired with electronic VL data from routine clinical care, we estimated the odds of unsuppressed VL (HIV RNA >200 copies/ml) between 2008 and 2012. Time periods before/after the introduction of universal ART (1/1/10) were considered. Time-dependent covariates included homelessness, food insecurity, incarceration, insurance, outpatient visits, case management, polysubstance use and violence (emotional, physical, sexual), all evaluated 0-3 months before VL assessments. Logistic models with robust standard errors were used to assess the associations of covariates with detectable VL.

Results: Among 120 HUH-WLWHA, 508 VL assessments were analyzed (median=3/patient, IQR=2-6). Median baseline age was 47 and 72% of participants reported non-Caucasian race/ethnicity. Unsuppressed VL was observed among 60% of participants during follow-up and 15% were unsuppressed at all visits. In adjusted longitudinal analysis, the odds of unsuppressed VL increased 11% for every 10 nights homeless (OR=1.11, p<0.001) and were over 4-fold higher among recently incarcerated women (OR=4.46, p<0.001). Adjusting for substance use, odds were also 3-fold higher among participants experiencing recent sexual violence by someone who was not a primary intimate partner (OR=3.10, p<0.001).

Conclusions: In a city where 72-88% of HIV-infected persons have undetectable viremia, only 40% of HUH-WLWHA remain undetectable for three years. Homelessness, incarceration, sexual violence and drug use increase the odds of unsuppressed VL over time; other social/structural factors and healthcare do not. Current best practices and high-impact interventions do not address the root of the problem for impoverished WLWHA in a resource-rich setting. Considered alongside prior research, results suggest multi-component interventions that prioritize housing as being critical to optimizing health outcomes in this high-risk population.

WEPDD0105
Displacement, urban gentrification and declining access to HIV/STI, sexual health and outreach services amongst women sex workers between 2010-2014: Results of a community-based longitudinal cohort

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Background: Despite increasing gentrification across North American cities, little is known about its impacts on work and living environments and health access amongst sex workers (SWs). Using a spatial epidemiological approach, we (1) explored changes in land use and work/living environments in relation to gentrification exposure, and (2) modeled the independent effect of gentrification exposure on utilization of HIV/STI testing and sexual/reproductive health (SRH) and SW-tailored services.

Methods: Data were drawn from a community-based longitudinal cohort of SWs (AESHAA) and publically available land use data. Analysis was restricted to 2010-2014, given legal changes in December 2014. Changes in land use and SWs’ residential and working environments were mapped for the pre-gentrification (2010) vs. gentrification (2014) periods. Using a before-and-after design, confounder modeling with multivariable logistic regression using generalized estimating equations (GEE) assessed the independent effect of gentrification exposure on utilization of HIV/STI testing and SRH and SW-tailored services. Analyses were restricted to 203 SWs who participated in both study periods, spatial analyses were further restricted to those who provided data on work/residential locations.

Results: In the Downtown Eastside (DTES) and Strathcona neighborhoods, major shifts away from industrial/commercial land use towards residential, newly built housing were observed. Increases in the distance between the DTES core and SWs’ place of residence (547 vs. 764 meters, p<0.001) and servicing clients (15.8% vs. 28.6%, p<0.001) were also documented. In separate multivariable GEE models adjusted for key confounders, gentrification exposure was correlated with reduced utilization of HIV (AOR=0.33, 95%CI: 0.21-0.51) and STI testing (AOR=0.39, 95%CI: 0.26-0.61), and use of SRH (AOR=0.36, 95%CI: 0.23-0.58) and SW-led/tailored services (AOR=0.43, 95%CI: 0.25-0.75).

Conclusions: Observed decreases in use of HIV, STI, SRH and SW-tailored services occurred despite ongoing efforts to scale-up HIV cascade interventions for key populations in BC, Canada. Results suggest these declines may be linked to gentrification-related displacement of SWs from areas where services for key populations are concentrated. Health and housing policies that promote marginalized women’s access to safe working/living environments and investment in SW-led and SW-friendly health and social services are critically needed.

WEPDD0104
Unstable housing associated with injection risk behaviors among PWID in Ukraine

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Background: In Eastern Europe and Central Asia new HIV infections occur at a high rate among people who inject drugs (PWID). Moreover, PWID account for most hepatitis C (HCV) cases in ECEA. Injection risk behaviors are considered to be a product of ‘risk environment’ which includes socioeconomic factors, such as housing. There has been, however, limited attention towards exploring association between PWID’s housing situation and injection risk behaviors in Ukraine which has HIV prevalence 21-42%, and 80% HCV prevalence among PWID.

Methods: This study is based on a data from a baseline survey of PWID (n = 684) recruited to participate in a behavioral HIV prevention intervention in 4 urban settings across Ukraine. Using poisson regression model we estimated independent association between housing situation (stable vs. unstable) and injection risk behaviors within last 30 days controlling for age, sex, drug of choice and education.

Results: 1 Participants who reported unstable housing also reported more injection risk behaviors within last 30 days, including using old syringe (73% vs. 10%, p-value < 0.001), sharing cooker/cocktail/water (25% vs. 15%, p-value 0.1), front/backloading (73% vs. 62%, p-value 0.1), using preloaded syringe (64% vs. 48%, p-value 0.06). In multivariable analysis having unstable housing was associated with almost 2-fold increase in using needles/syringes after someone or sharing injecting equipment (cooker, cotton, water) within last 30 days (prevalence ratio (PR) 1.91, 95% CI 1.14-3.29).

Conclusions: Understanding and addressing structural context associated with injection risk behaviors should be part of research and intervention agenda to fight HIV and HCV in Ukraine. National programs would benefit from expanding models to include structural determinants of health.
WEPDE01 Keeping it up: National ownership and financial sustainability

WEPDE0101 Lessons learned from sustained global health investments

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Background: There is emerging evidence to support those factors in global development that are related to successful transition and sustainability of aid investments. At the 15 year mark, the scale and scope of the US President’s Emergency Plan for AIDS Relief (PEPFAR) program provides ample opportunity to explore these factors and to confirm or identify those that can be incorporated early in project design to increase the sustainability of investments.

Description: The International Training and Education Center for Health (I-TECH) at the University of Washington in Seattle, USA, has been a PEPFAR partner since 2002. I-TECH has transitioned more than 300 programs, products, and tools to local ownership in that time. In 2017, I-TECH undertook to explore the degree to which a sub-set of these improvements have been sustained by local partners over time. Case examples were selected on the basis of geographic diversity, type of intervention, and sufficient time from transition to make an assessment. Key informants were interviewed, and the four domains and 15 elements of the PEPFAR Sustainability Index Dashboard (SID) were used to provide a framework and starting point for better understanding each example.

Lessons learned: Case studies were drafted on transitioned interventions in six resource limited countries to illustrate lessons learned on the long-term sustainability of health systems improvements, including both successes and failures. The cases reinforce the relevance of the SID in planning for sustainability, in particular the elements of advanced planning and coordination (1); human resources for health (7); quality management (9); domestic resource mobilization (11); and performance data (15). In addition, we found the actions of the implementing partner during transition to be a critical component.

Conclusions/Next steps: While aid investments in low and middle income countries can clearly be transitioned successfully to local ownership, they may not remain beneficial over time unless key elements of sustainability planning are intentionally addressed at the outset. Such lessons learned are instructive to a wide set of global audiences, from health and development specialists, government officials, economists, and social scientists to diplomats and security professionals worldwide. As such, lessons should be regularly disseminated.

WEPDE0102 How it was possible to offer Integrase Inhibitor as first line ART while maintaining the sustainability of the Brazilian policy of universal access to drugs

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Background: Brazilian antiretroviral therapy is free and offered to 100% of Federal Government. In December 2016, about 500,000 people were on antiretroviral therapy (ART) and it was estimated that 100,000 new patients would be included in 2017. The Brazilian protocol recommended EFZ/TDF/3TC regimen as first line ART, and Integrase Inhibitors (II) as rescue therapy (Raltegravir - RAL 400 mg). As a result of the advances in international studies about the benefits of incorporating II in first line ART, the Brazilian government initiated the negotiations to offer II, even considering the impossibility of generic drugs acquisition due to patent laws.

Methods: With an annual budget of approximately 350 million dollars to purchase antiretroviral drugs, the objective of the government was to offer II without significantly increasing the budget. Therefore, two strategies were used: a) price negotiation through bidding processes for the two II options available in Brazil (DTG 50mg and RAL 400mg) - only one of these would be included in the guidelines as a preferential first line drug and the same medication would be indicated for rescue regimens; b) reorganization of the guideline drug portfolio, including the removal of obsolete drugs and recommendations on switching patients to the new regimens.

Results: In 2016, treatment cost with available II in Brazil was US 8.8 dollars/day; the negotiation allowed a reduction to US 1.50/day - purchase of DTG. DTG was then included in the guidelines as the preferential drug for first line ART; switching RAL to DTG as rescue regimens was also recommended. In relation to the portfolio reorganization, the following were excluded: Fosamprenavir, Didanosine, Stavudine, and Saquinavir as well as the change in the recommendation of Abacavir as the preferential drug for second line ART. These actions permitted ART procurement for 2017, including DTG, without significantly increasing the budget, as shown in Figure I.

Conclusions: The strategies used by Brazil proved advantageous and made it possible to offer a better antiretroviral treatment without significant budget changes. Even with the increase in cost with the first and second lines, the economy generated in the third line was decisive for the expansion of the use of II.

WEPDE0103 Cost of HIV care and treatment in Mozambique

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Background: In 2015, approximately 990,000 adults and 76,000 children in Mozambique were receiving antiretroviral therapy. This study quantified costs of HIV treatment and care of different patient groups incurred in publicly funded HIV treatment facilities.

Methods: We collected data on the costs of the HIV treatment program, volume, and types of patients being treated. Data were collected retrospectively for two 6-month periods during 2016. Costs were categorized by source of support, type of expenditure, and program activity. Analyses focus on total per-patient costs, cost across categories, and costs over time. Per-patient cost calculation was based on resource use intensity and allocation of costs across different patient categories.

Results: The median economic cost per patient-year was $66.73 (2017 USD) for ART patients and $22.09 for pre-ART patients. Costs were higher for newly initiated adult and pediatric patients compared to established patients. ARVs cost a median of $67.07 for ART patients, the largest single cost component for these patients. With ARVs excluded, laboratory services constituted the most substantial cost category for ART and pre-ART patients, at a median of $11.10 and $10.82, respectively. No substantial investments were made over the study period in equipment, training, or infrastructure. Per-patient cost comparisons across different types of facilities revealed lower costs in rural facilities ($88.13 versus $115.49 and $109.33 in peri-urban and urban facilities, respectively). Costs were higher in secondary level facilities ($121.07 versus $85.65 and $99.33 in primary and tertiary facilities, respectively). Analysis of costs by patient volume indicated that some economics of scale were present with larger facilities having smaller per patient costs.
Conclusions: Treatment costs varied widely between facilities, reflecting differences in the clinical models used, intensity of services, and types of drugs provided. While the costs of antiretroviral drugs may still dominate the cost per-patient, personnel and laboratory supplies costs are not insignificant. The study results indicate that HIV services can be optimized as the number of patients grows without substantial increases in investment. Under the test and start model, this study demonstrates that efficiency can be achieved if more patients start treatment, and this will in turn improve allocative efficiency.

**WEPDE0104 Building sustainable HIV service delivery model at a local level in Ukraine**

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**Background:** In 2018, Ukraine remains the second highest-burden HIV epidemic country in Europe, with an estimated 241,000 people living with HIV/AIDS (PLWH). The significant financial dependence on external donor resources (67.4% of total HIV funding) threatens the sustainability of critical HIV services provision in the near future. As donor funding for HIV programming continues to decline in middle-income countries, Ukraine needs to revise its national HIV/AIDS response strategy and funding allocations, and optimize current service delivery models.

**Description:** Between February 2016 and December 2017 the USAID-funded HIV Reform in Action Project supported 14 local state administrations in 7 high-burden regions of Ukraine in developing and piloting a sustainable model for provision and scale-up of critical HIV services for PLWH and key populations.

The key components of the sustainable model include:
- (1) advocacy for increased local funding for HIV rapid testing and social services;
- (2) removal of policy and legal barriers to service provision by local government and NGOs;
- (3) introducing new financing models for local state administrations;
- (4) decentralization and integration of HIV services, and
- (5) optimizing human resources for community-level service delivery.

To facilitate the pilot, we established mechanisms to coordinate efforts across regional and local authorities, primary and secondary level health care providers and civil society service providers.

**Lessons learned:** Local level advocacy efforts resulted in strengthening partnerships between government and civil society in HIV service delivery and increased 14 local budgets for HIV response from $225K in 2016 to $1.96M in 2017. Bridging local policy gaps in provision of HIV services at primary healthcare centers (PHCs), education and the local resource allocation allow to 10-fold increase in the number of HIV rapid testing sites at PHCs, with a 6-fold increase in the quantity of HIV rapid tests procured with local budgets. Thirty five new opioid substitution therapy (OST) sites were opened, with an increase of 536 people who inject drugs receiving OST services (compared to 2015).

**Conclusions/Next steps:** Pilot results and a replication plan are being shared with local state administrations beyond the pilot regions to fast-track comprehensive, integrated and sustainable HIV response at a national level.

WEPDE0105 Sustainable financing of the HIV response in Vietnam: Integration of donor funded treatment facilities into public health system and the social health insurance scheme

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**Background:** As international donors reduce support for the HIV response in Vietnam (currently -70%) and many other countries, the Government of Vietnam (GVN) is implementing a unique and innovative transition strategy: strengthen domestic governance and financing by integrating donor-funded HIV treatment facilities into the public health system with coverage of services through an expanded Social Health Insurance (SHI) scheme. Implementing partners of PEPFAR, including the Health Finance and Governance (HFG) project, have been providing technical assistance in support of this transition since 2015.

**Description:** HFG provides technical assistance to the Vietnam Administration of HIV/AIDS Control (VAC) and other departments of the Ministry of Health (MoH), Vietnam Social Security (VSS) and 9 provinces including Hanoi and Ho Chi Minh City, the two provinces with the highest HIV burden. Beneficiaries include >51,000 ART patients (~46% of the total in Vietnam) in 116 treatment facilities. Technical assistance at national level includes: development of an integration monitoring tool and ongoing assessment of transition progress. HFG assists provinces and treatment facilities to achieve key integration steps of SHI contracting and reimbursement, and expansion of SHI coverage among PLHIV. The table and graph show the dramatic integration progress in the 9 HFG-supported provinces and the predominant contribution of PEPFAR TA to national progress on SHI reimbursement for HIV services. SHI coverage among ART patients in the 9 HFG supported provinces increased from 36% in 2016 to 73% in 2017.

**Lessons learned:** Multi-sectoral and multi-level technical assistance on integration of parallel systems of HIV treatment and expansion of population and service coverage of SHI can achieve remarkable progress in the transition from predominantly donor-funded to locally-funded and operated HIV responses.

**Conclusions/Next steps:** In Vietnam, full implementation will only be completed when all HIV treatment services including viral load testing and ART are covered and reimbursed by SHI (expected to start in 2018 for VL testing and in 2019 for ART) and all PLHIV are enabled to obtain SHI through appropriate subsidies. PEPFAR and HFG will continue to provide TA to GVN at all levels to achieve these objectives, which will in turn help Vietnam achieve the 90-90-90 goals.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Baseline (December 2015) (n/%)</th>
<th>December 2016 (n/%)</th>
<th>December 2017 (n/%)</th>
<th>Expected June 2018 (n/%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV treatment facilities with SHI contracts</td>
<td>0</td>
<td>47/109 (43%)</td>
<td>83/115 (72%)</td>
<td>106/115 (90%)</td>
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<tr>
<td>HIV treatment facilities with SHI reimbursement</td>
<td>0</td>
<td>24/109 (22%)</td>
<td>70/115 (61%)</td>
<td>93/115 (81%)</td>
</tr>
</tbody>
</table>

[Integration progress in HFG-supported provinces]

([PEPFAR TA contribution to SHI reimbursement for HIV services])
WEPDE0106
PEPFAR’s Sustainability Index and Dashboard: Results from SID 3.0

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Background: The achievement of sustained control of the HIV epidemic is a critical goal for individuals, communities, and governments. However, defining sustainability and measuring progress over time has proved challenging. PEPFAR’s Sustainability Index and Dashboard (SID) defines critical elements that contribute to sustainability, and enables its users to assess the current state of national HIV/AIDS responses while identifying strengths and vulnerabilities over time. After its third iteration, SID 3.0 provides results that reveal important insights into common challenges and advances across countries.

Description: SID 3.0 was implemented in 40 countries in 2017 through a participatory process. PEPFAR country teams worked with UNAIDS country directors to convene partner governments, multilateral and bilateral donor organizations, civil society organizations, private sector partners, and PEPFAR country staff. These stakeholders completed the 90-question SID tool to assess sustainability across 15 elements organized into four domains.

Lessons learned: The results of SID 3.0 demonstrate that countries are making progress towards a sustainable response to the epidemic. When analyzed by income level, low income countries generally scored lower than middle income countries on SID elements related to national health systems. Additionally, differences were observed by type of PEPFAR support, with technical assistance and technical collaboration countries generally performing better than long-term strategy countries. Among thirteen PEPFAR partner countries that are poised to reach epidemic control, scores from SID 2.0 (2015) to SID 3.0 (2017) increased significantly, by an overall average of 0.40 points (from 5.97 to 6.37, on a 0.00-10.00 scale) across all elements.

Conclusions/Next steps: PEPFAR has designed an original index that enables important cross-country comparisons that highlight which critical variables support advancement of sustainable systems to control the HIV epidemic. The SID provides essential data used to determine health systems investments and metrics to track the impact of those investments over time. Its regular implementation leads to results that in combination with epidemiologic data yield valuable insights about the most efficient path to sustained epidemic control. At the country level, the SID framework orients national stakeholders to their sustainability strengths and challenges, and facilitates informed decisions about where to target effort and resources to respond to the HIV epidemic more efficiently.
Systemic immune activation and inflammation

WEPEA001
High-resolution metabolomics analysis of plasma and stool reveals marked differences in metabolism in adults with chronic, untreated HIV infection versus uninfected controls: A pilot study

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Background: High-resolution metabolomics (HRM) enables comprehensive evaluation of small-molecule metabolism in health and disease. In this pilot study, we hypothesized that whole-body (plasma) and gut-specific (stool) differences in metabolism would be evident using HRM in HIV-positive adults naïve to ART versus HIV-negative controls.

Methods: Plasma (n=27 individuals) and stool (n=29) samples were available for HRM analysis from 32 ART-naïve adults. Plasma (n=4) and stool (n=6) samples were available from 6 HIV-negative subjects similar in age and lifestyle. HRM was performed using hydrophilic interaction liquid chromatography (HILIC)-mass spectrometry (MS) for plasma and C18 LC-MS for stool analysis. Significant plasma and stool metabolites differentially expressed between groups were identified using Linear Models for Microarray Data analysis (LIMMA), followed by 2-way hierarchical clustering analysis (HCA) for data visualization. Differences in endogenous metabolic pathways were identified using the Mummichog pathway analytic package.

Results: In plasma, 113 specific metabolites were identified, with 696 metabolites different between HIV-positive and HIV-negative (P<0.05). Of these, 413 metabolites were increased and 283 decreased in HIV+ subjects vs. controls, respectively. HCA showed clear metabolite separation between the two groups. Significant differences between groups were seen in plasma Vitamin D3, Vitamin E, Vitamin B3 (niacin), histidine, linoleate, butyrate, oleate, linolenate, and squalene and cholesterol biosynthesis metabolic pathways. Stool HRM revealed 7135 specific metabolites, with 480 metabolites different between HIV-positive and HIV-negative subjects. Of these, 327 metabolites were increased and 153 decreased in HIV+ subjects vs. controls. HCA showed clear separation between groups. Stool pathway analysis showed significant differences in C21-steroid hormone biosynthesis/metabolism, glycerophospholipid metabolism, carnitine shuttle, and TCA cycle metabolism.

Conclusions: HRM analysis of plasma revealed marked differences in systemic metabolism of essential vitamins, histidine, and several lipid metabolic pathways in adults with HIV infection versus controls. Stool HRM revealed differences between groups in steroid hormone and phospholipid metabolism, and in pathways related to energy metabolism (carnitine shuttle and TCA cycle). Analysis to determine the specific metabolites within these pathways, their directionality and correlations with immune and inflammation biomarkers is underway. This data and approach have promising potential to differentiate the diverse effects of HIV on multiple systems.
WEPEA004 Small intestinal gastrointestinal-associated lymphoid tissue (GALT) Immune reconstitution and changes in systemic immunity in a cohort of MSM initiating a protease inhibitor-based regimen compared to MSM controls

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Background: The impact of protease inhibitor-based ART regimens on small intestinal immune reconstitution and changes in systemic inflammation has not been reported. To control for HIV-risk group, we matched MSM in both treatment and HIV-negative cohorts.

Methods: Participants with chronic HIV infection naïve to ART underwent upper endoscopy for duodenal biopsies before and 12-months after initiating open-label darunavir/ritonavir/tenofovir-D/emtricitabine once-daily ART regimens. HIV-negative controls underwent identical procedures to control for statistical analyses.

Results: Among the factors members of apolipoproteins (ApoA1, ApoA4, ApoL1) showed distinct characteristics in patients both with chronic and HIV-negative controls undergoing identical procedures to control for statistical analyses.

Conclusions: Our data indicates that HIV-2 infection impaired the apolipoproteins that coordinate lipid metabolism and transport of lipids at the very early stages of infection. However they normalize to a healthy level following ART. The level of ApoA1 which plays roles in lipid exchange and transport and reverse cholesterol transport from peripheral cells to the liver, is high in most of the CART patients. As plasma ApoA1 levels correlated positively with plasma triglycerides and total cholesterol, cART patients are at high risk of lipid disorders that increases the risk of cardiovascular diseases and diabetes. In addition to its role in lipid metabolism, ApoA1 has been shown to possess broad antiviral activity.

WEPEA005 Translational immunometabolism offers novel tools to understand mechanisms of HIV disease pathogenesis

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Background: A growing body of evidence highlights the crucial role of immune cell metabolic reprogramming during infections. These metabolic changes switch the cell from oxidative phosphorylation to glycolytic metabolism to modulate immune functions and inflammatory responses. We use immunometabolic tools to gain novel insights into pathways that control CD4 T cell susceptibility to HIV, factors controlling immune functions, and inflammatory responses associated with age-related comorbidities in HIV+ persons.

Methods: A translational immunometabolism characterization was done by evaluating mitochondrial dynamics (e.g. density and membrane potential), metabolic signaling pathways (e.g. PI3Kinase/Akt/mTOR) and co-stimulatory signals (e.g. OX40/CD134). Glycolysis confirmed by intracellular lactate analy-
**WEPEA006**

Neovaginal microbial and proteome signatures in Brazilian transgender women following gender-related surgery

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**Background:** Transgender women (TGW) have disproportionally high rates of HIV infection and evidence suggests they have the highest burden of HIV acquisition worldwide. Both inflammation and the microbiome are important determinants of HIV risk at mucosal surfaces, but little data is available on the neovagina of transgender individuals following gender-related surgery. The primary aim of this study was to identify and characterize neovaginal microbial and proteomic signatures in TGW from Rio de Janeiro, Brazil.

**Methods:** Mucosal swabs collected from the neovagina (n=9) and rectum (n=10) of transgender women were analyzed by 16S rRNA sequencing and label-free tandem mass spectrometry (MS) to characterize the microbiome and metaproteome (host and bacteria), respectively. Cervicovaginal mucosal samples from 25 natal women were included for comparison.

**Results:** MS identified 1322 human proteins and 42 bacterial proteins from neovaginal and rectal swabs. Neovaginas had a microbial profile dominated by Prevotella (23.30%), Escherichia (17.65%), an uncultured bacterium (16.67%), and Jenquetaella (10.71%), whereas natal women showed a less diverse microbiome with a predominance of Lactobacillus (60.20%) and Gardnerella (22.52%). Compositional analysis identified 37 significant differences in the host functional proteome between neovaginas and natal vaginas, including a reduced proportion of immune system proteins (p = 1.07E-04, LOG2FC = -1.966), and increases (p < 0.0001) in metabolic processes (Carbohydrate, LOG2FC = -1.398; amino acid, LOG2FC = -1.932), and cell growth and death (LOG2FC = -1.260) pathways, respectively. Data from the 16S sequencing analysis indicated that 36.2% +/- 16% of the neovaginal microbiota are derived from the rectal microbiome. Overall composition of the neovaginas was varied; 6 participants self-reported the use of penile and scrotal tissue and 3 indicated inclusion of bowel mucosal tissue for at least one gender-related surgery. Neovaginas showed no significant differences to rectal mucosa in proportions of host functional pathways (p>0.05).

**Conclusions:** These data suggest that the microbiome and host proteome are distinct in the neovagina, showing altered immune pathways, lower amounts of commensal bacteria (Lactobacillus) commonly observed in natal vaginas. Improving our understanding of these differences may help to improve our strategies for the prevention of HIV acquisition in TGW.

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**Correlates of HIV susceptibility, disease progression, (biomarkers and genetics)**

**WEPEA007**

Comparative transcriptome analysis in endocervix and ectocervix during proliferative and secretory phases of the menstrual cycle

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**Background:** It has been suggested that HIV transmission is more likely to occur during progestrone dominant secretory phase of the menstrual cycle. To gain a better understanding of gene expression changes during menstrual cycle, we analyzed ecto- and endocervical transcriptome from women in either proliferative or secretory phase.

**Methods:** Ecto- and/or endocervical tissues were obtained from 16 women undergoing hysterecomies for non-malignant conditions and not using hormonal contraception/hormonal treatment for gynecological conditions. 10 of these subjects had paired tissues collected. The cycle phase was determined by histopathological assessment of endocervical tissue. Serum estradiol and progesterone concentrations were measured by RIA. RNA was sequenced by using Illumina Truseq technology (75bp, >30M coverage). An in-house RNA-seq workflow was used to estimate the differential gene expression. Differentially expressed genes (DEGs)(adjusted p<0.05) were used for Ingenuity Pathway Analysis. Limma outputs were ran against ImmuneSigDB for Gene Set Enrichment Analysis (GSEA). Confirmatory qRT-PCR for selective DEGs was performed.

**Results:** Transcriptome analysis revealed 203 DEGs (102 upregulated and 102 downregulated) in proliferative vs. secretory phases of the endocervix. No DEGs were identified in ectocervix. The top significantly affected pathways in proliferative vs. secretory endocervix were remodeling of epithelial adherens junctions, epithelial adherens junction signaling and protein ubiquitination. The analysis revealed an association of proliferative phase with epithelial barrier function and cellular assembly/organization function. Secretory phase was associated with inflammatory response, immune cell chemotaxis and gene expression signatures of stimulated DCs and NK cells. Changes in expression of selected DEGs were confirmed by qRT-PCR.

**Conclusions:** The study highlights differences in regulation of gene expression during menstrual cycle in endocervix and ectocervix and demonstrates significant changes in endocervical transcriptome of women in proliferative vs. secretory phases of the cycle. The data suggest that (i) weakening of epithelial barrier function and:
WEPEA008
Genetic variation in the activated leukocyte cell adhesion molecule affects HIV-1 disease progression

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Background: HIV-1 infection is efficiently spread by direct cell-cell contact. Recently, the activated leukocyte cell adhesion molecule (ALCAM), which mediates cell-cell aggregation, has been demonstrated to be required for cell to cell spread of HIV-1 in vitro. To determine whether ALCAM plays a role in HIV-1 pathogenesis, we analyzed whether genetic variation in ALCAM was associated with the clinical course of HIV-1 infection.

Methods: Single nucleotide polymorphisms (SNPs; n=14) in ALCAM were genotyped in a cohort of 312 HIV-1-infected MSM. Kaplan-Meier and Cox regression survival analyses were used to analyze the effect of the SNPs on HIV-1 disease progression. In vitro HIV-1 infection assays were performed in peripheral blood mononuclear cells (PBMCs) obtained from donors (n=22) that were genotyped for the SNPs in ALCAM.

Results: The minor allele of SNP rs9613199 in ALCAM was associated with prolonged AIDS-free survival (HR 0.51; CI 0.36-0.72; p=0.0001). This association was independent of the CCR5-D32 genotype and human leukocyte antigen alleles (HLA-B57) that were previously associated with slow disease progression. No effect of the SNP on in vitro HIV-1 replication in IL-2 stimulated PBMC was observed.

Conclusions: In this study we identified a SNP in the ALCAM gene that affects HIV-1 pathogenesis. Homozygosity for the minor allele of rs9613199 was associated with a delayed disease progression. No effect of the SNP in in vitro HIV-1 replication in IL-2 activated PBMC was observed, which might suggest that IL-2 stimulation is sufficient to overcome restricted HIV-1 replication in PBMC from donors homozygous or heterozygous for the major allele. Our data suggest that ALCAM mediated cell-to-cell transmission of HIV-1 is an important mechanism for the virus to spread to new target cells and supports viral replication in vivo.

WEPEA009
Potential link between Nef immune evasion capacity and clinical parameters, but not reservoir size, in early HIV-1 infection

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1Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada, 2Kenya Medical Research Institute, Centre for Global Health Research, HIV-Research Laboratory, Kikuyu, Kenya, 3University of British Columbia, Vancouver, Canada, 4University of Toronto, Toronto, Canada, 5Simon Fraser University, Burnaby, Canada, 6Morrel Leaf Medical Clinic, Toronto, Canada

Background: Rapid within-host HIV-1 evolution and diversification, particularly among the gene encoding the viral accessory protein Nef that modulates key immune evasion functions, may influence viral pathogenesis and conceivably modulate reservoir size. However, the extent of within-host Nef genetic and functional diversity in early HIV-1 infection, and the relationship of these activities to clinical parameters and reservoir size measurements remain incompletely understood.

Methods: We isolated and cloned three plasma HIV-1 RNA-derived Nef sequences each from 29 antiretroviral therapy naïve individuals with early (< 6-months) HIV-1 infection into a GFP-reporter expression plasmid. Two of Nef’s main immune evasion functions, CD4 and HLA-I downregulation, were functionally assessed by transfecting each Nef clone into a HLA-A*0201 CEM-derived CD4+ T-cell line and assessing Nef-mediated downregulation of these molecules by flow cytometry. Results were then normalized to the function of the HIV-1 subtype B SF2 Nef reference sequence. Reservoir size measurements included total proviral DNA copies per million CD4+ T-cells and infectious units per million CD4+ T-cells (IUPM) measured by quantitative viral outgrowth assay.

Results: 24 (83%) participants harbored HIV-1 subtype B infections. The grand median HLA-A’02 downregulation capacity of all Nef clones was 75.9% of that of Nef-SF2 (range: 0-108.2; IQR: 62.6-90.7), while grand median CD4 downregulation capacity was 58.8% (range: 5.5-104.5; IQR: 92.7-100). Of that of Nef-SF2. Within-host Nef genetic and functional diversity was substantial within-host Nef clones differed by a mean 3.5 (range: 3.0-20.0) non-synonymous substitutions and exhibited median standard deviations of 9.3% (range: 11-6.8%; IQR: 31-21.6%) for HLA-A’02 downregulation and 2.4% (range: 0.3-55.7; IQR: 1.3-77.1) for CD4 downregulation. Maximal within-host HLA-A’02 downregulation capacity correlated negatively with square-root-transformed CD4 counts (Pearson’s R=0.35, p=0.07, n=29) and positively with log VL (Pearson’s R=0.33, p=0.08, n=29). No significant relationships were observed between Nef functions and reservoir size.

Conclusions: The identification of maximal within-host Nef function as a potential correlate of HIV clinical prognostic in early infection supports Nef’s immune evasion functions as playing a key role at this critical infection stage. The relationship between Nef immune evasion function and reservoir size merits further exploration.

WEPEA010
AP-2 recruitment, CD4 downregulation, and viral tropism of HIV-1 Nef dimerization in vitro and in humanized mice

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Background: The HIV-1 Nef accessory factor is essential for efficient viral replication and immune evasion in vivo. Dimerization of Nef has been linked to its interaction with multiple host cell binding partners, including the endocytic trafficking adaptor protein AP2. Internalization of both CD4 and the SERINC5 restriction factor by Nef requires AP2 and clathrin-mediated endocytosis in order to enhance infectivity and avoid immune surveillance. Here we explored the role of Nef dimerization and AP2 recruitment in HIV-1 infectivity in vitro as well as viral replication and CD4+ T cell loss in humanized mice.

Methods: To test the importance of Nef dimerization and AP2 recruitment in HIV-1 pathogenesis, we generated mutants that are deficient for Nef dimerization (fl109/Leu112/Tyr115/Phen121 to Asp; 4D mutant) and AP2 binding (Asp174/175 to Ala; DDAA mutant) based on previous X-ray crystal structures. A virus defective for Nef expression was also included (ΔNef mutant). Viruses were produced in 293T cells, and infectivity compared using T2M-bl reporter cells. BLT (bone marrow-liver-thymus) and hPBMC-NSG humanized mice were infected with each virus (2000TCID), and replication measured by real-time quantitative RT-PCR or p24 alpha assays in plasma and tissues. Human CD4+ T cell counts were followed in PBMCs and tissues by flow cytometry as a surrogate for HIV-1 pathogenesis.

Results: In vitro, HIV-1 infectivity was significantly reduced with the 4D, DDAA and ΔNef viruses, and the most profound effect was observed with the ΔNef mutant. Humanized BLT mice infected with ΔNef mice. Viral loads and tissue CD4 counts reflected the levels of ΔNef virus.

Conclusions: Our results demonstrate that Nef dimerization and interaction with AP2 are both important for HIV-1 pathogenesis in humanized mouse models of HIV/AIDS. These data support a strategy to disrupt Nef dimerization as a new path to antiretroviral drug discovery.
WEPEA011
Soluble plasma PD-1 and Tim-3 as biomarkers of T cell exhaustion in primary HIV infection

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Background: Cell surface markers of T lymphocyte exhaustion, including PD-1 and Tim-3, are elevated in primary HIV infection (PHI) and predict clinical progression. However, analysis of these markers requires access to viable cells and a flow cytometry facility. The same markers also exist in a soluble (s) form in plasma and can be measured using a simple ELISA. However, their importance in HIV infection is unknown. We investigated plasma sPD-1 and sTim-3 in PHI, before and after anti-retroviral therapy (ART), and the relationships with baseline parameters (plasma viral load (pVL), CD4 count, CD4/CD8 ratio) and respective surface exhaustion markers.

Methods: We evaluated HEATHER trial participants (n=48) recruited in PHI and starting ART a median of 46 [IQR 28-70] days after seroconversion. Plasma sPD-1 and sTim-3 concentration was quantified by ELISA at the earliest pre-therapy timepoint after seroconversion (baseline) and 1 year after ART initiation. PD-1 and Tim-3 expression were measured concurrently on CD4 and CD8 T cells by flow cytometry. Age and sex matched healthy controls (HCs) (n=10) were studied for comparison. Linear mixed effects (LME) modeling and Spearman’s correlation was used to investigate the relationship between soluble and cell surface PD-1 and Tim-3 expression, and associations with clinical parameters.

Results: Compared to controls, sPD-1 and sTim-3 were significantly elevated in PHI (median 4.0 and 1.6 fold respectively) and decreased on ART to levels found in HCs. sPD-1 was positively associated with CD4 PD-1% (p=0.042) and also pVL and CD4/CD8 ratio (p=0.005 each). sTim-3 was positively associated with CD8+ T cell Tim-3% (p=0.0027). Interestingly, plasma sPD-1 showed stronger individual correlations with pVL (rho=0.42, p=0.003). CD4 count (rho=-0.41, p=0.005) and CD4/CD8 ratio (rho=-0.50, p=0.001) than PD-1 cell surface expression on either CD4 or CD8 T cells.

Conclusions: sPD-1 and sTim-3 are perturbed during HIV infection. sPD-1 concentration associates with cell surface PD-1 expression, correlates independently with pVL and CD4/CD8 ratio, and overall correlates more strongly with clinical markers than cell surface PD-1 expression. sTim-3 concentration appears to be a good surrogate for surface Tim-3 expression. sPD-1 and sTim-3 are cheap and easy to measure and could prove useful biomarkers for studying immune exhaustion.

WEPEA013
Chronic-binge alcohol increases viral expression in lymph node reservoirs of male and female macaques infected with SIV

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Background: Chronic alcohol abuse negatively impacts HIV disease through multiple mechanisms. Using SIV-infected rhesus macaques exposed to chronic binge alcohol (CBA), we have shown that CBA increases plasma viral load and accelerates time to end-stage disease. In this study, we sought to explore the impact of CBA on the establishment of viral reservoirs in lymph nodes (LN) of the urogenital mucosa and determine their relationship with plasma viremia. Additionally, we sought to extend our studies to female animals to evaluate the influence of sex on viral reservoirs.

Methods: Alcohol was delivered daily to macaques via gastric catheter beginning 3 months prior to SIV infection, achieving peak blood alcohol concentrations of 50-60mM. Saline or sucrose was administered to controls. Following mucosal infection (rectal for males, vaginal for females), longitudinal samples of plasma and inguinal LN were obtained for viral measures. After 10 weeks SIV, animals were administered daily ART consisting of rMPA and FTC. Samples were obtained from 16 females pre- and post-ART, 32 males pre-ART, and 16 males post-ART.

Results: Mean plasma viral loads 6-10 weeks post-SIV were significantly higher in CBA-exposed males and females, when compared to respective controls. In LN tissue reservoirs, proviral DNA levels were similar in CBA and control animals, but increased levels of viral RNA were observed in CBA LN. Following 4 weeks ART, plasma loads were signifi-
cantly reduced to similar levels in both groups. Likewise, SIV levels were reduced in LN, although higher levels of SIV-expression persisted in CBA animals compared to controls, indicating ongoing tissue expression. Comparison of male and female SIV loads demonstrated approximately 10-fold lower levels in females, reflecting sex differences in plasma and tissue loads among CBA and control groups.

Conclusions: Our results reveal that although similar numbers of LN cells harbor proviral DNA in CBA and control animals, CBA increases expression of SIV in tissues. The study highlights the negative impact that CBA has on viral expression in tissue reservoirs as well as viremia, despite the efficacy of ART. The differences in viral loads among male and female animals also emphasize the importance of sex as a variable in disease outcome.

WEPEA015
Novel signature mutations in the Tat protein are associated with ischaemic stroke: A case-control study of HIV-infected individuals in Cape Town, South Africa

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Background: The pro-inflammatory and neurotoxic effects of Tat protein variants have been investigated in HIV-associated neurocognitive disorders, but not in ischaemic stroke. The pathogenesis of HIV-associated endothelial dysfunction and risk factors for its progression to stroke are unclear. This study primarily sought to determine whether Tat variants are associated with stroke. The secondary aim was to describe HIV-related and unrelated factors that may independently or cumulatively increase ischaemic stroke risk.

Methods: A case-control study of HIV-infected individuals, 18-45 years, recruited in Cape Town, South Africa between 1st August 2010 and 30th June 2013. Viral epidemiology signature pattern analysis investigated amino acid variants in Subtype-C Tat exon 1 sequenced from peripheral blood of 58 individuals with acute ischaemic stroke and 71 controls. Functional studies of signature mutations were explored with the HIV Mutation Browser. Signature pattern analysis, clinical and laboratory data were compared with Fisher’s exact or Mann-Whitney tests.

Results: Stroke and control groups were mostly females (62.1%; 71.8%) of Black African ancestry, mean age 33 years. Replacement of alanine with proline at position 21, and lysine with histidine at position 29, were signature mutations associated with ischaemic stroke. These may impact on transactivation and chemotaxis of inflammatory cells. The most common causes of stroke were HIV-associated vasculopathy (43.1%) and opportunistic infections (22.4%). Individuals with stroke had a higher prevalence of treatment interruption (25.9% vs 0.0%, p<0.003), lower CD4 nadir (median 112 cells/microlitre vs 177 cells/microlitre, p<0.008) and CD4 count (median 208 cells/microlitre vs 323 cells/microlitre, p=0.002) than controls. Mean viral loads were elevated in both stroke and control groups (4.58, 4.13 log10 copies/mL, p=0.28). The stroke group had a higher prevalence of diabetes, increased fasting lipogram values, and greater pack-year smoking history than controls (all p<0.05).

Conclusions: Novel signature Tat variants are associated with stroke. These could alter HIV-related inflammation and contribute to HIV-associated vasculopathy. Celi-culture studies are needed to explore this finding. The progression of HIV-associated endothelial dysfunction to vasculopathy and stroke may be a multiple-hit phenomenon. A comprehensive approach is needed to address possible Tat-mediated inflammation. HIV disease severity, treatment interruption and conventional cardiovascular risk factors to prevent ischaemic stroke.

ABSTRACT BOOK · WWW.AIDS2018.ORG
WEPEA016
Increased KLRG1 and PD-1 expression on CD8 T lymphocytes in TB-IRIS

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Background: Tuberculosis-associated immune reconstitution inflammatory syndrome (TB-IRIS) is an inflammatory complication in HIV-TB co-infected patients receiving antiretroviral therapy (ART). In severely immunocompromised individuals, CD8+ T cells and NK cells are an important source of interferon-gamma for optimal antigen processing by innate cells. Nonetheless, the contribution of these cells to TB-IRIS development remains under-investigated. Here we studied the expression of exhaustion markers on lymphocytes at different intervals during ART.

Methods: We compared 9 HIV-TB patients who developed TB-IRIS with 9 patients who did not (HIV-TB). As age as 9 HIV-patients without TB (HIV-TB) and 18 HIV-negative controls (9 HIV-TB and 9 HIV-TB). Patients did not differ in age, gender, or CD4-count prior to ART. Frozen peripheral blood mononuclear cells, collected prior to ART and during 3 months and 9 months of ART, were thawed and analysed using flow cytometry. We examined expression of KLRG1 and PD-1 on CD4+ and CD8+ T-cells, as well as CD3-negative CD8dim lymphocytes as a proxy for natural killer cells.

Results: Prior to ART, TB-IRIS patients had higher percentages of CD8dim CD3dim T cells that are KLRG1+/PD-1- (p<0.02), PD-1+ (p=0.047), or both KLRG1+/PD-1- (p=0.012) compared to HIV-TB controls. Though PD-1 expression declined during ART in all groups (p≤0.023), the percentage of PD-1+, and CD3-/CD8- lymphocytes showed a similar pattern. Most evident in KLRG1 +/PD-1+ cells (p=0.020). In contrast, CD4+ T cells only showed a trend for higher percentages of PD-1+ cells (p=0.085) prior to ART, which was reversed by month 3 (p=0.070) due to a decline over time in TB-IRIS patients only (p=0.004).

Conclusions: TB-IRIS is preceded by a high level of exhaustion in CD8 dim T cells, which persists during 9 months of ART. While potentially mirrored by NK cells, CD4+ T cells did not show these characteristic differences. Whereas previous findings highlight a role for innate cells during TB-IRIS development, our current results now suggest that an over-stimulated/dysfunctional CD8+ lymphocyte compartment predisposes patients for this inflammation. The functional role of these cells prior to TB-IRIS development should be further explored.

WEPEA017
Enhancement of HIV-1 infection by buprenorphine

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Background: Medication-assisted treatment (MAT) with buprenorphine is now widely prescribed to treat addiction to heroin and other illicit opioids. There is some evidence that illicit opioids enhance HIV-1 replication and accelerate AIDS pathogenesis, but the effect of buprenorphine is unknown.

Methods: We obtained peripheral blood mononuclear cells (PBMCs) from healthy volunteers and activated them with phytohemagglutinin and interleukin 2 for 72 hours in the presence of morphine or buprenorphine. We determined the level of expression of CCR5 both by qPCR and flow analysis. We infected the cells with a replication-competent CCR5-tropic HIV-1 reporter virus encoding a secreted nanoluciferase gene, and measured infection by luciferase activity in the supernatants over time. We also surveyed opioid receptor expression in PBMC and vaginal leukocytes, as well as Langerhans cells derived from CD34+ hematopoietic stem cells, by qPCR.

Results: Buprenorphine increased HIV-1 infectivity at the three MOIs tested (0.1, 0.2 and 0.5) and over all tested periods (24, 48 and 72 hours; n=5 experiments, n=4 donors). For example, at 72 hours, HIV infection was three to six times higher in the presence of 2 nM buprenorphine (p<0.0001). Morphine also enhanced HIV-1 infection, but to a much lesser extent, and only at the higher dosage; this effect was variable across donors. At 100 µM morphine caused a 1.4-fold increase of infection after 72 hours (p<0.0001). Nonetheless, neither CCR5 mRNA levels nor CCR5 protein expression was affected by buprenorphine treatment. In none of the leukocyte types tested, we found expression of the classical opioid receptors (mu, kappa or delta), but the nociception/aphorin FP receptor (NOP also known as ORP1L) was present in blood and vaginal lymphocytes.

Conclusions: Our results suggest that buprenorphine, much more than morphine, increases the susceptibility of leukocytes to HIV-1 infection in vitro. Given that leukocytes do not express the classical opioid receptors, this increase in HIV susceptibility must occur through ORP1L on an unknown pathway. These findings are a first step toward understanding how opioids, including those used for MAT, affect HIV infection.

Systems biology approaches to HIV infection

WEPEA018
Signature of the storm: RNA-seq analysis of the extensive host transcriptome dysregulation caused by acute HIV-1 infection in a Mozambican cohort

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Background: HIV causes vast and lasting immune damage during acute infection. A deeper understanding of the earliest responses to HIV is required to inhibit destructive inflammatory pathways, prevent reservoir seeding, and enable vaccine development. To our knowledge, this study is the first to employ RNA-seq transcriptomic analysis on patient samples to characterise the human host response and elucidate the pathogenic mechanisms of early HIV-induced immune damage.

Methods: Individuals with acute HIV, defined by positive viral load prior to seroconversion, contributed samples of peripheral blood mononuclear cells in the initial month of their infection. RNA was extracted using a modified protocol for the RNeasy MiniElute Clean-up kit (Qiagen). Illumina 50bp single-end RNA-seq was performed, with read quality assessed using FastQC. Reads were aligned to human reference genome hg19 using HISAT. Alignment quality was assessed using Samstat. Quantification and normalisation of read counts was performed using summarizeOverlaps (GenomicAlignments package) and voom (limma package), both from Bioconductor. Statistical analyses were performed using R version 3.2.0 and Ingenuity Pathway Analysis.

Results: Acute HIV samples (n=7) had a mean estimated time since infection of 75 weeks (range 43.3-113 weeks), with median viral load of Log10 4.92 (IQR 4.48-5.49) copies/ml, and CD4 count of 595 (IQR 446.0-667.0) cells/ml. Gene expression profiles were compared with n=48 HIV-negative samples. RNA-seq resulted in an average of 23 million reads/sample, with 80% of reads mapped at high mapping accuracy. All samples passed pre- and post-alignment QC. Differential gene expression analysis identified 2500 significantly upregulated and 1722 significantly downregulated genes (adjusted P value < 0.05). The most significantly
Unlike previous transcriptomic studies in later stages of HIV infection, more gene upregulation during the early stages of HIV-1 infection, compared with HIV-negative controls.

**WEPEA020**

Use of gene edition by CRISPR/Cas9 of tnpo3 gene in CD4+ t cells to generate a cellular model impervious to HIV-1 infection

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**Background:** Transportin-3 (TNPO3), a karyopherin that mediates the nuclear entry of proteins with rich serine and arginine domains, is essential in HIV-1 infection. In 2013 it was discovered that a heterozygous deletion of a single nucleotide at the termination codon of the tnpo3 gene-encodes additional 15p4, causing a familial genetic disease called limb-girdle muscular dystrophies 1F (LGMD1F). The main objectives of this work were:

1) to determine if the lymphocytes of patients with LGMD1F are resistant to HIV-1 infection in vitro
2) to generate a cellular model with heterozygous and homozygous selective knockout of tnpo3 gene by gene editing using CRISPR/Cas9.

**Methods:**

1) PBMCs from 23 LGMD1F patients and 44 healthy donors were activated with CD3/CD28/IL-2 for 48 hours and then infected with NL4-3, renilla clone. The production of Renilla, the integration of the provirus and the synthesis of episomal forms (2LTRs) were analyzed 5 days post-infection.
2) RNA templates designed for the first exon of tnpo3 gene and cloned in vector lentCRISPRv2 were used to generate lentiviruses in triple-transfected 293-T cells with plasmids of VSV envelope (pPMG), packaging (p8.91_ex) and lentCRISV2. JLTRG_R5 cells were used to generate knock-out (ko) mutants for tnpo3.

**Results:**

1) PBMCs from patients with LGMD1F showed > 90% of resistance to HIV-1 infection ex vivo, compared to PBMCs from healthy donors used as control.
2) Proviral integration was 90% reduced and episomal forms were undetectable in the patients’ cells.
3) JLTRG_R5 cells were infected with lentCRISPRv2 to generate ko JLTRG_R5 for tnpo3, homozygous and heterozygous.
4) Stabilized ko JLTRG_R5_tnpo3+ cells showed complete resistance to infection by HIV-1 in vitro.

**Conclusions:** PBMCs from patients with LGMD1F who carry a microdeletion in a tnpo3 allele show resistance to HIV-1 infection ex vivo. The low detection of episomal forms and proviral integration suggest that restriction by this variant of tnpo3 occurs in the nuclear transport of the pre-integration complex. The cellular model generated in JLTRG_R5 cells by CRISPR/Cas9 reproduces resistance to HIV-1 infection and provides an invaluable tool for the analysis of essential steps in the viral cell cycle.

**WEPEA019**

Targeting viral infection frequency but not burst size is effective at extinguishing initial infection in a model of PrEP

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**Background:** Inhibition of viral infection can be broadly categorized into two mechanisms: reduction of cellular infection frequency, and reduction in the burst size of virosomes produced from an infected cell. These mechanisms should in theory be equally efficient in blocking new cellular infections. Using a combined computational and experimental approach, we set out to determine whether attenuating infection frequency or burst size as Pre-Exposure Prophylaxis (PrEP) would result in different probabilities to extinguish infection at drug concentrations where inhibition of HIV replication is incomplete.

**Methods:** We examined whether inhibition of burst size, by the protease inhibitor atazanavir, or infection frequency, by the reverse transcriptase inhibitor tenofovir, affected the outcome of PrEP in an in vitro cellular infection system. Both agents were used at concentrations not sufficient to completely block viral replication: infection in the presence of either drug resulted in a viral replication ratio of approximately 2. We used a branching process to model the probability of the infection becoming extinct.

**Results:** Tenofovir was effective in extinguishing infection in 67% of cases, significantly different from the no drug control (10%, p=0.0007 by ANOVA). In contrast, there was no significant difference in the frequency of terminated infections between atazanavir (4%) and the no drug control (p=0.99), as measured by detectable infection after the removal of drug. These results were consistent with our branching process model, and reproduced using in vitro infection of peripheral blood mononuclear cells from healthy donors.

**Conclusions:** Infection frequency but not burst size is effective at inhibiting initial infection in a cellular model of PrEP at suboptimal drug concentrations.

**Table 1. The most upregulated pathways during acute HIV-1 infection, compared with HIV-negative controls.**

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<th>Pathway Description</th>
<th>HDAC gene name</th>
<th>Log fold change</th>
<th>Adjusted P value</th>
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**Neurodegeneration**

**WEPEA021**

Neuropathological mechanisms of alcohol, SIV, and antiretroviral therapy: Enhanced susceptibility of the frontal cortex in rhesus macaques

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**Background:** Alcohol use represents a major exacerbating factor for HIV-related cognitive deficits, and persons living with HIV/AIDS (PLWHA) are more likely to be heavy alcohol drinkers. We hypothesize that pathological changes in the striatum and frontal cortex underlie alcohol- and HIV-associated cognitive deficits.

**Methods:** To investigate mechanisms whereby alcohol facilitates cognitive deficits in PLWHA, we developed and utilized a rhesus macaque model of chronic binge alcohol (CBA) exposure and simian immunodeficiency virus (SIV) infection (with and without anti-retroviral therapy, ART). We conducted gene expression analyses in the striatum and frontal cortex of male macaques as a neurobiological measure of potential neuropathology. As an extension of our work in males, we also measured alterations in cognitive behavior (via novel object recognition tests) and plan to measure gene expression in CBA/SIV/ART-administered female rhesus macaques, including an investigation of the contribution of ovarian hormones via inclusion of ovariectomized (OVX) animals.

**Results:** Our work in male rhesus macaques discovered that SIV infection is associated with greater inflammatory gene expression in the striatum and reduced growth factor signaling in the frontal cortex, while CBA administration is associated with reduced growth factor signaling in both the striatum and frontal cortex. Importantly, ART reduces inflammatory gene expression in both the frontal cortex and striatum, but does not ameliorate CBA-associated suppression of growth factor signaling. Our behavioral findings in female macaques indicate that CBA/SIV/ART/OVX animals demonstrate a reduced ability to discriminate a novel object compared to control (water-exposed and intact) animals, indicative of deficits in recognition memory. We also find that CBA/SIV/ART-administered animals spend significantly less time with the novel object relative to a familiar object, which may reflect either cognitive deficits or anhedonia-like behavior. Future gene expression analyses of female striatum and frontal cortex tissue will be directly compared with our findings in males.

**Conclusions:** Overall, our results are consistent with the increased prevalence of frontal cortex-associated cognitive deficits in PLWHA in the era of widespread ART and lead to the prediction that restoration of brain growth factor signaling may be beneficial for cognitive deficits in PLWHA who drink alcohol.

**Bimarkers and imaging**

**WEPEA022**

Investigating treatment plasma neurofilament light chain protein (NFL), a biomarker of neuronal integrity, following treatment interruption after 48 weeks of ART in primary HIV - the SPARTAC trial

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**Background:** Although antiretroviral treatment interruption (TI) is not recommended, it is used to test efficacy in HIV cure trials. A major concern is the impact of TI on neuronal injury in the central nervous system (CNS). Plasma neurofilament light chain protein (NFL) strongly correlates with cerebrospinal fluid (CSF) NFL, a sensitive biomarker of CNS neuroaxonal injury reported to be raised in untreated HIV. We investigate plasma NFL changes over time in SPARTAC, a randomised controlled trial with protocol-driven TI in primary HIV infection (PHI).

**Methods:** Plasma NFL was measured using an ultra-sensitive single molecule array (Simoa) digital immunoassay in samples from participants randomised to immediate ART for 48 weeks, at the following 3 time points: week 0 (prior to commencing ART), week 48 (after 48 weeks of ART) and week 60 (12 weeks post-TI). Changes in plasma NFL over time and associations with clinical parameters were analysed using linear regression and mixed models.

**Results:** Of 83 individuals included, median age was 34 years (IQR 27 - 41), 33/83 (40%) participants were female, median duration from seroconversion was 88 days (IQR 64-103) and participants were recruited from Europe 42/83 (51%), Africa 30/83 (36%), Australia 9/83 (11%) and Brazil 2/83 (2%). Plasma NFL was significantly higher prior to starting ART (week 0) compared to week 48 and week 60 (p=0.026 and p=0.025 respectively). No significant change in plasma NFL was noted between week 48 and week 60 (p=0.98). In multivariable analyses, higher baseline plasma NFL was associated with female gender, older age and higher HIV RNA but not CD4 or CD4/CD8 ratio.

**Conclusions:** Plasma NFL concentrations were raised in PHI, declined after ART was commenced and remained stable 12 weeks after TI. Based on plasma NFL as a surrogate marker, we have observed no evidence of increased neuroaxonal injury 12 weeks after the cessation of immediate ART for one year, initiated in PHI. Plasma NFL, along with other plasma biomarkers, may offer a non-invasive approach to monitor neuronal integrity in HIV cure studies.
Viral mechanisms of HIV/SIV persistence and latency

**WEPEA023**
Non-nucleoside reverse transcriptase inhibitor-based combination antiretroviral therapy is associated with lower cell-associated HIV RNA and DNA levels as compared with therapy based on protease inhibitors

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Background: It is unclear whether combination antiretroviral therapy (cART) regimens differ in their ability to suppress HIV replication. Here, we report the results of two cross-sectional studies that compared levels of HIV-virological markers between people living with HIV (PLWH) treated with NNRTI- and PI-based cART regimens.

Methods: Cell-associated (CA) HIV unspliced RNA and total CA HIV DNA were quantified by seminested qPCR in two cohorts of PLWH (n=100, n=124; 11 PLWH participated in both cohorts 7 years apart) with suppressed HIV infection on a three-drug cART regimen consisting of two nucleoside reverse transcriptase inhibitors (NRTI) plus either one NNRTI or one Intonavir-boosted PI.

Results: In the COBRA cohort, PLWH had a median of 99 months of continuous virological suppression. Levels of CA HIV RNA were 41 (15-97) and 76 (34-143) copies/µg total RNA in NNRTI- and PI-treated PLWH (n=88 and 36, respectively, P<0.019), and those of CA HIV DNA were 228 (93-546) and 372 (177-866) copies/10^6 PBMC (P<0.075).

Conclusions: In both cohorts, levels of CA HIV RNA and DNA were lower in PLWH receiving NNRTI-based compared to PI-based, cART regimens. As all current classes of antiretroviral drugs can only prevent infection of new cells but not inhibit HIV RNA transcription in infected cells, these results suggest that NNRTIs are more potent in suppressing HIV residual replication than PIs, resulting in a smaller viral reservoir size.

**WEPEA024**
HIV-1 Nef enhances the establishment and reactivation of inducible latent reservoirs

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Background: HIV-1 Nef modulates T cell signaling and may alter cellular activation status. To investigate Nef’s role during establishment and maintenance of latency, we examined the proviral DNA integration site and reactivation efficiency of latent HIV-1 T cell clones harboring functional or defective nef alleles.

Methods: Latent CEM-derived T cell clones (CLat) were generated using NL4.3ΔEnv viruses encoding Nef GFP fusion (WT), G2A or Nef-ires-GFP (WT, Val23, ΔNef). The proviral integration sites were determined using nested-inverse PCR and sequencing, and characteristics of the genomic location were examined using BLAT (UCSC Genome Browser). Early (GFP) and late (Gag-p24) reactivation events were assessed by flow cytometry at 24h following treatment with LRA (TNF-κ, panobinostat, or prostratin). For selected CLat clones, the nef allele was disrupted using CRISPR/Cas9 strategies.

Results: We generated a panel of 95 inducible CLat clones with linked HIV integration site and viral reactivation data. The distribution and characteristics of proviral integration sites differed between clones encoding functional Nef (N=54) compared to defective Nef (N=42). The absolute number (and proportion) of unique integration sites was higher among clones encoding functional Nef (N=21, 39%) compared to defective
Nef (N=5, 12%) (P=0.005). Integration of inducible proviruses encoding functional Nef was modestly enriched in protein-coding genes that are expected to be less transcriptionally active. Clones with identical integration sites displayed similar viral reactivation phenotypes and were grouped for analysis. Following LRA treatment, early (GFP) and late (Gag) reactivation events were elevated in CLat clones encoding NefKO-GFP compared to those encoding NefQKO-GFP. In addition, clones encoding ΔNef-ires-GFP did not produce Gag efficiently after LRA treatment. We confirmed these observations by disrupting the nef gene in four CLat clones encoding NefSF2-GFP or NefQKO-ires-GFP. The percent and intensity of Gag expression was reduced in all bulk NefKO cell lines. Variable reactivation phenotypes were observed in isolated NefSF2 clones, but the efficiency of reactivation notably lowered in NefKO clones compared to their corresponding parental CLat clone.

Conclusions: Our results highlight Nef's ability to modulate HIV reactivation response in response to LRAs. Data suggest that Nef broadens the repertoire of viable proviral integration sites to include less transcriptionally active genomic locations.

### Host cellular factors and latency

**WEPEA026**

**Therapeutic prediction of HIV-1 DNA decay: A multicenter longitudinal cohort study of chronically HIV-1-infected patients in China**


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**Background:** Factors predicting HIV-1 DNA reservoir size using total HIV-1 DNA in peripheral blood remain unclear in chronically infected patients under combination antiretroviral therapy (cART). Time-dependent variations were observed in the expression of cell associated unspliced HIV RNA (CA-US HIV RNA) in CD4+ T-cells isolated from blood. We hypothesised that circadian rhythms are exerting transcriptional control of latent HIV infection through direct interaction of the major circadian transcription factors CLOCK and BMAL1 with the HIV long terminal repeat (LTR).

**Methods:** The epithelial cell line, HEK 293T, were transfected with an HIV LTR-driven luciferase reporter construct in the presence and absence of CLOCK- and BMAL1-expression vectors. Activation of HIV-1 transcription was measured as an increase in luciferase expression. HIV LTR sequences containing mutations in each of the four E-boxes that could potentially bind CLOCK/BMAL1 complexes, were assessed individually or in combination. The latently infected reporter T-cell line, J-Lat Tat-ires-green fluorescent protein (GFP) clone A2, were also transfected by nucleofection to deliver CLOCK- and BMAL1-expression vectors. Activation of HIV-1 transcription was measured as an increase in CA-US HIV RNA and GFP expression.

**Results:** Transfection of the HIV-LTR driven luciferase reporter construct into 293T resulted in high luciferase expression in the presence of Tat (3713±123-fold induction). Transfection of CLOCK or BMAL1 alone failed to increase luciferase (1.26±0.6 and 1.22±0.9-fold induction, respectively), however, co-transfection of CLOCK and BMAL1 led to a significant increase in luciferase activity (3.56±0.25-fold induction). Mutation of E-boxes 1, 3, or 4 had no marked effect on luciferase expression following transfection of CLOCK/BMAL1, however, point mutations of E-box 2 led to a 68% reduction in luciferase expression. Similarly, the presence of CLOCK and BMAL1 together in J-Lat Tat-ires-GFP cells led to a two-fold increase in both GFP expression and CA-US HIV RNA.

**Conclusions:** The major circadian transcription factors CLOCK/BMAL1 activate transcription from the HIV LTR, which specifically requires the presence of an intact E-box 2 motif. These data are consistent with direct binding of the protein complex to the LTR. CLOCK/BMAL1 could potentially be exploited to reverse HIV latency.
Cellular and tissue reservoirs of HIV/SIV

**WEPEA027**

HIV reservoir size during treated primary infection is determined prior to ART initiation, and linked to viral burden and CD8 T cell activation

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**Background:** Initiation of antiretroviral therapy (ART) in early compared with chronic HIV infection is associated with a smaller HIV reservoir. Although both viral and immune factors may drive this effect, the role of T-cell immunity in primary HIV infection (PHI) is likely to be critical. In a large multi-parameter analysis, we investigated which pre- and post-therapy factors associate most closely with reservoir size following treatment initiation during PHI.

**Methods:** We studied 63 individuals (100% male; median age 34 [IQR 28-41] years) in the HEATHER cohort diagnosed with PHI and commencing ART a median of 49 [IQR 32-90] days from estimated seroconversion. Using flow cytometry, we measured the frequency of CD4 and CD8 memory subsets from PBMCs, expression of immune checkpoint receptors (PD-1, Tim-3, TIGIT), CD38 and transcription factors (IT-bet and Eomes). Clinical parameters (CD4 count, CD8 count, plasma viral load [pVL]) were recorded. Total HIV DNA was quantified in CD4 T-cells by qPCR. Assays were performed on samples from the earliest available pre-therapy time-point (baseline) and one year following ART initiation. Multivariable linear regression (with variables selected by dimension reduction and machine learning techniques) was used to determine predictors of HIV DNA at one year.

**Results:** The best predictors of HIV DNA after one year on ART were found pre-therapy. These were pre-ART HIV DNA (p<0.001) and longer time from ART initiation to pVL suppression (p<0.002). Pre-therapy HIV DNA was significantly associated with the percentage of pre-ART effector memory (EM) CD8 T-cells (p<0.001) as well as pre-ART pVL (p<0.002). Higher expression of both CD38 and TIGIT on CD8 T-cells had significant positive independent associations with baseline HIV DNA. The percentage of EM CD8 T-cells was the only parameter that had a relationship with 1-year HIV DNA when measured contemporaneously, but not independently from baseline HIV DNA level.

**Conclusions:** Levels of HIV DNA after one year of ART are determined by virological and immunological factors prior to ART initiation. Reservoir size is specifically linked to pre-ART viral burden (baseline pVL and time to suppression) and CD8 T-cell activation, supporting the targeting of early stages of infection for interventions to reduce the HIV reservoir.

**WEPEA028**

More differentiated and senescent CD32+ cells are associated to hiv reservoir size

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**Background:** The majority of cells harboring persistent HIV are contained in CD4 T-cells with particular phenotypes such as resting memory (TRM) or peripheral follicular helper (pTFH). However, few CD4 cells with these phenotypes are infected with HIV and the identification of a cellular marker associated with persistent HIV infection has remained elusive. Recently, a study has pointed out to CD32 as a potential surrogate biomarker of HIV-persistent CD4 cells. Herein, we have characterized the levels and phenotype of CD32+ cells contained in different CD4 T-cells subsets and its correlation with HIV-reservoir levels in HIV-infected patients.

**Methods:** Thirty HIV-infected patients were included: 10 typical progressors without ART (TP), 10 TP on ART (TX) and 10 elite controllers (EC). HIV-DNA content was quantified in two CD4 T-cells subsets: TRM and pTFH. CD32 along with activation, maturation, senescence, apoptosis and exhaustion markers were measured in TRM and pTFH by flow cytometry. Differences between groups were tested by non-parametric tests and associations by Spearman’s rho coefficient.

**Results:** HIV-DNA levels in both TRM and pTFH subsets were lowest in EC and highest in TP (p<0.001 and p=0.003 for TRM and pTFH, respectively). However, there were no differences between different groups of patients in the level of CD32 expression neither in TRM (p=0.627) nor in pTFH (p=0.572). Moreover, in the whole population of HIV-infected patients there was no significant correlation between the level of HIV-DNA and the level of CD32 expression neither in TRM (rho=0.259, p=0.176) nor in pTFH (rho=0.386, p=0.092) cells. However, in TRM the HIV-DNA level was significantly correlated with the level of CD57 (rho=0.511, p=0.005), CD28 (rho=-0.380, p=0.042) and CD127 (rho=-0.545, p=0.002) markers on CD32+ cells.

**Conclusions:** Our data suggest that among CD32+ cells, those with a more differentiated and senescent phenotype could be enriched in cells harboring persistent HIV. However our results do not support measurement of CD32 as a surrogate marker of reservoir size in HIV patients. Further studies with larger cohorts of patients are needed to validate these and previous results, including an analysis of certain markers expressed by CD32+ cells that could improve the utility of this marker in the clinical setting.

**WEPEA029**

HIV infection of Schistosoma mansoni

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**Background:** Schistosomiasis is a major helminthic disease affecting over 200 million people, mostly in developing countries in Africa, East Asia and South America. The areas where schistosomiasis is prevalent overlap with those affected by HIV epidemic, particularly in sub-Saharan Africa, but the interactions between these two infectious agents have not been characterized. We previously reported that VSV-G-pseudotyped HIV-1 can infect, reverse transcribe and integrate into the genome of Schistosoma mansoni (Subtippra et al., PLoS Pathog. 2016 12: e1005931), but the physiological relevance of this finding remained uncertain. We now provide evidence that wild-type HIV-1 can enter cells of S. mansoni, and that the contents of exosomes shed by the infected worms include HIV-related factors.
Quantifying HIV/SIV reservoirs and rebounding virus

**WEPEA030**

**Remarkable stability in size and composition of the latent reservoir over two decades of ART**

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**Background:** Despite suppression of replication by antiretroviral therapy (ART), HIV persists as a DNA reservoir which forms the major obstacle to HIV cure. The relative contribution of T-cell subsets to the viral reservoir over decades of ART is currently unknown. It has been postulated that over time the viral reservoir will shift towards the most differentiated T-cell subsets ("push and vanish").

**Methods:** Blood samples were obtained from 7 patients who are effectively suppressed with ART since 1996. Samples were taken at ART initiation and 1, 10 and 20 years post-initiation. PBMCs from large blood draws (500 mL) 10 and 20 years post-initiation were sorted into naive (Tn), central memory (Tcm), transitional memory (Ttm) and effector memory (Tem) CD4+ T-cell subsets. HIV DNA in PBMCs and T-cell subsets was quantified using a digital droplet PCR (ddPCR) assay targeting the HIV-LTR region.

**Results:** In the first year of ART, a significant reduction in the average HIV DNA load in PBMCs was observed (from 3260 to 794 LTR copies/10^6, p=0.018). After the first year of ART, HIV DNA remained stable for two decades (1039 LTR copies/10^6 after 10 years and 1027 LTR copies/10^6 after 20 years). Taking into account differences in T-cell subset abundance, contributions of Tcm and Ttm to the total reservoir were significantly higher than Tn and Tem (p < 0.0001 and did not change over time. Tem infection frequency was higher (average 663 LTR copies/10^6) than other T-cell subsets (952, 3424, and 4211 for Tn, Tcm and Ttm, respectively) and these differences remained unaltered over time. Tem infection frequency was negatively correlated with CD4-count at ART-initiation (p=0.048) whereas Tn, Tcm and Ttm infection frequencies negatively correlated with CD4-count at sampling (p = 0.023, 0.024, 0.031, respectively).

**Conclusions:** HIV DNA levels in PBMCs do not decline after the first year on ART. T-cell subset infection frequencies and contributions to the total reservoir were also stable over 20 years of ART. These observations indicate that treatment alone does not shift the viral reservoir towards the most differentiated T-cell subsets as was anticipated in the so-called "push and vanish" eradication strategy.
WEPEA032

Developing strategies to image HIV in vivo: Combining the sarcophagine chelator MeCoSar to 3BNC117 does not affect HIV binding or neutralisation

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Background: Non-invasive methods to detect and quantify HIV persistence in tissue and assess cure-focused interventions in HIV-infected individuals on antiretroviral therapy (ART) are needed. Infusing radiolabelled broadly neutralising antibodies (bNAbs) targeting HIV envelope (Env) then scanning with positron emission tomography (PET) identified affected tissues sites in a macaque model. Prior to a clinical trial bNAb binding to its Env target with the addition of a next generation bifunctional chelator needs to be confirmed in vitro.

Methods: The bNAb 3BNC117 was reacted with different molar ratios (5x, 10x, 15x, 20x) of the sarcophagine copper chelator MeCoSar-NH2 and the resulting conjugates were assayed by size exclusion chromatography (SEC) and liquid chromatography-mass spectrometry (LC-MS) and the optimal molar ratio selected. Unlabelled and MeCoSar-modified 3BNC117 were then assessed for neutralisation capability of reporter viruses pseudotyped with 3 subtype B Env strains in JC53 cells, and assessed for binding using 2 assays: 1) ELISA to immobilised Env (gp140) and 2) to Env presented on the surface of human embryonic kidney cells transfected with an Env expression plasmid. The 50% inhibitory concentration, colorimetric absorbance and flow cytometry were used to compare unlabeled and MeCoSar-modified 3BNC117 to the 3 assays respectively.

Results: Different molar ratios of MeCoSar bound to 3BNC117 yielded SEC with similar elution profiles to IgG and unmodified 3BNC117. The predominant peak for unmodified 3BNC117 mass on LC-MS was 151467 Da and when combined with 10x molar ratio clearly demonstrated the addition of 1.2 and 3 MeCoSar (410 Da each) per 3BNC117, 10x molar ratio was then selected to assess HIV binding and neutralization. Unlabelled and MeCoSar-modified 3BNC117 had comparable levels of binding to immobilized gp140, binding to Env expressed on the surface of 293T cells, and neutralisation of reporter viruses pseudotyped with 3 different Env.

Conclusions: The copper chelator MeCoSar conjugates to 3BNC117 and does not interfere with binding to HIV Env or neutralisation in vitro. MeCoSar is appropriate to combine with 3BNC117 and is known to tightly bind the radioisotope copper-64. This construct is ideally suited to continue development for use in a clinical trial using PET to detect HIV persistence on ART.

Impact of co-factors (e.g. viral clade, tropism, genetic factors) on disease progression

WEPEB033

Cardiac vagal tone is low in HIV+ women and correlates with markers of immune activation/inflammation


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Background: Respiratory sinus arrhythmia (RSA), the high frequency component of heart rate variability, is widely used as a noninvasive measure of vagal tone representing parasympathetic influence on cardiac regulation. Lower RSA has been associated with female sex, older age, viral infection, and inflammation. We therefore sought to determine whether RSA differs by HIV and viral suppression status and its association with inflammatory/immune activation markers among middle HIV-infected (HIV+) and demographically similar uninfected (HIV-) women.

Methods: Between October 2014 and February 2016, we collected 45 minutes of continuous ECG recordings using the Actiwave monitor across 5 consecutive rest and challenge conditions from 107 HIV+ and 47 HIV- Chicago Women’s Interagency HIV Study (WHIS) participants. Cardiac data was edited and RSA calculated using proprietary software. RSA was quantified during sequential 30-second epochs within each 3-minute rest period, averaged, and then the mean of all resting RSA values was used in analyses. Descriptive variables and blood were collected during same day WHIS visits. Plasma ultra sensitive (us)CCR5 and TNFαR1, soluble (s)CD14 and sCD163 were measured using commercial ELISA. We evaluated correlations between RSA, HIV/viremia status, and plasma biomarkers.

Results: Women were predominantly black (85%), age 40-59 (64%), poor (76% > $18k), unemployed (73%), obese (43%), current smokers (59%) with limited education (40% < high school) and unstably housed (28%) with no significant difference by HIV status. Among HIV+ women, 77% were on HAART/TVG% adherence, 24% were viroemic. Resting mean (m)RSA was significantly lower in HIV+ compared to HIV- women (4.92 vs. 5.47, p < 0.03) but there was no statistically significant RSA difference by viremia status. Lower mRSA among HIV+ women significantly correlated with higher sCD14 and TNFαR1 (r = 0.57, p = 0.03) as well as higher sCD163 (r = 0.39, p = 0.003).

Conclusions: In midlife women, cardiac vagal tone is lower in HIV+ women. Lower cardiac vagal tone appears to interact with HIV leading to higher levels of immune activation/inflammation. Assessing RSA and promoting interventions to strengthen cardiac vagal tone (ie. exercise, deep breathing, yoga) may benefit women aging with HIV.
WEPEB034
Impact of antirretroviral treatment on low level viremia in HIV infected patients
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Background: There are patients where complete control of viral load is not achieved. The causes of low-grade viremia (LLV) are still unknown. The objective was to assess the impact of antiretroviral therapy (ART) on LLV in suppressed HIV infected patients.
Methods: We analyzed adults, naïve to ART from the cohort of the Spanish-AIDS Research-Network (CoRIS) who initiated ART from 2004 to 2015 and achieved viral load (VL) <50 copies/ml within 3 months after initiation. LLV50-199 was defined as two consecutive VL between 50 and 199 copies/ml, and LLV200-499 as two consecutive VL between 50-499 copies/ml with at least one between 200-499 copies/ml. To assess the effect of ART we used an intent-to-treat approach and, thus, ignored subsequent changes in treatment, including treatment interruptions and terminations.
ART were divided into 4 categories:
(1) 2Nucleoside-Reverse Transcriptase Inhibitor (NRTI) + Non-Nucleoside-Reverse Transcriptase Inhibitor (NNRTI),
(2) 2NRTI+Protease inhibitor boosted with ritonavir/cobicistat (PI),
(3) 2NRTI+Integrase inhibitor (II), and
(4) other.
Results: Of 5986 patients included, 2374 (40%) experienced at least one episode of LLV50-199 and 168 (2.8%) experienced LLV200-499. Median follow-up time was 35 (IQR: 15 - 55) years in patients not experiencing LLV. 49 (IQR: 35 - 70) in patients experiencing LLV50-199 and 63 (IQR: 48 - 83) in those experiencing LLV200-499. In multivariable analyses, HIV viral load at cohort entry higher than 100,000 copies/ml [Relative risk (RR) 2.15; 95% confidence interval (CI): 1.37 - 3.37], male gender (RR: 2.2; CI95% 1.2-3.9) and ART regimen with non-RNRTI/pi (RR: 1.61; 95% CI 1.1-2.34) were associated with LLV50-199 copies/ml. ART regimen with 2NRTI+Pi (RR: 2.15; 95% CI 1.37-3.37) was associated with LLV200-499 copies/ml. PI regimens based on darunavir boosted with ritonavir/cobicistat (DRV) were compared to those containing PI other than DRV. After adjusting, DRV based regimens were not associated with LLV (RR: 0.16; CI95% 0.03-0.73). Conclusions: In this Spanish cohort, the specific ART regimen was an independent risk factor for the development of low-level viremia. High viral load at cohort entry, male gender and ART regimens based on protease inhibitors other than darunavir had the highest risk.

WEPEB035
Toll-like receptor 4 polymorphism influence the faster HIV progression
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Background: Toll-like receptors (TLRs) play an important role in the innate immune response. The TLR4 is an essential component of the innate immune response to various microorganisms. We investigated the impact of TLR4 polymorphism on rapid CD4 decline and development of AIDS defining illness.
Methods: The presence of TLR4 Asp299Gly single nucleotide polymorphism was determined in a cohort of 194 antiretroviral treatment-naïve HIV-1 infected patients TLR4 genotyping was performed by real-time PCR. We used survival analysis (Cox regression). Two outcome measures related to faster HIV progression were considered - decline CD4 cells to < 350/ml and occurrence of AIDS defining illness.
Results: One hundred seventy-six patients were homozgyous for the wild-type genotype (AA); 18 patients (9.3%) were heterozygous for the Asp299Gly (AG).
Faster development of AIDS was associated with Asp299Gly TLR4 polymorphism (HR: 3.45; 95% CI (1.12-10.3)). nadir CD4 count> 350/ml (HR: 4.15; 95% CI (1.26-9.38) and duration HIV-infection 3 years. Faster decline of CD4 count to < 350/ml was associated with age>35 years (HR: 5.95; 95% CI (2.16-17.6)), intravenous drugs abuse (HR: 2.85; 95% CI (1.54-4.61) and Asp299Gly TLR4 polymorphism (HR: 2.22; 95% CI (1.05-4.22)). AG polymorphism was associated with more frequent development of the opportunistic infections, such as active tuberculosis (OR: 5.71; 95% CI (3.92-12.44), herpes zoster (OR: 2.83; 95% CI (1.11-5.59) and toxoplasmosis (OR: 6.23; 95% CI (1.19-18.67) compared with genotype AA.
Conclusions: This study suggests a greater risk of developing of faster HIV-progression in patients with the Asp299Gly TLR4 polymorphism.

WEPEB036
Interferon lambda polymorphisms associated with normalized CD4+CD8+ in treated HIV
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Background: Type III interferon lambda (IFNL) members play important roles in both innate and adaptive immunity against viral pathogens, promoting a shift from Th2 to Th1 responses. Single nucleotide polymorphisms (SNPs) at the IFNL locus have been associated with treatment-induced and spontaneous clearance of hepatitis C virus (HCV) infection; however, whether IFNL polymorphisms impact on host immune responses to HIV-1 infection remains unclear.
Methods: In a prospective cohort of ambulatory, HIV-1 positive subjects on effective antiretroviral therapy (ART) with HIV RNA < 40 copies/ml, we examined expanded T-cell subsets by flow cytometry on fresh EDTA blood to determine CD4+ and CD8+ T-cell subsets; CD45RO+CD26+ (central memory), CD45RO+CD26- (effector memory) and CD45RO-CD26+ (naïve alongside absolute and percentage CD4+ and CD8+ counts. Genomic DNA was extracted from stored buffy coats and IFNL genotyping performed for the following IFNL SNPs by allelic discrimination real-time PCR: rs368234815(T/T:AG), which introduces a frameshift permitting IFNL4 expression; rs11764844 (G/A), which gives rise to a P705 substitution in IFNL4 and rs12079860 (C/T), which lies in an IFNL4 intron and is in moderate to high linkage disequilibrium with rs368234815. We explored associations between specific SNPs and CD4+ and CD8+ ratio normalisation (>1) and specific CD4+ and CD8+ T-cell subsets using linear regression analysis.
Results: Of 143 subjects, 63.6% were male, 65.7% Caucasian and 23% had a CD4+CD8+ ratio ≥ 1. The majority of subjects were on ART (90.2%) and 79% of the cohort had undetectable HIV RNA. Subjects with rs368234815 AG/AG minor homozygosity were significantly more likely to attain a CD4+CD8+ ratio >1 (OR [95% CI] 3.11 [1.01:9.56]). In a subset of 71 HCV antibody negative, virally suppressed PLWH, rs368234815 minor homozygosity was significantly associated with a higher percentage of naïve CD8+ T-cells (regression coefficient: 7.17, p < 0.05) compared to the T/T genotype.
Conclusions: This, the first study to report associations between type III IFNs and immunological responses in chronic HIV, suggests an important role for host IFNL4 function in driving better immune responses to ART.
Morbidity, mortality and life expectancy in clinical research

WEPEBo37
High inpatient mortality from tuberculosis persists despite increasing antiretroviral therapy coverage in Botswana

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Background: In Botswana, where adult HIV prevalence is 22%, antiretroviral therapy (ART) coverage reaching 84% has reduced HIV/AIDS-related mortality. However, few ART-era studies describe mortality in the hospital setting, where most deaths occur. Our objective was to describe mortality due to HIV status among medical inpatients at Scottish Livingston Hospital (SLH), a district hospital in Botswana.

Methods: We prospectively reviewed admissions to the SLH medical wards and recorded outcomes from December 2015-July 2017. We compared data with chi-square or t-test and evaluated risk factors for mortality using modified Poisson regression to estimate risk ratios and 95% confidence intervals, adjusting for age and sex. Results were compared with similar 2011-2012 SLH surveillance data.

Results: 2,108 admissions occurred among 1,803 patients; 42% of patients were HIV+, 46% were HIV-, and 12% had unknown HIV status. Compared with HIV- patients, HIV+ patients had similar sex (47% male), younger age (mean 44 vs. 59 years, p<0.001), and fewer comorbidities (p<0.001). In total, 424 (20%) admissions resulted in death, and death was more common among HIV+ patients (22% vs. 18%, p<0.001). Table 1 shows risk factors for death per admission among HIV+ patients. Clinical or laboratory diagnosis of tuberculosis was associated with the highest mortality in both groups, but accounted for a higher proportion of deaths among HIV+ patients (21% vs. 8%, p=0.001). Bacterial pneumonia and gastroenteritis were the next most common diagnoses associated with mortality among HIV+ patients, compared with heart failure and cerebrovascular events in HIV- patients. Compared with similar surveillance at SLH in 2011-2012, HIV prevalence was lower (43% vs. 48% of admissions, p=0.02), and amongst HIV+ patients, ART coverage was higher (66% vs. 52%, p<0.0001), mortality was similar (22% vs. 21%, p=0.03), tuberculosis diagnoses increased (27% vs. 20%, p<0.01) and tuberculosis mortality was higher (36% vs. 25%, p=0.03).

Conclusions: Despite high ART coverage in Botswana, HIV+ patients continue to be disproportionately represented among hospital admissions and deaths. Deaths from tuberculosis appear to contribute to lack of reduction in inpatient mortality. Our findings suggest that control of HIV and tuberculosis remain top priorities for reducing inpatient mortality in Botswana.

WEPEBo38
Drug overdose is the most common cause of death among HIV infected people in Estonia

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Background: In Estonia, the HIV epidemic started with an outbreak among people who inject drugs in the early 2000s. Few people were diagnosed with HIV before year 2000 (n=96). According to national statistics, 606 people with HIV have died since 1994. Through linking data across healthcare registries, we aim to attain a more comprehensive understanding of mortality among persons diagnosed with HIV.

Methods: All healthcare records including an HIV diagnosis and a national identification-code were extracted from the following databases and periods: Estonian Health Insurance Fund (EHIF) (covers >94% of the population), 2000-2016; Health Board (passive HIV surveillance), 2010-2016; Prisons healthcare, 2008-2016. Data on deaths were obtained from the national Death Registry (main cause of death was analysed). Survival is calculated from the person’s first HIV related healthcare record (date of the new HIV case report or the first HIV related healthcare visit).

Results: Between 2000 and 2016, we identified 7518 people with an HIV diagnosis. Among these, 47% (n=4373) were men, median age at HIV presentation was 28.1 years (IQR 23.4 - 35.2), 72% (n=5380) presented with a viral load >1000 copies/ml, 19% (n=1418) with the clinical latency stage (ICD-10 B23.1, Z21), and 19% (n=1167) with tuberculosis. Despite decreasing ART era-related mortality, we observed that tuberculosis mortality was higher (36% vs. 25%, p<0.05). In total, 2234 (29.7%) deaths occurred from 2000-2016. The most common causes of death were drug overdose (35.2%), heart disease (14.5%), and liver disease (9.4%).

Conclusions: Despite high ART coverage in Estonia, HIV+ patients continue to be disproportionately represented among hospital admissions and deaths. Deaths from tuberculosis appear to contribute to lack of reduction in inpatient mortality. Our findings suggest that control of HIV and tuberculosis remain top priorities for reducing inpatient mortality in Estonia.

Table 1. Risk factors for death per admission among HIV+ patients at Scottish Livingston Hospital, Botswana, 2015-2017

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>HIV+</th>
<th>HIV-</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>41 ± 15</td>
<td>46 ± 14</td>
<td>0.03</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>331 (75%)</td>
<td>146 (72%)</td>
</tr>
<tr>
<td>HIV presentation</td>
<td>Median 28.1 years (IQR 23.4 - 35.2)</td>
<td>Median 33.4 years (IQR 29.4 - 38.8)</td>
<td>0.001</td>
</tr>
<tr>
<td>Survival since</td>
<td>Median 12.9 years (IQR 10.4 - 15.3)</td>
<td>Median 14.2 years (IQR 11.7 - 17.4)</td>
<td>0.04</td>
</tr>
<tr>
<td>Causes of death</td>
<td>Cancers</td>
<td>24%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Cardiovascular diseases</td>
<td>22%</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>Infectious and parasitic diseases</td>
<td>31%</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Hepatic and liver diseases</td>
<td>20%</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>External causes</td>
<td>13%</td>
<td>14%</td>
</tr>
</tbody>
</table>

(Figure. Annual cause specific number of deaths among HIV diagnosed people in Estonia in 2000-2016)
**WEPEB039**

**Incidence, timing and outcome of IRIS in relation to specific opportunistic infections - the ATHENA cohort study**

IE A Wijting1, F.W.N.M. Wit1, C. Roki1, M.E. van der Ende1, P. Reiss1, B.J.A. Rijnders1, on behalf of the ATHENA national observational HIV cohort

**Methods:** Observational study in the ATHENA-cohort. IRIS case-finding by chart review was done for all CART-naive patients starting CART between 03-2009 and 03-2017 if they were considered at risk for IRIS according to the following criteria: (1) pre-CART CD4 < 200 cells/mm3 and (2) either an OI diagnosis before or shortly after CART initiation, or died, or received systemic corticosteroids < 12 months after CART initiation. IRIS was defined according to predefined criteria as described by French et al. We evaluated the risk for developing IRIS for the following OIs: PCP, TB, MAC, CMV, Kaposi's sarcoma (KS), cerebral toxoplasmosis (Toxo), and cryptococcal meningitis (CM). We also evaluated the risk of receiving corticosteroids, rehospitalization, and mortality after CART-initiation in patients diagnosed with and without IRIS.

**Results:** We identified 672 patients at risk for IRIS with a median CD4 count of 34 cells/mm3 and 15 OI per patient at HIV-diagnosis. 75 (11.2%) developed IRIS. Compared with the overall study population, those diagnosed with MAC (OR 5.59 (95%CI 2.43-12.82), p < 0.001), TB (OR 2.63 (1.23-5.19), p < 0.01), and CM (OR 3.21 (1.11-9.27), p = 0.03) were at increased risk of IRIS while those diagnosed with PCP, KS, Toxo, or CMV were not. Patients with IRIS were rehospitalized more often (OR 2.78 (1.66-4.65), p < 0.001) and longer (+6 days) and tended to receive corticosteroids more often (OR 1.67 (1.05-2.64), p = 0.08). The overall 1-year mortality in patients with or without a IRIS was comparable (9.3% versus 9.5%).

**Conclusions:** Compared with other OIs, MAC, TB, and CM were associated with an increased risk of IRIS. Furthermore, IRIS was associated with an increased risk for rehospitalization but not associated with mortality. IRIS in patients with PCP was diagnosed earlier than IRIS observed with other OIs.

**WEPEB040**

**Successful discontinuation of itraconazole for secondary prophylaxis of talaromycosis in patients with HIV in Myanmar**

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1Medical Action Myanmar, 2Medical Coordination Department, 3Yangon, Myanmar, 4Myanmar Oxford Clinical Research Unit, 5HIV/TB Research Unit, Yangon, Myanmar, 6Myanmar Oxford Clinical Research Unit, Yangon, Myanmar

**Methods:** We conducted a retrospective cohort analysis of patients identified with Talaromycosis among HIV patients between June 2009 and June 2017. The diagnosis was made clinically, where possible it was confirmed by Giemsa stained skin-slit smear. Most patients were treated with amphotericin for 2 weeks, followed by itraconazole (400 mg od) for 8-10 weeks, and itraconazole (100mg od) for secondary prophylaxis until the patient is stable on HAART for more than 1 year with a CD4 count greater than 100 cells/ul.

**Results:** Among 5,456 HIV patients, 46 patients were diagnosed with Talaromycosis. The skin smear was positive in 39 (85%) patients. Median CD4 was 24 (IQR 14-40). 34 (72%) of patients were male (53% of all HIV patients were male) and 29 (63%) were diagnosed with Talaromycosis before starting HAART. The most common clinical findings at presentation were anaemia (92%), umbilicated skin papules (85%), and hepatomegaly (85%). Median temperature at presentation was 38.0 (IQR 37.3-39.0). 31 (67%) patients were receiving TB treatment at Talaromycosis presentation. Median amphotericin treatment length was 14 days (IQR 13-14 days) and median itraconazole treatment length was 329 days (IQR 196-455 days).

9 (20%) patients died, with a median time to death of 106 days (IQR 94-168 days). 33 (72%) patients recovered from illness. Median follow up of all patients was 2.9 years (IQR 0.8-5.5 years). 25 patients discontinued secondary prophylaxis and none of these patients experienced a relapse (total person years after discontinuation of secondary prophylaxis = 75.2, median 2.2 (IQR 1.6-5.6). The overall 1-year mortality in patients with or without a IRIS was comparable (9.3% versus 9.5%).

**Conclusions:** Secondary prophylaxis was stopped in 25 patients without negative consequences. This finding contributes to the mounting evidence that secondary prophylaxis can be discontinued safely after patients are immunologically reconstituted.

**Tuberculosis**

**WEPEB041**

Utility of gene Xpert MTB/RIF as a screening assay for tuberculosis in HIV-infected patients from a rural setting of Rakai district, Uganda

R. Muwanika

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**Methods:** We conducted a retrospective cohort analysis of patients diagnosed with HIV in Rakai district from April 2014 to May 2017 for 36 health facilities. All patients collected sputum samples from HIV infected patients and
referred them through a trained sample transporter to the district hub Laboratory for testing. Lessons learned: Among the 1221 sputum samples collected, 1163 (95.3%) were smear microscopy negative while 58 (4.7%) were smear microscopy positive. All the samples were forwarded for gene X-pert testing. Among the 1163 smear negative presumptive TB patients, 61 (5.25%) had MTB on gene X-pert. Among the 58 smear positive patients, MTB was detected in 55 (94.83%) patients. The sensitivity and specificity of gene Xpert was 47.4% (65/116) and 99.7% (1102/1165) respectively. The positive and negative predictive values were 94.8% (55/58) and 94.8% (1102/1165) respectively.

Conclusions/Next steps: The gene Xpert MTB/RIF assay improved the detection of 61 (52.59%) MTB cases. These would have missed treatment if smear microscopy alone was used. More MTB/RIF machines are needed at lower health facilities with high patient volumes to increase the case detection rate of MTB.

**WEPEB042**

Performance of a simple flow cytometric assay in the diagnosis of active TB


Background: The performance of a flow cytometric assay that measures Mycobacterium tuberculosis (MTB) specific memory CD4 T cell responses using CD25 and CD134 surface coexpression (OX40 assay) was explored as a potential diagnostic for patients being investigated for active tuberculosis (TB) when sputum microscopy alone was used. More MTB/RIF machines are needed at lower health facilities with high patient volumes to increase the case detection rate of MTB.

Methods: Cryopreserved peripheral blood mononuclear cells (PBMC) from 133 participants collected at their first clinic visit were selected from 2 populations. 76 participants with definitive final diagnosis of TB defined as a confirmatory of TB culture and clinical diagnosis judgment by physicians and 57 participants without TB. Memory CD4 T cell responses were evaluated by measuring co-expression of CD25 and CD134 on CD4 T cells after stimulation with several MTB antigens (CFP-10 and ESAT-6 peptides, PPD and combination peptides of CFP-10 + ESAT-6 combined RD-1); OX40 assay. These were compared to the results of the sputum based Xpert MTB/RIF assay. The OX40 assay and Xpert MTB/RIF assays’ sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) with 95% confidence intervals (CI) were calculated.

Results: The median age was 42 years (IQR: 31.7-57.7). 87 (65.9%) were males. The majority were new TB cases; with 36 cases (27%) were re-treatment cases. 54 of 133 participants (33.1%) had HIV.

The overall sensitivity of the OX40 assay was 94.7 CI: 87-98.9%. In HIV seropositive cases, the sensitivity was 100 CI, 88.1-100%, whereas in HIV-negative cases was 91 CI, 78.8-97.5%. By comparison, the overall sensitivity of Xpert MTB/RIF was 90.8 CI, 81.9-96.2%. The specificity of the OX40 assay was 71.9 CI, 58.5-83% whereas the Xpert MTB/RIF was 94.7 CI, 85.4-98.6%. The positive predictive value (PPV) of the OX40 assay was 81.8 CI, 72.2-92.2% and the PPV of Xpert MTB/RIF was 95.8 CI, 83.9-99.1%. The negative predictive value (NPV) was 91 CI, 78.8-97.5% and the NPV of Xpert MTB/RIF was 88.5 CI, 77.8-95.3%.

Conclusions: Using OX40 assay for the diagnosis of active TB in Southeast Asia with high TB and HIV burdens could be highly beneficial for immediate diagnosis and treatment of TB, especially for those who have difficulty providing sputum or have extrapulmonary TB.

**WEPEB043**

Incidence of tuberculosis among household contacts of pulmonary TB patients in northern Nigeria: A prospective study


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- Save the Children International, STEER Project, Kano, Nigeria
- Save the Children International, STEER Project, Lagos, Nigeria
- Save the Children International, STEER Project, Calabar, Nigeria
- Save the Children International, STEER Project, Abuja, Nigeria
- SCUS, OVC STEER, Washington, United States

Background: Tuberculosis (TB) has remained a public health problem globally and in Nigeria despite the availability of treatment. Contacts of smear positive TB patients are at higher risk of acquiring either active TB or TB infection. This study seeks to determine the incidence of Tuberculosis among Household contact of pulmonary TB patients in two states in Northern-Nigeria.

Methods: This prospective study was carried out from January to September, 2017 in 64 Local Government Areas of Kano and Bauchi states where community Childhood TB care (CTBC) was integrated into an existing USAID funded project; the Systems Transformed for Empowered Actions and Enabling Responses (STEER) for Orphans and Vulnerable Children. Household contacts of smear positive Tuberculosis patient were screened using the standard National contact tracing tool and all presumptive TB cases were referred to DOTS centers for testing using the combined method of gene Xpert, Microscopy and Chest X-ray. The study covered 3796 index cases including 3457 adults and 339 children. The age bracket for children in this study was between 11-18 years old as applicable for Orphan and Vulnerable Children (OVC) programming although the National TB classifies all children above 15 years old as adult. The 3796 index cases included in this study were in contact with 183752 persons approximately 36750 Household comprising 96015 adults and 11777 children.

Results: Of the 183752 contacts of the index cases screened, 12396 presumptive TB cases were identified with 707 confirmed as TB cases. This represent an incidence of 386 per 100,000 populations which is higher than the estimated National incidence of 219 per 100,000 in 2017. Adult household contacts were more commonly infected (554 per 100,000 adults) than children who were contacts (199 per 100,000 children) with a relative risk of 2.8 (95%CI: 2.4 - 3.3). Furthermore, of the 707 contact diagnosed with TB, 23 (3.3%) tested positive to HIV.

Conclusions: The incidence of TB among household contacts of TB patients is high in Northern-Nigeria with adult contacts at greater risk than children. Active screening of household contact of TB patient should be prioritized to reduce the burden of TB in this region.

**WEPEB044**

One year follow up of HIV+ patients in Mozambique with and without tuberculosis at baseline


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- National Center for Global Health, Istituto Superiore di Sanità, Rome, Italy
- IrsiCaixa – Institute for AIDS Research, Hospital Germans Trias i Pujol, Badalona, Spain
- Community of S. Egidio, Rome, Italy
- LUMSA University, Rome, Italy
- Save the Children International, STEER Project, Lagos, Nigeria
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- Save the Children International, STEER Project, Abuja, Nigeria
- SCUS, OVC STEER, Washington, United States

Background: Tuberculosis (TB) is a major cause of morbidity and mortality in many African countries, especially in HIV+ patients, with important economic and public health consequences. Integrated strategies for HIV and TB diagnosis and care are being implemented, but information on their impact in terms of mortality is still limited.

Methods: This study was conducted in the NGO DREAM health centres of Maputo, Machava and Beira (Mozambique). A cohort of HIV+ patients >15 years eligible for antiretroviral therapy (ART) and screened for TB
WEPEBo45  
Mining areas, one of the hotbeds of tuberculosis and HIV/AIDS. Case of mining areas in eastern Democratic Republic of Congo

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Background: According to the 2017 global tuberculosis report, DRC has a population of 79 million inhabitants and an annual incidence of 323 (209-463) cases of active tuberculosis per 100,000 inhabitants and per year and 1.4% HIV prevalence rate in the province of South Kivu. Our hypothesis is that this incidence is significantly elevated in high-risk communities, especially in the important artisanal mining sector of South Kivu province.

Methods: We involved volunteers former TB patients and people living with HIV/AIDS to actively screen people for TB or HIV symptoms in the mining communities. The intervention was implemented in 10 mining health districts. These districts provide care for an estimated population of 843,000 people. Since January to December 2016, 350 volunteers were involved to perform verbal screening for TB and HIV symptoms in the mining communities and referral TB suspects for smear microscopy, sensitized all new TB patients and health care workers.

Results: Throughout 2016, 31, 961 verbal screening events were conducted, resulting in the detection of 8,650 (27%) TB suspects. All TB suspects were referred for smear microscopy testing, resulting in 1,458 new TB cases (17%) detected. Of the 1,458 TB patients, 682 (47%) were tested for HIV of whom 117 were positive (17%), 98 or 6% were put on cotrimoxazole and only 76 patients received ART treatment.

Conclusions: This study shows, - that minerals from DR Congo, in addition to being an opportunity for the country are also an active outbreak of tuberculosis and HIV/AIDS. - that the active and systematic search for tuberculosis in people living with HIV / AIDS and HIV / AIDS in TB patients is a solution to the problem of under-detection. - that More than 30% of people affected by HIV / AIDS are not treated.

WEPEBo46  
“Life continues”: Patient, health-care worker and community care worker perspectives on self-administered treatment for rifampicin-resistant tuberculosis in Khayelitsha, South Africa

E. Mohr1, L. Smyrani1, Z. Mbakaza1, V. De Azevedo1, Y. Kock1, L. Trivino Duran1, T. Cassidy1, E. Venables1
1Medecins Sans Frontieres, Cape Town, South Africa, 2City of Cape Town Health Department, Cape Town, South Africa, 3Provincial Government of the Western Cape, Cape Town, South Africa, 4Medecins Sans Frontieres, Khayelitsha, South Africa.

Background: Self-administered treatment (SAT) for rifampicin-resistant tuberculosis (RR-TB) might address adherence challenges faced by patients and health care systems. This study explored patient, health-care worker (HCW) and community care worker (CCW) perspectives on a SAT intervention in South Africa, in which patients were given a medication supply to take at home with a CCW’s support.

Methods: We conducted a mixed-methods study from July 2016-June 2017 in Khayelitsha, South Africa, a setting with a high burden of HIV. The quantitative component included standardized questionnaires with patients, HCWs and CCWs, and the qualitative component involved in-depth interviews with patients enrolled in the intervention for varying lengths of time. Interviews were conducted in XiSosa, translated, transcribed and manually coded. Thematic analyses were conducted.

Results: Overall, 27 patients, 12 HCWs and 44 CCWs were enrolled in the quantitative component; 9 patients were also interviewed. Of note, 82% and 67% of the patients who completed the standardized questionnaires were HIV-infected and received a monthly supply of RR-TB treatment, respectively. Most HCWs and CCWs (83% and 73%, respectively) understood the intervention: approximately half (52%) of the patients could not correctly describe the intervention. Overall, 92% and 93% of HCWs and CCWs reported that the SAT intervention promoted treatment adherence. Additionally, 92% of HCWs reported that the intervention relieved pressure on the clinic. Interestingly, 70% of patients believed that not all RR-TB patients should be enrolled in SAT, listing adherence as a main concern. Key qualitative themes from patients highlighted the importance of a support person and how the flexibility of SAT enabled integration of treatment into their daily routines and reduced time spent in clinics.

Conclusions: The SAT intervention was acceptable from the perspective of patients, HCWs and CCWs and should be considered as a differentiable model of care for RR-TB, particularly in settings with high burdens of HIV in order to ease management of treatment for patients and health care providers.
WEPEB047
Tuberculosis incidence, risk factors and associated mortality in adults living with HIV, on antiretroviral therapy, in Thailand: A 12-year cohort study

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Background: Tuberculosis remains a major cause of mortality in HIV-infected individuals worldwide and in Thailand, one of the 22 countries with high tuberculosis burden listed by the World Health Organization. Data on tuberculosis in HIV-infected adults on antiretroviral treatment (ART) are limited in Thailand. We estimated tuberculosis incidence, its risk factors and the contribution of tuberculosis on the risk of death using prospectively collected data from a large multicenter cohort of HIV-infected adults, on ART, in Thailand (ClinicalTrials.gov: NCT00433030).

Methods: This is an analysis of all tuberculosis cases occurring among HIV-infected adults who initiated first-line antiretroviral therapy in the cohort between March 2, 2002 and March 2, 2012. The incidence of tuberculosis was defined as the number of patients with a tuberculosis diagnosis ≥90 days after ART initiation divided by the total person-years of follow-up (PYFU). Risk factors for incident tuberculosis were assessed using cause-specific competing risks models treating death from other causes as a competing event, and risk factors for death using Cox models.

Results: At ART initiation, 1932 adults (79% female) had a median age of 32 years (IQR: 27-37). Median duration of follow-up was 7 years (2.5-8.3). During follow-up, median body mass index (BMI) was 23.3 (IQR: 21.5-23.4) and CD4 387 cells/mL (265-504). Sixty-two patients were diagnosed with incident tuberculosis, leading to an overall incidence of 5.4 per 1,000 PYFU (95% CI: 4.2-6.9). Incidence rates sharply decreased with ART duration, from 20.3 per 1,000 PYFU (95% CI: 11.9-37.7) to 3.0 per 1,000 PYFU (95% CI: 1.3-6.8) after 5 years. Higher neutrophil counts and lower BMI, hemoglobin level and CD4 count, during follow-up, were associated with a higher risk of incident tuberculosis. Diagnosis of incident tuberculosis was associated with mortality (adjusted hazard ratio 3.0, 95% CI 1.3-6.8, p = 0.001).

Conclusions: Tuberculosis incidence decreased with ART duration, but remained higher after 5 years of ART compared to an estimate in the general population in Thailand (1.2 per 1,000 PYFU). Incident tuberculosis was associated with the risk of death. Our analysis suggests that lower BMI, CD4 counts, hemoglobin levels or higher neutrophil counts, may prompt clinicians to investigate possible tuberculosis infection.

WEPEB048
Pulmonary function and quality of life in HIV positive and negative patients with treated smear positive pulmonary tuberculosis at three tuberculosis clinics in Nairobi, Kenya

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Background: The effects of tuberculosis on pulmonary function and quality of life among HIV positive and negative patients has been described in selected populations. The purpose of the study was to evaluate the type of pulmonary impairment, the factors associated with such impairment and the effect of tuberculosis on quality of life of patients.

Methods: This was a cross sectional study conducted at Riruta, Kangemi and Kibera Health Centres, Nairobi, between May and June 2012. Patients above the age of 15 years with cured smear positive TB two years prior to the study were assessed for their health status using the ST Georges Respiratory questionnaire (SGQR) and pulmonary function using spirolab III spirometer. The primary outcomes were abnormal lung function and SGQR score. Data was entered using Microsoft office excel 2010 and analysis carried out using stata statistical software version 11.

Results: A total of 183 patients were enrolled. 58% were males and 42% were females. Out of these, 33% were HIV positive. 85% of the HIV positive patients were on HAART. The median age of the study population was 29.5years (IQR: 25-38) years and the median duration after starting TB treatment was 11.4 months. 76% of the patients were nonsmokers while 22% were current or former cigarette smokers. The median BMI was 21.36kg/m² (Range 15.2 - 37.1). 53 patients (29%) had pulmonary impairment, the commonest being restrictive defects in 42 patients (23%, 95% CI, 16.8-29.1%). Patients with abnormal lung function were younger (median age: 29 years (IQR: 22-36) vs 34 years (IQR: 27-39), p= 0.036), more likely to be underweight (38% vs 9%, P= < 0.005) and had a lower prevalence of HIV (20.8% vs 37.2%, p=0.027). Low BMI was the only independent predictor of pulmonary function abnormality (p=0.001). The median QOL total score from the SGQR was 3.15 (IQR: 0. - 8.9) signifying good QOL. There was no correlation between QOL and pulmonary function.

Conclusions: The commonest lung function abnormality post TB treatment was restrictive defect. Body mass index was the only independent predictor of abnormal pulmonary function. HIV infection was not an independent predictor of abnormal pulmonary function post TB treatment.
impact on morbidity, we compared health-related quality of life (HRQoL) between arms, assessed changes over time, and examined associations with sociodemographic and clinical factors.

Methods: Participants ≥13 years old were enrolled from outpatient clinics in 10 countries. We assessed seven HRQoL outcomes at weeks 0, 8 and 24: number of 0, 8 and 24: number of:
1) days cut down on daily activities,
2) days cut down on daily activities,
3) nights spent in a hospital,
4) visits to an emergency room (ER),
5) ability to work or look for work,
6) general health status using 5-point scale, and
7) general health rating: ‘none’ vs ‘≥1 day’ by arm, and association with sociodemographic and clinical factors. Changes in HRQoL over time were examined using GEE models.

Results: Among 850 participants (424 in empiric arm, 426 in IPT arm), there was no difference in HRQoL between arms at each time point, but with significant improvement in all domains by 24 weeks (Figure). At 24 weeks, participants with WHO stage 3 or 4 events and grade 3 or 4 signs/symptoms had a higher chance of ≥1 day in bed or decrease in activities [OR (95% CI): 6.5 (2.8, 11.0), p< 0.01 and 4.5 (2.4, 8.1), p< 0.01], and describing one’s health as fair or poor [OR (95% CI): 4.7 (2.7, 8.1), p< 0.01 and 3.8 (2.0, 7.1), p< 0.01].

Conclusions: There were no differences in HRQoL between PLHIV receiving empiric TB treatment versus IPT. Although baseline HRQoL was poor in both arms, it improved significantly during the study. Together with the primary trial results, these findings show reduced morbidity with ART, TB screening, and IPT in persons with advanced HIV.

Figure: Health-related quality of life outcomes at baseline, week 8 and week 24 by study arm: A) proportion of days in bed or days cut down on daily activities, B) nights spent in a hospital or visits to an emergency room, C) general health status using 5-point scale, and D) general health rating by arm, with significant improvement in all domains by 24 weeks (Figure).

WEPEB051 The effect of HIV status on the identification of differentially culturable tubercle bacilli (DCTB) during treatment of drug susceptible tuberculosis

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Background: Co-infection with HIV and TB, is a common occurrence in South Africa with about 60% of the TB infected population being HIV+ leading to high mortality rates. Tuberculosis is known to adapt to host stresses by adopting differentially culturable states that require the addition of growth factors to stimulate their growth. Previous studies have reported significant differences in the quanta of differentially culturable tuberculosis patients in HIV- and HIV+ patients in treatment naive tuberculosis patients. We hypothesized that the quanta of DCTB would fluctuate differently between HIV- and HIV+ individuals during treatment. In this study we assessed the DCTB population in HIV- and HIV+ individuals during 6 months of standard tuberculosis treatment.

Methods: Eighty participants (33.7% HIV- and 66.3% HIV+) from 2 major hospitals in South Africa were enrolled into the study. Participants were TB treatment naive, drug sensitive, consenting individuals above the age of 18. DCTB in sputum was resuscitated by supplementation of standard growth media with culture filtrate (CF) from axenic cultures of M. tuberculosis H37Rv. Most probable number assays (MPN) were used to assess the growth of the DCTB and comparisons with colony forming units (CFU) allowed enumeration of the quanta of DCTB in sputum. Sputum sampling was done at several points during the 6-month treatment period.

Results: Significant differences (p-value < 0.05) in the quanta of DCTB between HIV- and HIV+ were observed during the first month of TB treatment with HIV- consistently having more DCTB than HIV+. The DCTB populations followed one of four trends in response to treatment: 22.7% of patients accumulate DCTB within the first week, 26.7% decline, 22.7% of patients accumulate DCTB within the first week, 26.7% decline.
WEPEB052
Clinical predictors of Mycobacterium tuberculosis bacteremia in a contemporary cohort of HIV-infected patients in Rio de Janeiro, Brazil


Background: Mycobacterium tuberculosis bacteremia (MTB) is a common cause of bloodstream infection among HIV-infected adults living in Brazil. We aimed to estimate the frequency, predictors, and survival of HIV- tuberculosis (TB) co-infected patients who had MTB in a cohort of HIV-infected patients in Rio de Janeiro, Brazil.

Methods: We conducted a retrospective cohort analysis of HIV-TB co-infected adults individuals who initiated TB treatment at INI/FIOCRUZ, between 2010-2015. Patients whose results of blood culture for TB were available were further selected. Results of blood culture and drug susceptibility test for first-line anti-TB treatment were collected from the laboratory records. Multivariable logistic regression was used to determine predictors of MTB bacteremia and Kaplan-Meier estimate to compare the mortality between those with and without MTB using the log-rank test.

Results: During the study period, 473 HIV individuals started TB treatment, of which 362 (76.5%) had blood culture available for TB. Fifty-six (11.8%) had MTB, including 10 (2.1%) with resistance to at least one TB drug. Three fulfilled the criteria for MDR-TB. There was a predominance (11.8%) had MTB, including 10 (2.1%) with resistance to at least one TB drug. Three fulfilled the criteria for MDR-TB. There was a predominance of bloodstream infection among HIV-infected adults patients with MTB vs. patients without MTB (62 vs. 50, p=0.005).

Conclusions: Mycobacteremia due to M tuberculosis occurred in 15% of the HIV-infected patients and was associated with higher mortality compared with those without mycobacteremia.

### Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Univariate analysis adjusted OR (95% CI)</th>
<th>p-value</th>
<th>Multivariate analysis adjusted OR (95% CI)</th>
<th>p-value</th>
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<tbody>
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<td>Age (years)</td>
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<td>0.05</td>
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<tr>
<td>Miliary pattern on chest image</td>
<td>6.9 (3.7-13)</td>
<td>&lt; 0.001</td>
<td>4.07 (1.64-10.09)</td>
<td>0.005</td>
</tr>
<tr>
<td>Acid Fast Bacilli smear positive</td>
<td>8.7 (3.9-19.2)</td>
<td>&lt; 0.001</td>
<td>8.66 (2.89-25.84)</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Fever</td>
<td>4.4 (1.05-19)</td>
<td>0.02</td>
<td>NS</td>
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</tr>
<tr>
<td>Recent HIV diagnosis</td>
<td>1.7 (1.0-32.3)</td>
<td></td>
<td>0.05</td>
<td>NS</td>
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<tr>
<td>HAART experienced</td>
<td>0.6 (0.3-2.1)</td>
<td>0.24</td>
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<tr>
<td>Current CD4 &lt; 100 cells/µl</td>
<td>2.95 (1.67-5.19)</td>
<td>&lt; 0.001</td>
<td>3.78 (1.37-10.45)</td>
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</tr>
<tr>
<td>C reactive protein (mg/dl)</td>
<td>1.11 (1.06-1.07)</td>
<td>&lt; 0.001</td>
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<tr>
<td>Albumin (mg/dl)</td>
<td>0.12 (0.06 - 0.23)</td>
<td>&lt; 0.001</td>
<td>0.26 (0.09 - 0.71)</td>
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WEPEB053
The importance and clinical relevance of baseline LTBI screening in HIV patients

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Background: HIV patients with latent TB infection (LTBI) could be identified by screening followed by treatment, a strategy recommended to reduce TB reactivation. We hypothesize that baseline screening for HIV patients is an important measure which would predict subsequent TB disease development.

Methods: Clinical data and LTBI screening (mainly tubulin sensitivity testing with small proportion of IGRA) results of HIV patients diagnosed between 2002 and mid-2017 in a major HIV clinic in Hong Kong were accessed retrospectively. Patients aged below 18 at HIV diagnosis or diagnosed with TB within 3 months of HIV diagnosis were excluded. In this cohort, we compared the risk of TB disease development between unscreened patients, those tested with positive and negative results. 

Results: Among 3130 eligible patients, 2740 (88%) were male. 2796 (90%) being local residents, and 2450 (78%) were Chinese. A majority (2800, 90%) were aged between 18 and 49 at HIV diagnosis, with 99 (3%) concurrently diagnosed with diabetes mellitus. A total of 723 (23%) patients had not been tested for LTBI. 284 (95%) were positive at the first test, and 223 (68%) were negative. With 16621 person-years’ (PY) follow-up, 94 had developed TB disease. The overall TB incidence was 0.57/100PY (95%CI:0.45-0.68). 0.34/100PY (95%CI:1.21-21.91) for patients never tested for LTBI, 1.43/100PY (95%CI:0.92-2.08) for those tested positive, and 0.21/100PY (95%CI:0.14-0.30) who tested negative at first test. Compared to patients never tested for LTBI, those tested (HR=0.09, 95%CI:0.06-0.13) were at significantly lower risk of TB disease development. More unscreened patients were non-Chinese (23% vs 18%), non-local residents (23% vs 7%) and younger at HIV diagnosis (median 32 year-old vs 35 year-old), compared to screened patients. Among LTBI tested patients, positive at the first test (HR=21.43, 95%CI:6.98-211.3) had a significantly higher risk for TB disease development, despite the implementation of LTBI treatment.

Conclusions: Baseline LTBI screening for all HIV patients is important for overall reduction of TB incidence. With screening, higher risk individuals who tested positive could be further identified for treatment intervention and subsequent monitoring.
oral gold salt), or vitamin D, with rifabutin-substituted 6-month anti-TB therapy, or that therapy alone. HDT treatment started on day 1 and continued for 4 months. PET/CT scans were performed at baseline and after 8 weeks of treatment. Total body weight-adjusted lung and thoracic lymph node glycolytic activity (SUVbw/ml) and radiographic density (HU*ml) were measured by a single treatment-blinded reader using MIM software. Sputum cultures and lung sputum were performed at designated intervals during treatment.

**Results:** Paired baseline and 8 wk scans are presently available from 94 subjects for analysis. Total glycolytic activity was 578±2709 SUVbw/ml at baseline and 383±1819 at week 8 (P = 0.01 by paired analysis). The change from baseline was non-normally distributed. It remained so after log transformation, potentially indicating a minority sub-population showing greater treatment effect. In contrast, radiographic density showed no treatment effect (P = 0.2) and was normally distributed (see figure).

**Conclusions:** Resolution of lung inflammation during 8 weeks of TB treatment can be detected by 18F-FDG PET but not by CT. Change in PET may be a useful endpoint in phase 2 studies of TB HDT candidates.

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**WEPEBo055**

Antiretroviral therapy (ART) contribution in reduction of tuberculosis (TB) presumptive and TB cases in people living with HIV (PLHIV) in Swaziland

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**Background:** Despite being preventable and curable, TB remains the leading cause of HIV-related morbidity and mortality in Swaziland. In 2016 approximately 70% of TB cases were co-infected with HIV and TB/ HIV mortality rate was 14%. Eligibility criteria to start ART changed over the years from CD4 count based (< 350 in 2010 and < 500 in 2015) to treating all in 2016. IPT coverage has remained low in PLHIV (< 10%). In this assessment, we reviewed the occurrence of TB symptoms and TB disease using data from Swaziland National HIV Semi-Annual Reviews (NaHSARs).

**Description:** Data for NaHSARs were retrospectively collected from clinical registers and also extracted from electronic medical records for the period October 2014 to June 2017. Pooled data analysis was conducted to describe the TB screening to diagnosis cascade. Results from each NaHSAR were used to describe the trend shown in the occurrence of TB symptoms and TB disease among HIV infected individuals.

**Lessons learned:** From 2014 to 2017, ART initiation for eligible clients increased from 71% to 89%. There was a progressive increase in the number of clients screened for TB in PreART 4,748 (96%) to 8,946 (96%) and ART clients (58,320 (95%) to 179,830 (99%). While the number of patients screened increases, there is a decrease in the proportion of presumptive TB cases from PreART clients (from 17% to 7%). The proportion of TB presumptive among ART clients remained stable at 1%. The TB diagnostic yield among TB presumptive ART patients fell from 473 (70%) to 73 (6%). However, the number of TB diagnosed patients slightly decreased despite increased proportional yield in Pre ART patients from 1292(9%) to 1824(3%).

**Conclusions:** Occurrence of TB symptoms among PLHIV decreased indicating the possible role of ART in reducing the burden of TB. A possible background risk for developing TB symptoms still exist in HIV infected clients regardless of ART status as shown by the constant proportion of TB symptoms among those on ART. TB disease risk is more pronounced in the Pre-ART population. We urgently have to scale up provision of ART to PLHIV for TB and HIV dual epidemic control.

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**WEPEBo066**

Unfavorable TB treatment outcomes among TB/HIV co-infected people: What are we missing?

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**Background:** Tuberculosis (TB) coinfection is one of the leading causes of morbidity and mortality among people living with HIV in Zambia. The purpose of this study was to describe TB treatment outcomes among TB/HIV coinfected people and evaluate determinants of unfavorable TB treatment outcomes among TB/HIV coinfected people in southern province of Zambia.

**Methods:** We used a retrospective cohort design to review medical records of children and adults treated for TB and HIV between 2006 and 2013 at 30 TB diagnostic and treatment centers in Southern province, Zambia. The primary outcome was unfavorable TB treatment outcome as defined by the WHO treatment failure, died and lost to follow-up at the end of TB treatment. Crude and adjusted relative risks and their 95% confidence intervals (CIs) were determined through logistic regression and compared differences in unfavorable TB treatment outcomes by age group and evaluated predictors of these outcomes.

**Results:** Of 13,193 patients, 1,254 (9.5%) were children (< 10 years), 325 (2.7%) were adolescents (11-18 years), 10,914 (72.6%) were adults (19-55 years) and 700 (5%) were defined as elderly (above 55 years). 3,506 patients were sputum smear positive (26%). After 2010, 66% of TB patients were initiated on combined antiretroviral therapy (cART) either before or during TB treatment (IQR: 54-76%). Overall 11,758 (89.2%) achieved successful TB treatment outcomes (Cure: 82%). Completed: 80%). Of the patients with unfavorable TB treatment outcomes 3,993(0%) were treatment failure, 708 (15%) died while on treatment and 3,282 (4%) were lost to follow up. The 19-55 years age group was associated with the highest risk of unfavorable TB treatment outcomes (IRR=8.4, referent 0-9 years; 95%CI 5.2-12.7). Starting cART 66 days after TB treatment initiation was associated with a high risk of unfavorable TB treatment outcomes (RR=1.3; 95%CI 1.2-1.5).

**Conclusions:** Death was the highest cause of unfavorable outcomes. Age 19-55 years and delay in initiating cART was associated with unfavorable outcomes. There is need to strengthen TB-HIV collaboration by enhancing early initiation of cART. People between 19 and 45 years of age account for a large proportion of TB/HIV coinfections and need special attention to avert the disproportionately higher unfavorable treatment outcomes.
WEPEB057
Data driven insight on TB and HIV co-infections amongst high risk groups in Zimbabwe: TaS4TB 2017 operational year

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Background: TB epidemic in Zimbabwe is being fueled by the parallel HIV epidemic, as in other countries in the SADC region. Collaborative TB/HIV management is essential to ensure that HIV positive TB patients are identified and treated appropriately, and to prevent TB in HIV positive patients. Another pillar, a response to ending TB deaths as noted in World Health Organization’s End TB Strategy document, emphasizes on reliable measurement of progress in reducing TB incidence, TB deaths and catastrophic costs are essential and a cross sectional review with the use of program data has been used to measure TB and HIV co-infections to inform programming for an in-depth planning on further TB response initiatives after Targeted Screening Program.

Methods: A medical team carried out outreach services to communities in the prioritized districts and provided access to free TB Screening to high risk groups. Two screening tools were used to increase sensitivity and these are the symptom screening and digital chest radiography. Presumptive TB patients had a supervised spot sputum specimen collected and examined at the laboratory by XPERT/RIF machine or DSM method depending with availability. All patients due for HIV test were offered a test according to the World Health Organization and national HIV testing guidelines. In the process, a real time electronic data management system was used as an innovative data management tool introduced after tedious use of paper.

Results: 36 811 people were screened for TB and 720 were started on TB treatment. 33.5% (241) came with a known HIV positive result and 84.2% (289) were tested for HIV. From those tested for HIV on treatment, 33.5% (241) came with a known HIV positive result and 84.2% were tested for HIV in 13.8% (40) tested HIV positive and where linked to care. From all results and 40.1% (289) were tested for HIV. From those tested for HIV on treatment. 33.5% (241) came with a known HIV positive result and 84.2% were tested for HIV in 13.8% (40) tested HIV positive and linked to care. Nine out of these 50 patients were immunocompromised, 6 were infected with HIV. Compared to control cases with TB-HS patients were younger (p < 0.05) and were more likely to be immunocompromised (85.7% vs. 18.0%; p < 0.0005). TB was disseminated in 17 TB-HS patients (80%) compared to 6 (12%) control cases (p < 0.0005). Median CD4 count was lower in PLWH with TB-HS compared to PLWH with TB (18 vs 252/mm³; p = 0.046). Outcome was poorer in patients with TB-HS, as death occurred in 8 TB-HS patients (38.1%) vs. 3 deaths in control cases (7.3%); p = 0.005. Death rate amongst PLWH was 45.4% (5/11) in TB-HS patients vs. 0 (0/6) in control cases. Two out of 6 deaths occurred in the first month and were related to TB-HS.

Conclusions: Features of TB-HS seemed to be particular, with a higher frequency of immunocompromised patients and of disseminated TB and a poorer outcome. Amongst TB/HIV coinfected patients, low CD4 count was associated with a higher risk of HS.

WEPEB058
Tuberculosis-associated hemophagocytic syndrome in patients living with HIV

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Background: Reactive hemophagocytic syndrome (HIS) is an acquired, potentially life-threatening disorder than can occur in patients with infections. Although tuberculosis is known to trigger HS in few patients, especially in patients living with HIV (PLWH), current knowledge in tuberculosis-associated HS (TB-HS) mainly relies on single-center case series.

Methods: We conducted a retrospective study in which we reviewed the medical records of adult patients diagnosed with microbiologically proved TB-HS between January 2006 and December 2015 in three French tertiary university hospitals, compared to a control group of patients with TB.

Results: Twenty-four patients with suspected TB-HS were selected, and 21 patients with confirmed TB-HS were included. The median age was 37 years (IQR: 30-48), 5 patients (23.8%) were women. Eleven patients (52.4%) were infected with HIV and 7 patients (33.3%) were immunocompromised for other reasons. HIV infection and TB-HS were diagnosed concomitantly in 5 out of 11 cases (45.5%). At HS onset, the median CD4 cell count was 18/mm³ (IQR 15-190) and the median HIV viral load was 10,854,038 copies/mL (IQR 32-57). From 1849 TB cases, 63 patients were randomly selected and 50 were included as control cases. Nine out of these 50 patients were immunocompromised, 6 were infected with HIV. Compared to control cases with TB-HS patients were younger (p < 0.05) and were more likely to be immunocompromised (85.7% vs. 18.0%; p < 0.0005). TB was disseminated in 17 TB-HS patients (80%) compared to 6 (12%) control cases (p < 0.0005). Median CD4 count was lower in PLWH with TB-HS compared to PLWH with TB (18 vs 252/mm³; p = 0.046). Outcome was poorer in patients with TB-HS, as death occurred in 8 TB-HS patients (38.1%) vs. 3 deaths in control cases (7.3%); p = 0.005. Death rate amongst PLWH was 45.4% (5/11) in TB-HS patients vs. 0 (0/6) in control cases. Two out of 6 deaths occurred in the first month and were related to TB-HS.

Conclusions: Features of TB-HS seemed to be particular, with a higher frequency of immunocompromised patients and of disseminated TB and a poorer outcome. Amongst TB/HIV coinfected patients, low CD4 count was associated with a higher risk of HS.

WEPEB059
Two diseases, same person: Moving towards a combined HIV and TB continuum of care

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Background: The Human Immunodeficiency Virus (HIV) and Mycobacterium tuberculosis syndemic remains a global public health threat. Separate HIV and TB global targets have been set, however, success will depend on achieving combined disease control objectives along the care continua. We review available policy, budgets and data to re-conceptualize TB and HIV disease control objectives by combining HIV and TB care continua.

Methods: For 22 WHO TB and HIV priority countries, we used 2015 data from the published national HIV care continua, UNAIDS AIDSiNfo, and WHO 2016 and 2017 Global TB Reports. Global resources available in TB and HIV/TB activities for 2003–2017 were collected from publicly available sources and policy data were collected from published guidelines.

Results: Of the 22 high burden countries, 16 are recommending ‘test and treat’ for HIV and all are recommending isoniazid preventive therapy (IPT). People living with HIV (PLHIV) on ART ranged from 9-20%; viral suppression of PLHIV was 38-63%. TB case detection and treatment among TB patients ranged from 10-87% and TB treatment success between 71-94%. For HIV/TB patients, ART coverage and TB treatment success were comparatively lower at 1-71% and 20-87%, respectively. Only 3% of PLHIV in the 22 countries reported course of IPT. Viral suppression data were not available for 13 countries and none of the countries included information regarding the following combined indicators: (a) TB treatment success and viral suppression among HIV/TB patients, (b) TB prevention and ART for PLHIV and (c) HIV prevention interventions for TB patients. From 2003–2017, global international and domestic resources for HIV-associated TB and TB averaged $2.26 billion per year; the total for 2003–2017 was $43 billion dollars.

Conclusions: Reviewing combined HIV and TB targets demonstrate disease control progress and challenges. Using an integrated HIV and TB continuum supports HIV and TB disease control efforts focused on improving both individual and public health.
**WEPEBo60**

**The relationship between Isoniazid preventive therapy and incident TB and all-cause mortality among HIV patients in Myanmar**


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**Background:** Myanmar has a high HIV and TB burden with the HIV prevalence of 0.8% and TB incidence of 265 per 100,000 population in 2016. The Integrated HIV Care (IHC) program in Myanmar provides HIV clinical care and isoniazid preventive therapy (IPT) to people living with HIV (PLHIV) under care. We aimed to determine the association between completed IPT, and all-cause mortality among PLHIV.

**Methods:** We conducted a retrospective cohort study among PLHIV registered into IHC program between 2009 and 2014. Patients aged ≥15 years were eligible. We defined IPT use as completed IPT, incomplete IPT, and never received IPT. Patients who took isoniazid 300 mg per day as prophylaxis for 6-9 months were defined as completed IPT. The outcomes were 1) incident active TB and 2) all-cause mortality among PLHIV.

**Results:** Among 9,055 PLHIV registered, 1,020 received IPT and 677 (66%) completed IPT. Overall, 633 (7%) patients developed incident TB and 2628 (29%) patients died during the follow-up (Fig 1). Patients who never received IPT had a higher risk of incident TB and adjusted risk ratio (aRR) 3.1, 95% confidence interval (CI) 1.8-5.2 and risk of mortality (aRR 3.9, 95%CI 2.6-6.0) compared to patients who completed IPT. Patients who received IPT but did not complete IPT also had a higher risk of incident TB (aRR 3.2 95%CI 1.7-6.0) and risk of mortality (aRR 2.1, 95%CI 1.4-3.3) (Table-1).

**Conclusions:** IPT completion significantly reduced risk of active TB and death among people living with HIV in this setting.

**WEPEBo61**

**A retrospective study to evaluate correlates of treatment outcome among HIV-TB co-infected patients from an ART centre in Mumbai, India**

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**Background:** HIV/AIDS pandemic has caused a resurgence of TB, resulting in increased morbidity and mortality worldwide. HIV-infected persons are at markedly increased risk for progressive disease following primary TB infection, as well as reactivation of latent tuberculosis infection (LTBI). Clinical presentation of TB in HIV-infected individuals depends on the level of immune suppression resulting from HIV infection. Variables of outcome after treatment of tuberculosis among People Living with HIV/AIDS (PLHA) are not well elucidated in developing countries with limited resources. Hence this study was undertaken to assess socio-demographic correlates, clinical profile & treatment outcome of tuberculosis disease among people living with HIV/AIDS, registered at an ART centre in Mumbai.

**Methods:** The retrospective study was based on secondary data of TB-HIV co-infected patients, registered for treatment & care at Govandi ART centre, situated in dense overcrowded and majority migrant slum province in Mumbai city. All the patients (377) diagnosed as co-infected during period 2016-2017 were included in the study. The socio-demographic details of the patients, clinical presentation of TB disease, and progress with Anti-retroviral & anti-TB treatment were assessed from patient’s treatment cards, TB HIV list and HIV-TB register. Tests viz Chi square test, Fishers exact test & multivariate analysis were used for significance.

**Results:** Among 377 patients, 226(59.9%) were Males and 151(40.1%) were females.198 (52.5%) PLHAs had Pulmonary TB, 165 (43.8%) had Extra-pulmonary TB and 14(3.7%) were diagnosed with Multi-drug resistant TB. Median CD4 count at TB diagnosis was 207/mm3, 260(68.9%) patients successfully completed Anti-TB treatment, 318(84%) expired, 86(22.7%) defaulted. Of the co-infected patients, 354 patients underwent CD4 testing of which 83(24%) patients had cd4 count less than 350/mm3. Mean CD4 count of patients who completed treatment was 265.67/mm3Median 228.5SD 212.13/mm3 95% CI 50 while that of expired patients was 160.38/mm3Median 120. SD 127.15/mm3 95% CI. The association between CD4 count & treatment outcome was statistically significant.
WEPEB062
Universal anti retroviral therapy eligibility and tuberculosis case finding among HIV infected clients in Malawi - lessons learnt

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Background: Malawi is a high burden TB and HIV sub-Saharan African country with co-infection rate of about 50%. Undiagnosed TB among PLHIV remains a critical challenge and contributes about 40% of facility-based HIV/AIDS-related adult deaths. In July 2016, Malawi adopted and implemented the World Health Organization (WHO) universal eligibility policy for HIV treatment initiation to improve treatment outcome among patients on ART and minimize the risk of developing HIV-related opportunistic infections such as TB. We evaluate the impact of this policy change on presumptive TB cases and notified TB cases among PLHIV attending ART clinics in Malawi.

Description: This was a retrospective evaluation of routine program data for Malawi before the policy change, between July 2015 to June, 2016, and afterwards, between July, 2016 and June 2017. The evaluation extracted data from the intensified TB case finding section of the national quarterly HIV program reports. Total presumptive TB cases and notified TB cases were compared between July 2015 to June 2016 and July 2016 to June 2017. Annual performance proportions were compared to WHO targets of 5% presumptive cases and 70% case detection rate for the reviewed period. Statistical significance measured at p< 0.05.

Lessons learned: By the end of September 2016, 732 health facilities offering integrated HIV services implemented the policy change. The number of HIV infected clients alive on treatment increased by 12% between the different periods reviewed. The number of presumptive TB cases among PLHIV in care doubled and there was statistical significant relationship with the different reporting periods before and after policy change (X² = 1270.96; p < 0.0001). The number of notified TB cases from TB/HIV co-infected clients increased from 3887 to 7725 after policy change. There was statistical significant improvement in their CD4 count (p< 0.0001).

WEPEB063
Genetic diversity of Mycobacterium tuberculosis clinical isolates in Botswana

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1Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, 2Botswana-University of Pennsylvania Partnership, Department of Radiation and Oncology, University of Pennsylvania, Gaborone, Botswana, 3National Tuberculosis Reference Laboratory, Gaborone, Botswana, 4DST/ NRF Centre of Excellence in Biomedical Tuberculosis Research/SA MRC Centre for Tuberculosis Research, Division of Molecular Biology and Human Genetics, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa, 5Botswana Harvard AIDS Institute Partnership/Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, Massachusetts, USA, Gaborone, Botswana, 5School of Allied Health Professionals, Faculty of Health Sciences, University of Botswana, Medical Laboratory Sciences, Gaborone, Botswana

Background: Molecular typing of Mycobacterium tuberculosis (Mtb) isolates informs Tuberculosis (TB) control program on the relative proportion of transmission driving the TB epidemic. We utilized spoligotyping to describe the genetic diversity of Mtb strains and their respective contribution to transmission in Botswana.

Methods: A total of 502 culture-confirmed Mtb isolates received at the Botswana National Tuberculosis Reference Laboratory between 2012 and 2013 were analyzed. Drug susceptibility testing was done using the MBTDRplus line probe assay. DNA was extracted from BD Mycobacterial Growth Indicator Tubes (MGIT) using Hain GenoLyse DNA isolation kit®. Spoligotyping was done using a commercially available kit. The spoligotype patterns were compared with existing spoligotype patterns in the SITVIT Web database. Fisher’s Exact test was used to determine the relationship between HIV status, geographical location, and genotype.

Results: 112 distinct spoligotype patterns were detected amongst 502 isolates. Seventy-six (68%) had been reported in SITVIT and thirty-six (32%) had not been previously described. The most predominant spoligotype patterns were: LAM (33%), S (12%), T (15%), X (16%) and Beijing (32%) had not been previously described. Among drug-resistant isolates, 419 (83.3%) were multidrug resistant. Among drug-resistant isolates, 140 (65.3%) were clustered.

Conclusions: This study highlights the complexity of the TB epidemic in Botswana with different strains contributing to disease. The high proportion of clustering is worrying suggesting that new interventions are required to halt transmission. The ongoing transmission of drug-resistance highlights the need for routine drug susceptibility testing for all to prevent the amplification of resistance.

WEPEB064
An innovative approach to improving TB and HIV case identification in the community using trained volunteers-a programme evaluation in Benue State, Nigeria

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Background: Nigeria has the fourth largest TB/HIV burden in the world. Benue state, in North Central Nigeria, has a high TB burden attributable to its high HIV prevalence of 5.6%. Benue state is one of the selected states by CDC due to its high HIV prevalence with some local government areas (LGAs) identified for scaling up HIV services. This is to prioritize reaching the UNAIDS HIV 90-90-90 targets. A door to door strategy was adopted by centre for integrated health programs to reach people in the communities with HIV counselling, testing

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<td>Estimated TB/HIV co-infected patients</td>
<td>18000</td>
<td>15000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case detection rate (PLHIV)</td>
<td>46.3%</td>
<td>58.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(ZCD: 0.0001. Similarly patients who successfully completed ant-TB treatment showed significant improvement in their CD4 count (p< 0.0001). Conclusions: Early diagnosis of TB disease among PLHAs improved the chances of successful Anti-TB treatment which helped in immunological improvement in HIV disease.)

(p< 0.0001. Similarly patients who successfully completed ant-TB treatment showed significant improvement in their CD4 count (p< 0.0001). Conclusions: Early diagnosis of TB disease among PLHAs improved the chances of successful Anti-TB treatment which helped in immunological improvement in HIV disease.)
and treatment of diagnosed HIV clients. Trained volunteers (TVs) were engaged to carry out these activities as well as TB case detection in the community. We reviewed the impact of the TVs in improving TB case detection in some communities.

Methods: The intervention was carried out across 3 scale up LGAs-Tarka, Gwer West and Logo in Benue State, North Central zone of Nigeria from Feb to May 2017. Orientation meeting was carried out for the trained volunteers on TB case detection in the community and commodities for sputum collection for Genexpert such as sputum cups, tissue rolls and cold chain boxes were distributed. TVs carried out HIV counselling, testing and TB screening for all clients and Sputum collected for Genexpert test from identified presumptives and sent to the lab using the cold chain box for evaluation. Pre and post intervention data were analysed after four months implementation.

Results: The number of clients identified as presumptive TB cases increased by 291% from 53 to 207 in the period under review. The number of presumptive with cough sent for Genexpert significantly increased from 4 to 58(14-fold increase, P value = 0.027). 2 TB cases were diagnosed at the end of the review as against nil diagnosis pre intervention period.

Conclusions: The use of trained volunteers in the community improved TB and HIV screening, identification of presumptive TB cases and also TB diagnosis using Genexpert. However, additional measures will be needed to improve diagnosis of Tuberculosis.

WEPEBo65
Evaluating care for PLHIV co-infected with TB in the Municipal STD/Aids Services in São Paulo City

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1Secretario Municipal de Saúde - São Paulo, Programa Municipal de DST/Aids, São Paulo, Brazil, 2Municipal Health Secretariat - Sao Paulo, STD/AIDS Program, Sao Paulo, Brazil

Background: AIDS mortality in the Municipality of São Paulo, reached 61,110,000 inhabitants in 2016. The AIDS investigation deaths between September 2015 and March 2016 revealed that 35% were associated with Tuberculosis. Improving the quality of care for co-infected patients may contribute to reducing Tuberculosis mortality and consequently AIDS. The study objective was to describe the care of HIV-infected PLHIV and to propose measures that contribute to the improvement of quality of care and reduction of Tuberculosis and AIDS mortality.

Description: Outcomes were analyzed - high for cure, dropouts and deaths - of the cases diagnosed in the first half of 2015 from the routine information of the TB-Web Information System. Data were disaggregated by health regions, by the 16 care services from 26 The Municipal STD/Aids Services of São Paulo City that accompany PLHIV. The outcomes of PLHIV co-infected with Tuberculosis are unfavorable in relation to HIV negative people with Tuberculosis, with important differences in cure rates, dropouts and deaths between services and the type of treatment (directly observed versus self-administered). The cure rates of PLHIV and HIV-negative were 55% and 83%, respectively. The percentage of dropouts was twice as high among PLHIV (20% versus 10%) and that of deaths 4.6 times more frequent among PLHIV (21.5 versus 4.6). Cure rates ranged from 55% to 100% among services and were higher among patients undergoing directly-versus-self-administered treatment (71% versus 49%). Only 60% of the new HIV cases were Tuberculin Proof (PT). Among the 14.6% with PT + 91%, only 47% performed the treatment of Latent TB infection (ILTB).

Lessons learned: The analysis revealed a role of opportunity to improve care for PLHIV co-infected with Tuberculosis. Also, the feasibility of the actions to be developed, once there are services with favorable outcomes and comparable to those of HIV negative people. The TB-Web Information System provides useful information for decision-making and for monitoring the performance of the Municipal STD/Aids Services.

Conclusions/Next steps: There are high chances for interventions to improve care for HIV-infected PLHIV, such as expanding directly-supervised treatment and above all, increasing the diagnosis and treatment of Latent Tuberculosis in order to reduce the Tuberculosis incidence and mortality rate among PLHIV.
WEPEBo68

Yield and efficiency of novel intensified tuberculosis case-finding algorithms for people living with HIV

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Background: The recommended tuberculosis (TB) intensified case finding (ICF) algorithm for people living with HIV (PLHIV) - symptom-based screening followed by Xpert MTB/RIF (Xpert) testing - is inefficient and insufficiently sensitive. We investigated whether novel algorithms using C-reactive protein (CRP)-based TB screening followed by confirmatory testing with urine Determine TB-LAM (TB-LAM), sputum Xpert and/or a single sputum culture could improve ICF efficiency and yield.

Methods: Consecutive PLHIV with CD4 count <350 cells/µL initiating antiretroviral therapy in Uganda were prospectively screened for TB by symptom-based screening and CRP (cut-point 8 mg/L) measured using a rapid and inexpensive point-of-care (POC) assay. Participants submitted sputum for Xpert testing and culture and urine (if CD4 count >200 cells/µL) for TB-LAM testing. We compared the yield and efficiency of the current ICF algorithm to novel ICF algorithms beginning with POC CRP-based TB screening followed by confirmatory testing with TB-LAM, Xpert, and/or a single culture.

Results: Of 1245 HIV-infected adults enrolled, 203 (16%) had culture-conferred TB nearly half (49%, n=101) of whom had CD4 counts <200 cells/µL. Compared to the current ICF algorithm, POC CRP-based TB screening followed by Xpert testing had similar yield (66% [95% CI: 49-63]) vs. 59% [95% CI 51-65]) but consumed less than half as many Xpert tests per TB case detected (9 vs. 4). Addition of TB-LAM did not significantly increase diagnostic yield (+1% [95% CI: -3 to +5]) relative to the current ICF algorithm but provided same-day diagnosis for 26% of TB patients with advanced HIV. Addition of a single culture to TB-LAM and Xpert substantially improved ICF yield, identifying 78% of all TB cases.

Conclusion: POC CRP-based screening can improve the efficiency of ICF for PLHIV. Addition of TB-LAM and a single culture to Xpert confirmatory testing could enable HIV programs to increase the speed of TB diagnosis and ICF yield.

WEPEBo69

Enhancement of the INSHI case definition for paradoxical tuberculosis-associated immune reconstitution inflammatory syndrome using latent class analysis

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1Institute of Tropical Medicine, Antwerp, Belgium, 2University of Cape Town, Cape Town, South Africa

Background: The diagnosis of paradoxical TB-IRIS relies on characteristic clinical features synthesized as the International Network for the Study of HIV-associated IRIS (INSHI) case definition. There is no confirmatory laboratory test. We assessed whether a data-driven approach that used latent class analysis (ILCA) could enhance the performance of the case definition. LCA combines multiple variables to obtain estimates of disease prevalence and diagnostic accuracy in situations where there is no gold standard.

Methods: The PredART trial evaluated prednisone for TB-IRIS prevention in high-risk patients starting ART in South Africa (n=240). TB-IRIS events were adjudicated by consensus of 3 independent experts using the INSHI case definition. All clinical and laboratory variables recorded during the first 4 weeks of ART and all individual components of the INSHI criteria were assessed for their association with TB-IRIS. Those with a strong association (OR > 3.0) were selected for LCA. We combined the selected parameters in a latent class model using LEM software. We used the LCA-predicted probability of TB-IRIS for each participant to assess the performance of the INSHI case definition and compare its diagnostic accuracy with several adapted case definitions.

Results: Data were complete for 237 participants; 41% developed TB-IRIS. Our latent class model included the following parameters: respiratory symptoms, night sweats, INSHI major criteria 1, 2, and 4 (new or enlarging lymph nodes, radiological abnormalities, and serositis respectively), maximum CRP > 90, maximum heart rate > 120, maximum temperature > 37.7, and pre-ART CD4 count < 50. None of the participants fulfilled INSHI major criterion 3 (neurologic features). The model estimated a TB-IRIS prevalence of 43% and had optimal goodness of fit (I² = 356.7, p = 0.01).

Performance of adapted case definitions are summarized in the table.

Table 1: Incremental yield, diagnostic yield, and # of false-positive TB cases of novel ICF algorithms relative to the current ICF algorithm.

<table>
<thead>
<tr>
<th>ICF strategy</th>
<th>Diag yield, %</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ICF algorithm</td>
<td>119 (59.8, 62.6)</td>
<td>0.77</td>
<td>0.86</td>
</tr>
<tr>
<td>Novel ICF algorithms</td>
<td>REF</td>
<td>REF</td>
<td>--</td>
</tr>
<tr>
<td>TB-LAM alone</td>
<td>120 (62.6, 55.8)</td>
<td>0.77</td>
<td>0.86</td>
</tr>
<tr>
<td>TB-LAM + sXpert</td>
<td>123 (65.9, 70.7)</td>
<td>0.75</td>
<td>0.84</td>
</tr>
<tr>
<td>ASC CRP &gt;90, mg/L, &lt;-</td>
<td>114 (54.0, 68.5), or CRP</td>
<td>0.74</td>
<td>0.85</td>
</tr>
<tr>
<td>TB-LAM + sXpert</td>
<td>121 (62.6, 55.8)</td>
<td>0.75</td>
<td>0.84</td>
</tr>
<tr>
<td>TB-LAM + sXpert</td>
<td>116 (57.1, 69.9)</td>
<td>0.75</td>
<td>0.84</td>
</tr>
</tbody>
</table>

[Table 1] Incremental yield, diagnostic yield, and # of false-positive TB cases of novel ICF algorithms relative to the current ICF algorithm.

Conclusions: The INSHI case definition predicts TB-IRIS with reasonable accuracy. Amending the case definition by replacing the INSHI minor criteria with the objective variables heart rate, temperature, and/or CRP improved sensitivity without loss in specificity. A definition including only INSHI major criteria had the highest specificity.
WEPEB070
A household cluster randomised trial of active case finding for HIV/TB, preventive treatment against TB, and ART initiation to prevent TB disease and transmission in South Africa: Baseline data

P. MacPherson1,2, E. Webb1, E. Varriana1, S. Lala1,2, M. Milovanovic1, Z. Bosch1, P. Motsoom1, L. Lebina1, A. Kinghorn1, A. Ratsela1, N. Mntawo1
1Liverpool-Welome Trust Clinical Research Programme, HIV/TB Group, Blantyre, Malawi. 2Liverpool School of Tropical Medicine, Department of Clinical Sciences, Liverpool, United Kingdom.

Background: Household contact tracing of index TB cases has been advocated as a key part of TB control for many years, but has not been widely implemented in many high HIV prevalence settings.

Methods: A household cluster randomised (ISRCTN16006202) trial of interventions aimed at improving TB-free survival and reducing childhood prevalence of Mycobacterium tuberculosis infection among household contacts of index TB cases is being conducted in two districts of South Africa (Botshabelo, Free State, and Capricorn, Limpopo). Households of index cases with microbiologically-confirmed TB (>7 years of age) or children (<7 years) with microbiologically or clinically diagnosed TB were randomly allocated to receive either the intensified home screening and linkage for TB and HIV intervention (home strategy) or a referral letter strategy. We report prevalence of TB disease, TB infection and HIV in household contacts randomised to receive the home strategy.

Results: Between December 2016 and January 2018, a total of 954 index TB cases were recruited: 913 adults and 41 children. 55% of index TB cases were HIV-positive. We recruited a total of 3940 household contacts (mean of 4.1 per household). Compared to household contacts from Capricorn, contacts from Botshabelo were younger (median: 17 vs. 19 years), and more likely to have symptoms of TB (297/783 [38.7%] vs. 195/2127 [9.2%]). In the home group, 84.6% (2014/2359) of household contacts who did not know their HIV status were tested for HIV, of whom 4.1% [95% CI: 3.4-4.9] were HIV-infected. 417/909 (46.1%) of all household contacts not on TB therapy were sputum tested, with overall 24/909 (2.6%) having microbiologically confirmed TB. Of household contacts with microbiologically-confirmed TB (>7 years of age) or children (<7 years) with microbiologically or clinically diagnosed TB were randomly allocated to receive either the intensified home screening and linkage for TB and HIV intervention (home strategy) or a referral letter strategy. We report prevalence of TB disease, TB infection and HIV in household contacts randomised to receive the home strategy.

Conclusions: We were able to promptly identify and screen household contacts of index TB cases in diverse settings in South Africa. A substantial proportion of household contacts with TB did not have TB symptoms. This trial will provide evidence of resource needs and cost-effectiveness of two approaches for contact screening in low-resource settings.

WEPEB072
Incidence of adverse events associated with isoniazid preventive therapy in adults on stable antiretroviral therapy in Blantyre, Malawi

L. Tsilizani1, W. Nyangulu1, O. Nyirenda1, N. Namapo1, F. Mkandawire1, E. Singogo1, J. Malilewa1, T.E. Taylor1, M.B. Laurens1, M.K. Laufer1, E. Mangan1, K. Fielding1, E.L. Corbett1, T. Helmer1, S. Lawn1, J. van Oosterhout1,2
1Dignitas International, Zomba, Malawi. 2London School of Hygiene and Tropical Medicine, London, United Kingdom.

Background: Evidence suggests that HIV-associated tuberculosis (HIV/TB) diagnosed by urine-tests (Xpert MTB/RIF and TB-LAM) is indicative of disseminated, renal TB. A validated protocol for Focused Assessment with Sonography for HIV/TB (FASHI) detects characteristic extra-pulmonary (EP) features such as pleural, pericardial and abdominal effusions, abdominal lymphadenopathy, and splenic micro-abscesses, and is suited for clinicians with limited ultrasound training in low-resource settings. We sought to determine the prevalence of ultrasonographic EP features and compare urine-test positive and negative HIV/TB patients.

Methods: The trial enrolled adults on ART (>6 months) with CD4 count ≥250 cells/µL and HIV-1 RNA <400 copies/ml. 35% of participants on ART experienced at least one IPT related AE. Of 245 IPT related AEs, 26.1% were certainly related to IPT (95.2% mild/moderate; 0.7% severe). 52.9% were probably related (98.7% mild/moderate; 1.3% severe), and 20.9% were possibly related (all mild/moderate).

Results: We observed high incidence of IPT related AEs within a 3 month period. Although few AEs were severe, 6% of individuals discontinued IPT. We recommend careful monitoring and reporting of IPT toxicity to ensure maximal benefit of IPT.

Conclusions: We observed high incidence of IPT related AEs within a 3 month period. Although few AEs were severe, 6% of individuals discontinued IPT. We recommend careful monitoring and reporting of IPT toxicity to ensure maximal benefit of IPT.
Methods: The FASH protocol was used on HIV/TB patients and selected HIV-positive controls in Zomba Central Hospital, Malawi to determine the proportion of microbiologically confirmed HIV/TB patients with FASH features by trained clinicians triested within the STAMP TB urine-diagnostic trial. Controls were HIV-positive patients without evidence of TB on microbiological testing and clinical features by 2 months post enrolment. Clinicians using FASH were blinded to urine-test status (but not TB status).

Results: 93 HIV-positive adults were enrolled on admission to hospital and underwent FASH. 42 were microbiologically confirmed TB patients and 51 controls without TB. 32.1% male; mean age 39.5 years (SD 8.8); mean hemoglobin concentration 9.19 g/DL; mean CD4 179 cells/µL (IQR 76-298); mean CD4 count 177 vs. 312 cells/µL (p<0.001) and mean Hb (7.8 vs. 10.5 g/DL, p<0.001) were lower in TB cases than controls. 38/42 (90.5%) HIV/TB patients were urine-test positive. 23/42 (54.8%) HIV/TB patients had at least one feature of EPTB on FASH compared to none of the control patients. Prevalence of pericardial effusion was (33.3%), abdominal lymphadenopathy (31.7%), splenic micro-abscesses (30.9%), pleural effusion (11.9%), ascites (2.4%). Due to the high prevalence of urine-test positive disseminated TB in this cohort, we were unable to compare FASH features with urine-test negative HIV/TB patients.

Conclusions: FASH features of EPTB are common in hospitalised HIV/TB patients, and appear specific in this cohort as patients without microbiological and clinical evidence of TB were unlikely to have FASH features. In the absence of urine-based TB tests, the FASH protocol may be useful for TB diagnosis in HIV-positive patients admitted to hospital in low-resource settings.

WEPEB073

Poor treatment outcome and higher mortality rate among TB/HIV co-infected patients compared to TB without HIV infected patients

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1HIV-NAT Thai Red Cross AIDS Research Centre, Bangkok, Thailand. 2Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thai Red Cross Society, Department of Medicine, Faculty of Medicine, Bangkok, Thailand. 3Rajavithi Hospital, Department of Medicine, Bangkok, Thailand. 4Bamrasonarudra Infectious Diseases Institute, Ministry of Public Health, Nonthaburi, Thailand. 5Kirby Institute, University of New South Wales, Sydney, Australia

Background: Thailand is one of fourteen countries that has a high burden of TB, MDR-TB and co-prevalent TB/HIV. Over the past decade, the Thai health system has sought to improve HIV/TB treatment and care. Understanding treatment outcomes and factors associated with mortality in these TB/HIV co-infected patients is essential for further improvement of TB/HIV care management.

Methods: Participants diagnosed with active tuberculosis from 2008-2016 at 3 hospitals were included in this analysis. These hospitals which form the clinical cohort network called the “Thailand Big City TB research network”. The primary outcome of current study was treatment outcomes among TB/HIV co-infected patients compared to TB non-HIV infected patients. Successful treatment was defined as cure (i.e smear- or culture-negative in the last month of treatment) and treatment completed (i.e. completed treatment without bacteriologically confirmed failure). The secondary objective was to determine factors associated with mortality using logistic regression.

Results: A total of 998 participants were included in the study. Of these, 228 (22.8%) were HIV infected participants. The majority of participants were male (59.5%) with median age 41 (IQR 30-59) years. Among HIV infected participants, baseline median (IQR) CD4 cell count was 74 (27 - 198) cells/mm3. Overall, successful treatment outcomes occurred in 74.3% of patients. The treatment success rate was 77.3% among non-HIV infected TB patients in contrast to 64.5% among HIV/TB patients (p<0.001). One hundred forty-five (64%) HIV infected participants received anti-retroviral treatment (ART) during course of TB treatment. Age > 50 years (adjusted odds ratio [aOR] 4.11, 95% CI 1.95 - 8.66; p<0.001) and body weight ≤45 kg (aOR 2.19, 95% CI 1.14 - 4.23; p=0.02) and HIV positive status (aOR 3.74, 95% CI 1.74 - 8.05; p<0.001) were independently associated with the death after TB treatment.

Conclusions: Treatment success rate in HIV co-infected TB patients were lower than that observed in non-HIV infected patients. Patients with advanced age, and those with low body weight have an increased risk of mortality. Strategies to increase ART uptake and prevent active TB infection should be implemented among HIV infected patients.

WEPEB074

Bacterial, non TB mycobacterial, viral and parasitic infections

W. Jalo, M.C. Lourenco, É. Silva, V.G. Veloso, B. Grinsztejn, J. Moreira, C.C. Lamas

Fundacao Oswaldo Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil

Background: Bacterial, non TB mycobacterial, viral and parasitic infections (BNTMVI) are the commonest causes of death among patients attending an HIV referral center in Rio de Janeiro, Brazil.

Methods: The search network “Thailand Big City TB research network” was used to identify the proportion of TBM, BNTMVI and drug-resistant TB in HIV-infected patients from 2005-2017.

Results: During the study period, 363 episodes of IPD were identified in 54 adults. Forty-eight (76%) were diagnosed in 40 HIV-infected patients. The incidence of IPD was 240 episodes per 100,000 person-years in HIV-infected patients. HIV patients were younger (41±9 vs. 61±18, years), median CD4+ was 239 (157-448) mm3 and 63.5% were on ART. Predisposing factors for IPD were smoking (52% vs. 28.6%; p<0.12), inhaled cocaine (4.8% vs. 0.0%; p<0.001), cannabis (29.2% vs. 0.0%; p<0.001), COPD (18.3% vs. 4.0%; p<0.003), alcohol intake (48% vs. 13%; p<0.01 in HIV positive and negative groups, respectively). Clinical syndromes were pneumonia (89.6% vs. 73%), meningitis (4.2% vs. 13%), and primary bacteremia (63.3% vs. 13%). There were no differences according to HIV status regarding the proportion of patients with diabetes (40% vs. 40.7%), hypertension (40% vs. 39.5%), alcohol intake (48% vs. 41%), smoking (52% vs. 46%), TB diagnosis (45.8% vs. 45.8%), diabetes (28.6% vs. 28.6%), COPD (18.3% vs. 18.3%), alcohol intake (48% vs. 48%), BMI (24.6 vs. 24.6%). Bacterial, mycobacterial, viral and parasitic infections were more frequent in HIV infected patients compared to HIV-negative patients (40% vs. 6.3%; p<0.001) and among patients in drug-resistant TB (50% vs. 25%; p<0.001) and in patients with CD4+ <200 cells/mm3 (59% vs. 23%; p<0.001).

<table>
<thead>
<tr>
<th>Risk factors for death after TB treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Univariate</strong></td>
</tr>
<tr>
<td>Odds ratio</td>
</tr>
<tr>
<td>Age &gt; 50</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Weight ≤ 45 kg</td>
</tr>
<tr>
<td>Type of TB: pulmonary</td>
</tr>
<tr>
<td>Prior TB diagnosis</td>
</tr>
<tr>
<td>HIV positive</td>
</tr>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
</tr>
</tbody>
</table>

Publication Only Abstracts

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Late Breaker Abstracts
WEPEB076
Gut homing CD4+ T cell count is associated with chronic gastritis activity
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Background: Previous studies have shown people living with HIV (PLWH) with lower CD4+ T cell counts are less susceptible to chronic gastritis and Helicobacter pylori (H. pylori) infection. Animal model shows that host adaptive immunity is essential for the development of gastritis caused by H. pylori infection, which suggests that peripheral blood gut-homing CD4+ T cells have some roles in the development of chronic gastritis in PLWH.

Methods: We conducted a prospective cross-sectional study of PLWH who underwent upper gastrointestinal endoscopy from April 2014 to March 2016 in our institute. Biopsy specimens were obtained at the time of gastroendoscopy, which were used for classification of histologic gastritis by updated-Sydney system. Peripheral blood mononuclear cells were collected at the same point to determine the frequency of peripheral blood gut-homing CD4+ T cells (CCR9+integrin 71) and CD4+ memory T cells subsets (Th1; CCR6-CXCR3+CCR4+, Th2; CCR6-CXCR3-CXCR4, Th17; CCR6-CXCR3+CXCR4, Th17/1; CCR6+CXCR3+CXCR4) by flow cytometry.

Results: Sixty-six patients (median CD4 count 403 [range 2-118] cells/μl) were enrolled in the study. Chronic active gastritis defined by histologic neutrophil infiltration using updated-Sydney system was observed in 15 (22.2%) patients. H. pylori was detected in 14 of the 15 (91.7%) patients. The flow cytometry data showed that the count of peripheral blood gut-homing CD4+ T cells was higher in PLWH with chronic gastritis compared with those without (168 cells/μl vs. 102 cells/μl, p=0.033). Additionally, those with gastritis had significantly higher gut-homing Th1 cell counts (3.33 cells/μl vs. 0.494 cells/μl, p=0.0057) and gut-homing Th17 cell counts (0.404 cells/μl vs. 0.245 cells/μl, p=0.0201) (Fig.). No significant difference was found between the two groups on the count of peripheral blood total Th1 cells (89.8 cells/μl vs. 71.4 cells/μl, p=0.24) and gut-homing Th17 cells (3.40 cells/μl vs. 2.49 cells/μl, p=0.37).

Conclusions: This is the first report showing the association of gut-homing CD4+ T cells with chronic active gastritis in PLWH. PLWH with chronic active gastritis caused by H. pylori have higher count of peripheral blood gut-homing CD4+ T cells, in particular Th1 cells. Our data suggest that Th1 play a key role in the development of chronic gastritis in PLWH.

WEPEB075
Lower prevalence of Entamoeba species in children with vertically transmitted HIV infection in Western Kenya
E. Maley
Kenya Medical Research Institute, Nairobi, Kenya

Background: Entamoeba histolytica infections are highly prevalent among HIV-infected men who have sex with men (MSM). However, it remains unclear whether HIV-infection is a risk factor for E. histolytica infection. Also, little attention has been paid to other Entamoeba sp. infections and their association with HIV in sub-Saharan Africa.

Methods: Stool samples from 234 asymptomatic children (median age, 10 years; interquartile range IQR, 7.0-12.0) in Kisumu, comprising sex-age matched 123 HIV vertically-infected and 111 HIV-uninfected children. Reliability of Entamoeba sp. infection as an indicator of HIV-infection was then evaluated.

Results: The overall prevalence of Entamoeba spp. was significantly lower in the HIV-infected than in the HIV-uninfected (27.9 vs. 13.0%, P ¼ 0.005). Among the HIV-infected children, CD4 T-cell counts were significantly higher in those with multiple Entamoeba spp. infection (median, 1261 cells/ml) than in those without the infection (918 cells/ml, P=0.03) or those with the single Entamoeba spp. infection (787 cells/ml, P=0.03).

Conclusions: These findings indicate that the HIV infection is not a risk-factor for Entamoeba spp. infections, and suggest that better immunological status may play a role in the establishment of multiple-Entamoeba spp. infections. However, in this study, the prevalence of E. histolytica was too low (1.33 cells/μl vs. 0.494 cells/μl, P=0.24) to conclude the relationship between E. histolytica infection and HIV infection. Also, social-behavioral and immunological analysis would also be needed for better understanding of these findings.

WEPEB077
The comparison of pyrimethamine-sulfadiazine and pyrimethamine-clindamycin for toxoplasmic encephalitis therapy in HIV/AIDS patients: An evidence-based case report
Y.D. Oktavianda1, F. Prasetyawaty2,3
1Universitas Indonesia, Jakarta, Indonesia, 2Universitas Indonesia, Internal Medicine, Jakarta, Indonesia, 3RSUPN Dr. Cipto Mangunkusumo, Internal Medicine, Jakarta, Indonesia

Background: Toxoplasma gondii is one of the opportunistic pathogens in AIDS patients, known as toxoplasmic encephalitis (TE). In Indonesia, 32.8% of HIV patients who have neurologic symptoms showed a posi-
Viral hepatitis B and D

**WEPEB078**

Prevalence of hepatitis B virus among HIV and non-HIV infected pregnant women in Jos, Nigeria


University of Jos, Obstetrics and Gynaecology, Jos, Nigeria, University of Jos, Medical Microbiology, Jos, Nigeria, University of Jos, Community Medicine, Jos, Nigeria, Plateau State Specialist Hospital, Obstetrics and Gynaecology, Jos, Nigeria, Bangham University Teaching Hospital, Obstetrics and Gynaecology, Jos, Nigeria, Our Lady of Apostles Hospital, Obstetrics and Gynaecology, Jos, Nigeria, Faith Alive Foundation Hospital, Obstetrics and Gynaecology, Jos, Nigeria, Faith Alive Foundation Hospital, Chemical Pathology, Jos, Nigeria, Northwestern University Evanston School of Medicine, Division of Infectious Diseases, Chicago, United States

**Background:** Nigeria is among the countries with the highest burden of TB in sub-Saharan Africa. Understanding the prevalence of HBV among pregnant women may be critical in reversing the trend of HBV infection in our population. The aim of the study was to determine the prevalence of HBV infection among HIV and non-HIV infected pregnant women in Jos, Nigeria.

**Methods:** This was a facility-based cross-sectional study among antenatal care attendees in seven health facilities in Jos. Data was obtained on socio-demographics, risk factors for HBV infection, and outcome of screening for HBV using in vitro diagnostic rapid kit (Acon Laboratories, USA) between the first of November 2017 and twelfth of January 2018. Analysis was done using STATA version 15 software.

**Results:** The study population was 1,358 Antenatal Attendees. The mean age ± standard deviation was 28.6 ± 5.9 years. Most (98.9%) of the women were married. The age distribution was: 15-30: 54 (3.8%), 31-45: 229 (17.1%), 46-60: 1,244 (96.2%). The majority (97.7%) of the women had ≤ 2 sexual partners. The prevalence of HBV infection among all pregnant women was 7.3%. The prevalence among HIV infected and non-HIV infected was 20.8% and 6.7% respectively. The prevalence was significantly associated with age (p < 0.001), parity (p < 0.01) and HIV status (p < 0.001). The risk for HIV infection was twice higher among those aged 15-30 years, compared with those of 31-45 years (OR = 1.9, 95% CI = 1.3 - 3.1). The primi-gravidas were twice likely to be positive for HBV infection, than multi/grand multiparous (OR = 17.95; CI = 1.2 - 2.6), while the HIV positives were three times more likely to be positive for HBV infection, compared with HIV negatives. (OR = 2.9; 95% CI = 1.3 - 5.8).

**Conclusions:** The prevalence of HBV among HIV infected and non-infected pregnant women in Jos was high. The prevalence rate was significantly associated with 15-30 years of age, primipara and HIV positive pregnant women.

**WEPEB079**

Screening HIV infected women on ART for hepatitis B co-infection in Malawi: Sub-optimal sensitivity of dried blood samples

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**Background:** Option B+ in Malawi, a test and treat strategy for HIV-infected pregnant and breastfeeding women, can provide concurrent treatment for hepatitis B virus infection (HBV). No data exist on HBV/HIV co-infection outcomes in regional Option B+ programs, partly due to logistics and costs of HIV screening in low-resource settings. Studies suggest using dried blood spot (DBS) specimens for screening. We report validation of testing DBS for hepatitis B surface antigen (HBsAg) in the National Evaluation of the Malawi PMTCT Program.

**Methods:** A nested cohort of 1,300 HIV-infected women (4-26 weeks postpartum) recruited from May 2015 to July 2016; 91.5% were on antiretroviral therapy (ART; tenofovir/lamivudine/efavirenz). At enrolment, DBS and venous samples were collected in field circumstances. DBS were shipped to an international reference laboratory and stored at -20°C. Serum samples were stored in a laboratory in Malawi at -80°C. 500 matched DBS/serum specimens were randomly selected; all testing was conducted in the Malawi laboratory. Eluted dried blood and serum samples were tested with Bio-Rad Genetic Systems HBsAg EIA 3.0. Receiver operating curve analysis determined ideal cut-off for DBS. Serum was analyzed for HBsAg (Abbott m2000) and HBsAb (DiaSorin ETI-EBK Plus). To validate DBS vs. serum as gold standard, we calculated sensitivity, specificity, positive and negative predictive values (with confidence intervals (CI)) using Wilson method and a kappa coefficient.

**Results:** Serum HBsAg testing yielded 27/500 (5.4%) positives. DBs HBsAg testing yielded 22/500 positives (4.4%); none were false positives. All five false negative DBs were HBsAb negative and had undetectable HBV DNA (serum). Sensitivity of DBs HBsAg testing was 81.3% (95%CI
WEPEB080
Antiretroviral effects on liver function in a HIV/HBV co-infected African cohort

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Background: Many drugs categorized as antiretroviral therapy (ART) carry some risk of liver injury. This risk may be amplified with hepatitis B virus (HBV)/co-infection, which is common in sub-Saharan Africa. HBV testing is recommended in all HIV patients, and co-infection warrants specific combination therapy targeting both viruses. In sub-Saharan Africa, resource limitations may preclude hepatitis testing and vaccination. We examined ART regimens of study participants with HIV/HBV co-infection in four African countries and assessed markers of liver injury.

Methods: AFRICOS is an ongoing cohort that enrolls participants at 11 PEPFAR-supported clinics in Uganda, Kenya, Tanzania, and Nigeria. Clinical and laboratory assessments are performed every six months. The most recent alanine aminotransferase(ALT), total bilirubin(TBILB), platelet count, CD4 count, and HIV viral load were used for these analyses. Groups of HIV/HBV co-infected participants were compared based on current use of individual, potentially hepatotoxic drugs (nevirapine, atazanavir, lopinavir). We also compared each regimen for associations between the drugs and hepatic outcomes were assessed using DBS HBsAg screening, unless testing has been contextually validated.

Results: We enrolled 2635 HIV infected participants through June 1st 2017, of which 140 were HIV/HBV co-infected, including 106 prescribed recommended co-infection regimens. 24% were not on recommended regimens: 12 were ART-naive and 22 were taking ART that included lamivudine or emtricitabine without tenofovir, conferring risk of development of resistant HBV. At their most recent visit, 28 of the 126 co-infected participants with ALT value assessments were on nevirapine. B were on lopinavir, and 3 on atazanavir. None of these groups had a significant change in mean ALT, TBILB, or platelets other than atazanavir which had an expected rise in TBILB (1.77 vs 0.397, p-value 0.031). There was a significant increase in the number of most recent ALT measurements over 100 in the nevirapine group vs. the non-nevirapine group (7%vs 0%, p=0.008).

Conclusions: While some HIV/HBV co-infected participants were not on recommended regimens, most regimens were not associated with significant increases in liver enzymes. This may have been due to small sample size of the potentially hepatotoxic regimens. These results reveal gaps in the appropriate management of HIV/HBV co-infection.
**Viral hepatitis C**

### WEPEB082

**HCV treatment cascade in the Netherlands:** DAA uptake varies by key population, effectiveness factors were independently associated with remaining in need of HCV treatment and co-medication use

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**Background:** HIV/HCV co-infected patients in the Netherlands have unrestricted and fully reimbursed access to direct-acting antivirals (DAAs) since November 2015. We assessed both the uptake of DAA treatment and determinants of remaining in need of treatment for HCV, updating a published earlier analysis.

**Methods:** An HCV treatment cascade was constructed using data from the national ATHENA cohort up to 1 January 2018, including HIV-positive individuals in care, with a documented chronic, or acute HCV infection.

**Indicators were:**
1. retained in care
2. ever treated for HCV
3. completed HCV-treatment
4. achieved SVR
5. evidence of active HCV infection

**Determinants of individuals remaining in need of HCV-treatment, including either never having been treated or having failed prior HCV-treatment, were identified using logistic regression, adjusted for socio-demographic and clinical characteristics.** Severe liver fibrosis was defined as fibrosis stage Metavir F3 or higher.

**Results:** In total, 1,459 people were in care and had ever been registered with HCV co-infection (figure). As of January 1, 2018, 83% (1,225/1,459) of these HIV/HCV co-infected individuals had their HCV infection cured, with the number of individuals in care with active HCV having declined to 244.

Of these 244 patients, 127 had never been treated, 67 had failed prior treatment, in 32 DAA treatment was ongoing, and 18 were awaiting SVR12 results. After excluding these 32 and 18 patients, the following factors were independently associated with remaining in need of HCV-treatment:

- **HIV transmission through heterosexual contact (OR 3.55; 95% CI 1.97-6.40) or by injection drug use (5.02; 3.09-8.28) compared to men who have sex to men, no documented current cART-use (3.05; 1.34-6.91), CD4 cell count < 200 cells/mm3 (3.02; 1.51-6.05) at time of HCV treatment initiation for previously (unsuccessfully) treated, and most recent CD4 for untreated individuals; no documented genotype (3.17; 1.79-5.60) increasing number of comedication prescriptions (1.12 (1.03-1.20 per prescription): shorter duration of HCV infection (0.95; 0.92-0.99 per year increase).**

**Conclusions:** DAAs treatment scale-up for HIV/HCV co-infected people in care in the Netherlands continues to progress, but appears to be lagging behind in more challenging subgroups of patients, including those with insufficiently treated HCV infection.

### WEPEB083

**High hepatitis C treatment uptake and cure rate in pilot treatment programs for HCV/HIV coinfected patients in Phnom Penh, Cambodia**

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**Background:** As Direct Acting Antivirals (DAAs) for treatment of hepatits C (HCV) are becoming increasingly affordable, there are unprecedented opportunities for scale-up of treatment worldwide. However, experiences with these new treatments from resource-constrained settings remain limited. We evaluated the safety and effectiveness of two pilot HCV treatment programs among HIV patients in Phnom Penh, Cambodia.

**Methods:** Data from HIV patients from Shihanouk Hospital Center of Hope (n=98) and Médecins Sans Frontières’ HCV clinic in Preah Kossamak Hospital (n=147), diagnosed with chronic HCV infection, were prospectively collected and pooled. Treatment regimens were determined following international guidelines and drug availability. We assessed treatment uptake, ITT-SVR12 (intention-to-treat, sustained virologic response 12 weeks post-treatment), serious adverse events (SAEs), and ART adaptations because of co-administered DAAs.

**Results:** Among 245 HCV/HIV-coinfected consenting adult patients assessed for treatment between 09/2016 and 11/2017, 15 were excluded from treatment, and 230 (93.5%) initiated DAA – 52% (n=120) were treated with sofosbuvir/ledipasvir ± ribavirin and 41% (n=94) with sofosbuvir/daclatasvir ± ribavirin (Figure 1). Among the 230 initiated on DAAs, median age was 50 years (range 28-72), 94 (42%) were men, 61 (27%) had cirrhosis and 17 (8%) were aged ≥ 60. 244 patients (95.5%) had treatment initiation for previously (unsuccessfully) treated, and most recently treated (n=120) patients (n=120) were treated with sofosbuvir/ledipasvir ± ribavirin and 41% (n=94) with sofosbuvir/daclatasvir ± ribavirin (Figure 1).

**Treatment completion was 99.6% (229/230), and ITT-SVR12 was 93.5% (99/95% CI: 89.5-96.3), with one lost during treatment, two deaths after treatment and before the three-month follow-up, and six patients with treatment failure, of which three were cirrhotic and one treatment-experienced.** ITT-SVR12 was 96.5% for GT3b and 91.9% for GT6. SVR12 when excluding those lost to SVR12 testing was 98.4% (95% CI: 93.1-98.4). SAE occurred in 0.4% (1/230) of the patients - one death potentially caused by acute-on-chronic liver failure after SOF/LDV. No other SAEs were reported.

**ART regimens of three patients were adapted at DAA start (dose reduction from treatment, and before the three-month follow-up, and six patients with treatment failure, of which three were cirrhotic and one treatment-experienced.** ITT-SVR12 was 96.5% for GT3b and 91.9% for GT6. SVR12 when excluding those lost to SVR12 testing was 98.4% (95% CI: 93.1-98.4). SAE occurred in 0.4% (1/230) of the patients - one death potentially caused by acute-on-chronic liver failure after SOF/LDV. No other SAEs were reported.

**Conclusions:** Our findings demonstrate the effectiveness, safety and feasibility of DAA treatment for HCV/HIV coinfected patients in Cambodia, and provide a solid base to encourage the national HIV program to launch an integrated HCV treatment program.
WEPEBO84

Acute HCV: An emerging issue in HIV subjects in the DAAS era

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Background: Acute HCV has increased as the indication for DAAs in HIV subjects, specially among MSM with maintained risk practices, including chemsex. There are few data on the incidence, features and outcomes of acute HCV in large cohorts of HIV/HCV patients treated with DAAs in real life.

Methods: Retrospective-prospective assessment of the incidence, features and outcomes of acute HCV as the indication for DAAs in all HIV/HCV patients attended at the HIV Clinic in a teaching hospital in Madrid, Spain, between January 2015 (first availability of DAAs) and January 2018 (N=487).

Results: Overall, 24 patients (6%) received DAAs due to acute HCV, with a significant increase over the study period: 0.3% (1/331) in 2015, 6% (8/88) in 2016, 20% (13/64) in 2017, and 50% (2/4) in January 2018 (p<0.0001). When comparing patients with acute vs chronic HCV, there were no significant differences in baseline HCV load over 6M IU/mL (25% vs 23%, p=0.87), HCV G1 (70% vs 72%, p=0.49) or SOF/LDV use (65% vs 66%, p=0.92), but patients with acute HCV were significantly younger (mean age 39±8 vs 50±6, p=0.0001), male (90% vs 77%, p=0.009), and received more frequently a DAAs course of 8w or less (67% vs 11%, p=0.0001). SVR rates were also similar (88% vs 90%, p=0.4). Acute HCV was a reinfection in 5/24 (21%) vs 3/483 (0.6%), p=0.0001, 75% within the first year after SVR (mean 3.4w). All 8 subjects with reinfection received a second course of DAAS (SOF/LDV in three, SOF/VPV in two, GPV/PBV in two, GZV/EBV in one), for at least 12w in 5.

Conclusions: In clinical practice, the population of young MSM with persistent risk practices explains the observed significant increase in acute HCV as the indication for DAAs, and reinfection after prior successful DAAs represents 21% of the cases. It is mandatory an educational effort in this high-risk population.

WEPEBO85

Characterization of the hepatitis C no show phenomena in patients living with HIV

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Background: We aimed to calculate the trends in No Show hepatitis C (HCV) intake appointments among patients living with HIV (PLWH) and ascertain the predictors of HCV No Show appointments.

Methods: Retrospective cohort study among PLWH referred for HCV treatment from January 2014 to December 2017. We estimated by the proportion of new patients who failed to attend their HCV intake appointment (No Show), and, among them, the proportion who did not return for an HCV intake appointment within 180-days of first missed appointment (lack of HCV engagement in care). Logistic regression analysis was used to identify factors associated with HCV No Show. Potential predictors included demographics, CD4, and HIV viral load, type of insurance, HCV engagement in care: cirrhosis, and prior liver decompensation, Charlson comorbidity index; active alcohol, any illicit drug use, unstable housing and history of psychiatry illness.

Results: During the study period, 2,479 Owen HCV Clinic appointments were scheduled. Of those, 349 (201 patients) were HCV intake appointments. The 201 newly referred HCV patients had a medianIQ (IQR) age of 51 years (43-57), 47.8% of them were non-white, 18.4% female and 51.2% had Medicaid insurance and, most patients had undetectable HIV viral load (79.6%). Ongoing drug (31.7%), alcohol use (32.8%), psychiatric illness (37.8%) were prevalent among them. The overall No Show was 21.8% and increased by calendar year from 17.75%, 19.08%, 25.38% and 25.36%
in 2014, 2015, 2016 and 2017, respectively (p=0.021). Sixty-six of the 201 new patients (32.84%) did not attend their HCV intake appointment, and 32 of them (48.48%) did not subsequently engage in HCV care. Patients who failed to attend their intake HCV appointments were more often non-white. Hispanic. have detectable HIV viral load, and prevalent ongoing drug and psychiatric illness (Table 1). In logistic regression analysis, independent predictors of failing to establish HCV care were being non-white (OR: 2.4, 95% CI: 1.17-5.02) and having psychiatry illness (OR: 2.82, CI: 1.44-5.54, P=0.003).

Conclusions: Despite improved access to DAA, the proportion PLWH who failed to establish HCV care has increased. HCV elimination efforts require addressing disparities in HCV care and providing supportive services for PLWH in need.

WEPEBo87
Does baseline liver stiffness value influence fibrosis outcome after direct-acting antiviral treatment in HIV-HCV coinfected patients?

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Background: Data on whether direct-acting antiviral (DAAs) therapy can modify liver stiffness (LS) in patient with HIV-HCV coinfection are lacking. The aim of our study was to evaluate changes in liver stiffness after successful DAAs treatment in HIV-HCV coinfected patients and to determine factors associated with improvement of fibrosis.

Methods: We retrospectively studied all patients with HCV-HIV coinfection treated for HCV with DAAs-based IFN-free regimens who achieved sustained virological response 12 weeks after end of treatment (EOT) from October 2014 to May 2017 in the University Hospital of Bologna, Italy. LS was evaluated at baseline (BL) and within 24 weeks after EOT by elastography (Fibroscan). Linear Regression was used to analyze factors associated with LS improvement. Wilcoxon Matched-Pair Signed Rank Test was used to compare LS measurement before and after DAAs.

Results: A total of 53 patients (aged 52.7 ± 5.4, 22.6% male) were enrolled. 62.2% (34) of them had liver cirrhosis, and 18.6% (10) had Child-Pugh score ≥ 7. Genotypes 1a and 3 were the most frequent (45.3% and 26.4% respectively). The two most common DAAs regimens were Sofosbuvir/Ledipasvir 41.5% (22) and Sofosbuvir + Daclatasvir 37.7% (20). Median LS (Cohort 1 Before and After Treatment)

WEPEBo86
Clinical and health resource utilization comparisons of HCV treatments for HIV/HCV

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Background: Direct acting antivirals have improved treatment outcomes among HIV-positive patients with hepatitis C (HCV). Data were obtained from Amida Care, a Medicaid Special Needs Plan providing managed care to over 6,000 HIV-positive people with multiple comorbidities and complex psychosocial needs in New York City.

Methods: This study was an observational retrospective medical record and claims review of the plan’s first 100 HIV/HCV patients treated with sofosbuvir-containing regimens since 2013 (Cohort 1). In addition, a parallel review was conducted for 53 HIV-positive members who received HCV treatment that included either telaprevir or boceprevir from 2010-2013 (Cohort 2). The two cohorts were compared to examine differences in clinical outcomes and health care utilization using Chi-square tests for categorical data and repeated-measures MANOVA to examine change in continuous data over time, from 12 months before treatment was initiated to 12 months after its completion. This research protocol was IRB approved for informed consent waiver.

Results: There were no significant differences between the two cohorts with regard to age, gender, race/ethnicity and years since HIV diagnosis. CD4 counts and HIV viral load changes were not significant for either group. While both cohorts demonstrated a significantly greater proportion of being HCV undetectable 6-months after treatment (p < .001), Cohort 1 had a significantly greater proportion who were undetectable compared to Cohort 2 (93% and 67%, respectively, p < .005). Repeated-measures MANOVA found significant change over time in AST and ALT liver function tests for both cohorts. However, there was a significant Cohort X Time interaction, with Cohort 1 demonstrating greater improvement in liver function over time compared with Cohort 2. There were no significant resource utilization differences by cohort in emergency room, inpatient, or outpatient visits. A significant Cohort X Time interaction was observed for primary care visits which significantly increased over time, but to a greater degree in Cohort 1, which may represent better engagement in care, an outcome of the health plan’s model of care.

Conclusions: These findings support the improved efficacy of the newer HCV agents but do not support changes in health resource consumption, at least for the first year after treatment.

What is already known on this topic:

What this study adds:

(1) Table 1. Bivariate comparisons of predictors of No Show intake hepatitis C appointment in patients living with HIV)
was 14.3 kPa (IQR 10.8-22.1) at BL and 10.4 kPa (IQR 11.1-17.7) at the second evaluation during the follow up; a significant improvement in LS was observed in our population (p<0.0001), especially in those with BL LS ≥21 (Figure 1). Overall 75.5% of subjects achieved a reduction of fibrosis, after DAAs. Factors independently associated with a greater improvement in LS were diabetes (p = 0.007, B = +10) and a LS value at BL ≥21 kPa (p = 0.001, B = +6.7). No association with antiretroviral therapy nor with DAAs was observed.

Conclusions: In HIV-HCV coinfected patients successfully treated with DAAs, worse liver fibrosis at BL is associated with a greater LS improvement, suggesting a major benefit from DAAs treatment in those with more advanced liver disease. Main limitations of our study are its retrospective nature and the small sample size.

WEPEB088
Interleukine-6 decline after HCV cure is associated with VACS INDEX improvement in HIV-HCV patients

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Background: HCV eradication with direct antiviral agents (DAAs) can lead to a decrease in serum Interleukine-6 (IL6) and other immune activation markers, in HCV and HCV/HIV patients. The Veteran Aging Cohort Study (VACS) index is a score estimating the risk for all-cause mortality in HIV-infected and uninfected individuals. Aim of our study was to evaluate whether decrease in IL6 levels after DAAs treatment was correlated with improvement of VACS index, among HCV and HIV/HCV patients.

Methods: We retrospectively studied all patients cured with DAAs-based regimens from August 2015 to July 2017 in a tertiary University Hospital in Italy. IL6 levels in peripheral blood and VACS score were determined at baseline (BL), end of treatment (EOT) and 12 weeks of follow-up (FU12). Spearman’s correlation, Wilcoxon signed rank test and T-test (or Mann U-Whitney test for nonparametric variables) were used to perform all the analysis.

Results: We enrolled 110 subjects, aged 57±11 years, 61% (n=67) males. 54% (n=59) was HIV-positive. 74.5% (n=82) had cirrhosis. At BL, mean VACS index was 40±20 and median IL6 was 4.15 pg/ml (IQR 2-8), with no difference according to HIV status; a positive correlation between VACS index and IL6 was found only in HIV + (p = 0.001, R = 0.47).

In subjects (n=55) with BL IL6 above median value (4.15 pg/ml), greater decrease in IL6 levels (i.e. larger Δ-IL6) was positively associated with a greater improvement in VACS index (i.e. larger Δ-VACS), p = 0.016, R = 0.4, only among HIV+ subjects.
Consistently with these findings, Δ-VACS (from BL to FU12) was significantly different between patients who experienced a reduction in IL6 levels and those who did not only in HIV+ subset (p = 0.034), with a larger improvement of VACS index among those with a decline in IL6 (Figure 1).

Conclusions: In HIV/HCV patients cured with DAAs, an improvement in immune activation status, as measured by decrease in serum IL6 level, is associated with a reduction of VACS index, suggesting a benefit on global health and overall survival. The lack of this finding in HCV monoinfected population might be explained by a weaker association between IL6 and VACS index in absence of HIV infection.
tries. Whether this international network of HCV transmission also occurs in Asia–Pacific region, where increasing incidences of recent HCV infections have been reported, remains unknown.

Methods: HIV-positive patients with acute HCV infection in Hong Kong, Taipei, and Tokyo between 2010 and 2016 were included in this virologic and phylogenetic study. The NS5B region of the HCV genome (955 bp) was amplified by nested polymerase chain reaction (PCR) and sequenced. Acute HCV infection was defined as the seroconversion of HCV antibody in a year or documented acute hepatitis with the seroconversion. Concurrent sexual transmitted diseases (STDs) were defined as the episodes of STD occurring within 1 year of the diagnosis of acute HCV infection.

Results: Three large major institutions with HIV services participated in this collaboration and a total of 232 HIV-positive patients with acute HCV infection were included from Hong Kong (n=58), Taipei (n=140), and Tokyo (n=34). Their mean age was 29.9 (standard deviation, 14.3) years, 100% of which were men, and 94.0% were MSM. At the diagnosis of HCV infection, 73.7% had concurrent STDs and 88.4% were receiving combination antiretroviral therapy. The derived HCV sequences included 43 (72.1%) from Hong Kong, 132 (94.3%) from Taipei, and 30 (88.2%) from Tokyo, all of which were subjected to the phylogenetic tree analysis. The most prevalent HCV genotype in Hong Kong was genotype 3a (81.4%, n=35), followed by 1b (70.0%, n=3) and 3 (70.0%, n=3), in Taipei 1a (65.3%, n=73), followed by 1b (26.7%, n=25), and in Tokyo 1b (63.3%, n=9), followed by 2a (36.3%, n=8). Multiple clusters were identified, including 5 independent clusters within genotype 3a from Taiwan, 2 within genotype 1b from Japan, 1 within genotype 2c from Japan, 1 within genotype 6a from Taiwan, and 1 within genotype 1b from Japan.

Conclusions: No international network of HCV transmission was identified among HIV-positive patients in this study, while independent clusters of HCV infections occurred in each city.

**WEPEB090**
Real world data of a novel multidisciplinary hepatitis C program in an established HIV program

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Background: Delaware has among the highest chronic hepatitis C virus infection rates nationwide although there is limited access to HIV specialist care. In response, the Christiana Care HIV Community Program, the only Ryan White-funded HIV treatment program statewide, expanded to provide comprehensive HCV mono-infection care through a dedicated HCV Program in 2014. We hypothesize that expansion of the HIV care model from HIV/HCV co- to HCV mono-infection results in comparable and highly effective real-world treatment outcomes.

Methods: We performed a retrospective chart review of all co- and mono-infected patients from May 2014 through August 2017 with extraction of demographic, HCV disease and treatment status data. HCV treatment points were independently compared using an equality test for proportions between groups with an alpha of 5% (R version 3.2.1).

Results: 209 co- and 177 mono-infected patients underwent HCV evaluation with 130 and 98 patients respectively initiating HCV DAAs treatment (table 1). The HCV treatment cascade follows patients through eligible HCV treatment points (figure 1). There were no statistical differences between groups throughout the cascade except for HCV treatment initiation (100% of co- versus 94% of mono-infected patients). 9 co- and 8 mono-infected patients were overdue for SVR21. 2 mono- and 4 co-infected patients experienced treatment failure: one co-infected patient was re-infected with HCV and 1 mono-infected patient died prior to SVR21.

Conclusions: The groups were prescribed treatment and achieved virologic response and cure at high, comparable rates. The difference in groups’ treatment initiation reflects an extended time interval between treatment approval and start in mono-infected patients due to scheduling capacity within the HCV Program. The most common reasons for lack of treatment prescription amongst both groups includes insurance-mandated fibrosis staging restrictions and drug screening requirements as well as lack of requisite lab data. The refinement of an HCV cascade may further reveal gaps in the HCV care continuum amongst co- and mono-infected patients.

**WEPEB091**
Decreased hepatitis C virus (HCV) treatment uptake among HIV-HCV co-infected patients in Canada with a history of incarceration

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Background: Rates of HIV and HCV are 10- and 50-fold higher, respectively in Canadian correctional facilities than in the general population; thus, treatment strategies must target this vulnerable group in order to eliminate HCV in Canada. We aimed to determine whether incarceration impacts HCV treatment uptake in the direct-acting antiviral (DAA) era.

Methods: We analysed data from the Canadian Co-infection Cohort, a prospective multicentre cohort of 1795 co-infected participants from 18 sites in Canada. HCV RNA+ participants who completed baseline information on incarceration were included and followed from November 21, 2013 (when second-generation DAAs were approved by Health Canada) until September 30, 2017. A Cox proportional hazards model was used to assess the effect of time-updated incarceration on time to treatment uptake, and was adjusted for patient-level characteristics known to be associated with treatment uptake in the DAA era.

Results: 965 HCV RNA+ participants were included, 72% had a history of incarceration. There were 280 second-generation DAA treatment initiations (96% with interferon-free regimens) during follow-up (4/100 000
Clinical effectiveness of guideline-recommended antiretroviral therapy core agents in HIV/HCV co-infected patients in the OPERA Observational Database

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Background: HCV progression in HIV/HCV co-infected patients can become comparable to HCV mono-infection progression with effective HIV treatment. Clinical guidelines recommend the use of dolutegravir (DTG), elvitegravir (EVG), raltegravir (RAL), or darunavir (DRV) as antiretroviral therapy (ART) core agents. However, most trials included very few co-infected patients. We compared the effectiveness of recommended core agents in HIV/HCV co-infected patients in the US.

Methods: HIV/HCV co-infected patients in the OPERA Observational Database initiating a recommended core agent between 08/12/2013 and 06/30/2016 were included and stratified by ART experience. Probability and time to viral suppression by core agent were assessed with Kaplan-Meier methods and a multivariate Cox proportional hazards model. Grade 3-4 liver enzyme elevation (LLE) incidence was estimated for each core agent among HIV treatment naive patients with normal baseline liver enzyme levels.

Results: Most patients were male and received care in the South; over a third were African American (Table 1). Of the 527 ART-naïve patients initiating DTG (37%), EVG (17%), RAL (12%), or DRV (32%), 76% were HCV treatment-naïve. The 12-month viral suppression probability was lower for DRV (47%) than for DTG (60%), EVG (69%) and RAL (68%) use. Compared to DTG, viral suppression was achieved slower with DRV (HR: 0.49, 95% CI 0.35, 0.70), but was not statistically different with EVG (HR: 1.03, 95% CI 0.76, 1.40) or RAL (HR: 0.94, 95% CI 0.64, 1.39, Figure 1A). Of the 1966 ART-experienced patients initiating DTG (29%), EVG (17%), RAL (27%) or DRV (27%), >85% were HCV treatment-naïve. The 12-month viral suppression probability was lower with DRV (64%) than with DTG (83%). EVG (79%) and RAL (81%) Figure 1B). Among HCV treatment-naïve patients, there were no statistically significant differences in grade 3-4 LLE incidence in ART-naïve (DTG: 2.4%, 5% EVG: 2.6%, 3% RAL: 0.2%, 1% DRV: 4.6%, 6%) or ART-experienced patients (DTG: 3.1%, 2% EVG: 3.0%, 3% RAL: 4.1%, 3% DRV: 4.17%).

Conclusions: Regimens containing DTG, EVG, or RAL may be better choices for treating HIV/HCV co-infected patients. Compared to DTG, suppression was less likely and slower with DRV use only. LLE incidence was comparable across core agents.

WEPEB093
Wild genotype Gln11Gln TLR7 gene contributes the accelerated fibrosis progression in HIV/HCV coinfected patients in Ukraine

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Background: Approximately 40 - 75% of people living with HIV (PLHIV) in Ukraine are coinfected with HCV that impairs the course and treatment of chronic liver disease. Among PLHIV, the numbers of reported deaths due to advanced liver diseases continue to rise in Ukraine. Despite the free access of ART, the median CD4 count (IQR) of PLHIV was 44.3 (34.0, 52.3) and 39.1 (22.0, 51.1) in HIV/HCV coinfected patients in the OPERA and OPERA® database in 2013-2016. We included patients with known genotype HCV and stages of fibrosis in retrospective cohort study. The stage of fibrosis has been determined with transient elastography. We analyzed the contributing factors of accelerated fibrosis progression including socio-demographic and clinical data, as well as polymorphism of Gln11Leu TLR7 gene.

We used Cox proportional hazards regression model to analyze the measure included from the first positive HCV test to diagnosis advanced liver fibrosis (F ≥4).

Results: Accelerated fibrosis progression was associated with age over 40 years (HR: 1.9, 95% CI 1.1-3.2), male sex (HR: 2.4, 95% CI 1.2-4.5), lower level of CD4 (HR: 1.5, 95% CI 1.2-1.9), presence of TB (HR: 1.9, 95% CI 1.4-5.3) and genotype Gln11Gln TLR7 gene (HR: 1.6, 95% CI 1.1-3.7) was associated with accelerated fibrosis progression.

Conclusions: This study suggests a greater risk of accelerated fibrosis progression in HIV/HCV coinfected patients with older age, male sex, lower level of CD4, presence of TB and genotype Gln11Gln TLR7 gene. Presence of Gln11Leu allele of TLR7 gene is a protective factor of fibrosis progression in HIV/HCV coinfected patients.
bonge drinking did not relate to either HCV outcome (p>0.10). Neither drinking variable was associated with current or lifetime HCV treatment (p>0.10).

Conclusions: Among HIV/HCV co-infected individuals, those who drank despite health problems were less likely to have had HCV treatment. This did not appear to be due to provider unwillingness to recommend such medication. Although our sample is small and relied on self-report, these findings suggest that risk behaviors such as drinking despite known risk and not engaging in HCV treatment may cluster together, with potential damaging effects. Interventions to address drinking and HCV health among HIV/HCV co-infected drinkers is needed.

WEPEB094
Heavy drinking and treatment among HIV/HCV co-infected patients

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Background: Individuals co-infected with HIV and Hepatitis C virus (HCV) face increased health risks when compared with those with HIV or HCV alone. Heavy drinking can contribute to health problems and interfere with engagement in care in this population. In the era of direct-acting antiviral medication for HCV infection, it is important to know how problem drinking relates to engagement in HCV treatment. The current study aims to assess how problem drinking relates to HCV medication access among individuals with HIV/HCV coinfection.

Methods: We sampled 210 patients in a New York City sexual health clinic waiting room in 2017; of these, 39 reported HIV/HCV coinfection. These 39 patients were in middle adulthood (mean age = 53.08 ± 25.64% Hispanic), and most had a high school education (84.62%). Patients reported on binge drinking, drinking despite health problems, and HIV and HCV treatment history in a brief tablet-based survey. We assessed associations between drinking and HIV and HCV treatment using Chi-Squared and Fisher’s Exact Tests.

Results: Regarding HCV treatment, drinking despite health problems was associated with lower likelihood of ever taking HCV treatment (Fisher’s Test, p=0.035; Figure 1). Of those who drank despite health problems, only one in seven (14.3%) had ever had treatment. Of those who did not, almost two thirds (62.5%) had received treatment. Drinking despite health problems did not relate to whether HCV treatment had been recommended, and...
WEPEB096

Impact of fibrosis stage restrictions on hepatitis C (HCV) treatment initiation rates: Overall and among PWID in HIV-HCV co-infected populations in Canada

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Background: Direct acting antivirals (DAAs) have revolutionized Hepatitis C (HCV) treatment with cure rates of >90%. However, despite clinical guidelines that recommend everyone to be treated regardless of fibrosis stage, healthcare insurers worldwide have imposed restrictions due to high costs. As a result, those that maybe at the greatest risk of transmitting HCV, people who inject drugs (PWID), may face barriers to access treatment. Using a natural experiment occurring in Canada, we evaluated the impact fibrosis stage restrictions on HCV treatment initiation rates overall and specifically among PWID.

Methods: We used data from the Canadian HIV-HCV Co-Infection Cohort Study which prospectively follows 1800 participants from 18 centers. In 2016, one province in Canada, Quebec (QC) removed fibrosis stage requirements, as a restriction for people co-infected with HIV, while other provinces maintained their policies. Using a difference-in-difference framework, among HCV RNA+ participants, we determined the change in HCV treatment initiation rates before and after the fibrosis stage restrictions were removed in QC using British Columbia (BC) as the control group. Anderson-Gill generalized Cox models were used to account for recurrent outcomes and estimate adjusted hazard ratios (aHR) of initiating treatment 1-year post policy change.

Results: Between 2010-2017, there were 448 treatment initiations in BC and 220 initiations from 523 participants in QC. Figure 1 illustrates the overall temporal trends of HCV treatment initiation rates in QC and BC before and after the policy change, overall and among PWID. One-year post-policy change, QC’s initiation rate (per 100-person years) continued to increase from 24 (95% CI, 18-33) to 37 (95% CI, 28-50) while in BC initiation rates declined from 24 (95% CI, 18-33) to 8 (95% CI, 4-16). Same trends applied to PWID. The difference-in-difference aHR which accounts for both temporal trends and time-invariant differences between the provinces overall was 3.3 (95% CI, 1.4-7.4) and was 2.9 (95% CI, 0.7-12.1) among PWID.

Conclusions: Relative to BC, removing fibrosis restrictions in QC resulted in a three-fold increase in DAA treatment initiation. To meet the WHO targets of eliminating HCV by 2030, it will be essential for countries to minimize restrictions allowing for maximum treatment uptake.

WEPEB097

High rates of HCV/HIV co-infection and important correlates among people who inject drugs in Hanoi, Vietnam

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Background: HCV/HIV co-infection in people who inject drugs (PWIDs) has increasingly become a major challenge for both the health care system and for the PWIDs themselves even though an increasing number of them are entering HIV care. Vietnam is one of the countries where PWIDs have driven the HIV epidemic, and yet information on the rates of HCV/HIV co-infection and associated are limited.

Methods: From October 2015 to April 2017, peer outreach workers in Hanoi, the capital of Vietnam, recruited PWIDs who reportedly injecting drugs (PWIDs) and participated in enrollment in a research clinic of Hanoi Medical University. HCV/HIV co-infection status was ascertained by a combination of rapid Anti-HCV, HCV RNA tests, HIV confirmatory test and by certificate of enrollment in HIV care. A short questionnaire on socio-demographic and risk characteristics were conducted. All participants were assessed with FibroScan. Multinomial logistic regression analyses identified differences among groups (uninfected, HCV mono-infected and HIV/HCV co-infected) according to socio-demographic, drug use and sexual risk characteristics.

Results: Of the study sample (N=509), 78.4% were men and the average age was 39 years. The majority were ever injecting drugs (79.4%) and had co-infection with HIV, 22.6% were HCV mono-infected and 39.1% were HCV/HIV co-infected. Among those with co-infection, 19.6% were at F4 or F3 stages in FibroScan. HCV mono-infection was positively associated with being male, prior incarceration, drug injection history of more than 10 years, and previous experience with HCV testing. HCV/
HIV co-infection was positively associated with age, male gender, currently living with family, having injected for 6 to 10 years and more than 10 years, no condom use in the last 6 months, and previous experience with HCV testing.

Conclusions: Convenience sampling yielded a study sample with high prevalence of HCV and HIV and HCV/HIV co-infection. FibroScan results show high demand for HCV treatment. Those having co-infection tend to live with their families and have better understanding of HCV from previous experiences with testing, which could potentially be important resources of PWIDs during their courses of treatment.

WEPEB098 Is hepatitis-virus C therapy in HCV/HIV-Co-infected patients CNS effective?
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Background: Since modern hepatitis virus C (HCV) eradication treatment has been established, prognosis for HCV/HIV co-infected individuals has improved considerably. However, both viruses are neurotropic. Thus, the question is A) whether neuro-cognitive deficits are worse in co-infected patients in comparison to HIV-mono-infected persons and B) whether cognition improves in co-infected individuals after HCV eradication. The to date existing studies come to different results.

Methods: We prospectively examined 44 HCV/HIV-co-infected patients with neuro-cognitive deficits and eradication therapy (group A) and 43 co-infected persons with neuro-cognitive decline, but without anti-HCV treatment (group B) neuropsychologically (NP testing) and compared the results with those of age- and sex-matched HCV-mono-infected patients with neuro-cognitive deficits when starting antiretroviral combination therapy (cART) (group C). All patients were Caucasian MSM of comparable age, education and immune status before starting HCV eradication treatment or cART, respectively. Motor and neuropsychological tests were routine tests according to Antinori et al. Neurology. 2007.

Results: Motor tests revealed more pathological results in the co-infected groups, whereas neuropsychological test performance was comparable in all three groups before therapy. There were also no differences in NP testing in co-infected patients over time (79.5% in eradicated and 75.6% in the non-eradicated individuals); thus, eradication did not provoke neuro-cognitive improvement within one year after eradication, whereas HIV-mono-infected individuals showed better test results 6 months after being started on cART. However, while the percentage of patients with pathological NP test performance in HCV patients with eradication therapy was 2.2% higher after one year, it was 9.4% higher in not-eradicated individuals.

Conclusions: Our data suggest that HCV/HIV co-infected patients perform neuropsychologically worse than HIV-mono-infected patients. Eradication treatment does not improve NP deficits, but seems to prevent deterioration. These results must be confirmed in larger studies over longer periods of time.

WEPEB099 HCV reinfection following effective all-oral DAA therapy in HIV/HCV-coinfected individuals in Madrid-CoRe
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Background: High rates of HCV reinfection following sustained viral response (SVR) have been observed among injection drug users (IDU) and men who have sex with men (MSM) who engage in high-risk sexual practices with concomitant drug use. We analyzed HCV reinfection among participants in a large real-world registry of HCV/HIV-coinfected patients treated with all-oral DAA therapy.

Methods: Madrid-CoRe is a prospective registry of HIV/HCV-coinfected patients treated with all-oral DAA-based therapy in the region of Madrid. We analyzed HCV reinfection in patients who achieved SVR in 21 out of 25 hospitals contributing to Madrid-CoRe. SVR was defined as negative HCV-RNA 12 weeks after completion of treatment. The study period started on the date SVR was confirmed. The censoring date was December 31, 2017.

Results: A total of 3,139 patients started all-oral DAA therapy at the participating centers from November 2014 to December 2017. We analyzed reinfections in 2,359 HIV/HCV-coinfected individuals with SVR. We excluded 780 patients with ongoing therapy, pending SVR results, or treatment failure. Reinfections were detected in 17 patients (0.72%) overall, in 12 of 177 MSM (6.78%) who acquired HIV through sexual relations, in 5 of 1,459 patients (0.34%) who acquired HIV by IDU, and 0 of 723 patients with other or unknown mechanisms of HIV transmission. The incidence of reinfection (95% CI) per 100 person-years was 0.48 (0.30-0.77) overall, 5.93 (3.37-10.44) for MSM, and 0.21 (0.09-0.52) for IDU (Table). Reinfections were detected a median of 14.86 weeks (IQR 13.43-25.71) after SVR. In 10 (58.82%) patients, the reinfection was caused by a different HCV genotype. All 12 MSM with reinfection acknowledged unprotected anal intercourse with several partners, 7 used chemsex, 6 reported fisting, and 4 practiced slamming. A concomitant STI was detected in 5 patients. Four IDU with reinfection reported injecting drugs following SVR.

Conclusions: HCV reinfection is a matter of concern in HIV-positive MSM treated with all-oral DAA therapy in the region of Madrid. Our data suggest that prevention strategies and frequent testing with HCV-RNA should be applied following SVR in MSM who engage in high-risk practices.

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(Reinfection rates after SVR per 100 person-years)
Other viral hepatitis (e.g. A and E)

**WEPEB100**

Current hepatitis A outbreaks in men who have sex with men - epidemiological situation in HIV patients in Chile

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**Background:** In 2017, various countries in Europe and the Americas (including Chile) experienced outbreaks of hepatitis A virus (HAV) infections in men who have sex with men (MSM). In Chile, the rate of hepatitis A susceptibility in this population is unknown. Hepatitis A vaccines are available, but not widely used. Our study aimed to analyze the epidemiology of feco-orally transmitted viral hepatitis (A and E) in HIV patients in Santiago, Chile.

**Methods:** The study used preserved samples from a previous cross-sectional multicenter hepatitis B study in adult HIV patients attending public (Fundacion Arriarán, FA) and private health centers (Clínica Alemana, CA) in Santiago. Specimens were tested for antibodies against hepatitis A (Elecsys® anti-HAV total, Roche) and hepatitis E (recomWell HIV IgG, Mikrogen). Demographic, clinical and laboratory data were obtained from medical records.

**Results:** A total of 394 patients (FA, 348; CA, 46) were included (83% male). Median age was 38 years and 99% acquired HIV sexually (83% MSM, 17% heterosexual). 15% had AIDS and 96% were on ART. In 73%, HIV viral load was undetectable and median CD4 cell count was 499 cells/µL. Of all patients, 77% (CI95%, 72-81%) were HAV seropositive (FA, 79% [74-82%]; CA, 65% [51-77%]). Patients born before 1960 in the 1960s, and the 1970s had high HIV seroprevalences of 97%, 92%, and 87%, respectively. Those born in the 1980s had intermediate (64%) and those born in the 1990s very low rates (18%). Overall seroprevalence of hepatitis E was 10.4% (77-13.8%), age-dependently ranging from 18% (born before 1960) to 0% (born in 1990).

**Conclusions:** Our study highlights that a large proportion of HIV-patients of younger generations are susceptible to HAV. For risk groups such as MSM, vaccination should therefore be provided to control the current outbreak and prevent further spread. More patients of the private health sector in Chile are HAV susceptible, reflecting the more hygienic living conditions, but also the underuse of vaccination. Surprisingly, we detected hepatitis E antibodies in more than 10% of the study population. The epidemiology and clinical relevance of HEV, which has not been described HIV-patients in Chile, requires further studies.

**STI’s including HPV**

**WEPEB101**

High prevalence of sexually transmitted infections among HIV-positive women on ART: The WETIV-R cohort study in Abidjan, Ivory Coast

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**Background:** We selected cohort participants aged 18-49 years, not pregnant, and on ART since less than 24 months. In 2017, socio-demographic and RH characteristics were collected using questionnaires. Collected blood samples and endocervical swabs were tested for Chlamydia trachomatis (CT), Mycoplasma genitalium (MG), Trichomonas vaginalis (TV), Neisseria gonorrhoeae (NG), Candida albicans (CA), syphilis, herpes (HSV), and bacterial vaginosis (BV). Risk factors were identified with adjusted logistic regression.

**Results:** Overall, 431 women were included. Median age was 36 (interquartile range 31-40), median CD4 count was 371 cells/mm³ (IQR 227-508), and 23.6% received no formal education. Condom use was infrequent globally (25.6%, 116/431). Among women in a stable partnership (75.8%, 326/431), 22.5% (73/324) had an HIV-positive partner and 64.3% disclosed their HIV status to their partner. Women whose stable partner was HIV-negative were more likely to report using condoms regularly (42.2%, 6/109) than those whose partner was HIV-positive (5.0%, 15/73; p<0.005) or of unknown HIV status (26.2%, 38/144; p=0.009). Overall, STI prevalence excluding BV was 36.9% (95% confidence interval: 32.3-41.4). Prevalences of CA, CT, and syphilis were 9.9% (95% CI: 7.7-12.2) and 6.3% (95% CI: 0.9-3.7). Prevalence of HAV and TV was below 1%. No cases of NG or MG were detected. BV prevalence was 50.8% (95% CI 46.0-55.6). After adjusting for age, education, study site, and condom use, women with an HIV-positive partner were at a higher risk of STIs than single women or those whose partner’s HIV status was negative or unknown (adjusted odds ratio 2.1, 95% CI: 1.2-3.8).

**Conclusions:** There is an urgent need to integrate STI management into HIV care. Further investigation is needed to address the vulnerability of women in seroconcordant couples. Strategies for better male involvement in STI testing and management are necessary to ensure treatment efficacy.

**WEPEB102**

Collating molecular assays Abbott RealTimeTM high-risk HPV and Roche Linear Array® HPV genotyping test for detection of high-risk human papillomavirus: A means for facilitating HPV screening in HIV-1 positive women

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**Background:** HPV-positive women are at higher risk of cervical cancer. Testing HIV-positive women for HR-HPV using molecular assays could improve cervical cancer screening. Abbott RealTimeTM High-Risk HPV (AB) is a recent assay that detects 14 high-risk HPV genotypes, whereas Roche Linear Array® HPV Genotyping (RLA) is an established assay detecting 37 HPV genotypes. The present study evaluates the clinical performance of AB with RLA using identical cervical cytobrush specimens.

**Methods:** Cervical cytobrush specimens from 129 HIV-1 positive women from Pune, India with known cervical cytology were analyzed using two molecular assays: AB and RLA. As the response variables were categorical, Kappa 0 statistics was used to evaluate the agreement between the two assays with 95% Confidence Interval. Chi-square test trend test was used for estimating positive rates of cervical HPV testing by the two assays according to genotypes and cervical status. Concordance among the results obtained for two assays were determined for any detectable HPV genotype. Additionally, percent positivity for HR HPV detection for two molecular assays was calculated.

**Results:** The median age and CD4 counts of 129 HIV-1 positive women were 33 years (IQR: 30, 37) and 386 cells/mm³ (IQR: 234, 552) respectively. Overall, 93/129 (72.9%) specimens showed concordant results for molecular High-Risk HPV detection (κ = 0.46, p<0.001), and high concordance rate for HPV 18 detection (κ = 0.89, p<0.001). The positive rates of cervical HPV tested by molecular assays according to genotypes and
patients who miss scheduled screening could be tracked alongside those who miss general clinic visit. Challenges identified include limited human resources, inadequate space and long waiting times.

Conclusions: The rate of cervical cancer screening in this urban clinic was comparable to the estimated national baseline-screening rate of 30% in urban areas but lower than the national guidelines target of 80% screening coverage. The findings emphasize need for additional measures geared towards increasing the number of HIV positive females screening for cervical cancer.

WEPEB104

High prevalence of HIV infection, cervicovaginal oncogenic HPV harboring unusual genotypes and HPV-related cervical lesions in immigrant women originating from sub-Saharan Africa and living in France

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Background: More than 300,000 immigrant women originating from sub-Saharan Africa were living in France. The yet unknown HPV epidemiology in this population could reflect the high HPV endemicity in Africa that is frequently associated with HIV. We herein focused on HPV molecular detection in immigrant African women living in France.

Methods: In 2017, first-generation immigrant African women attending for sexual health the Centre Hospitalier Régional d’Orléans were prospectively included. A total of 28 women (mean age 43; range, 25-66) living in France for an average of 10 years (range, 1-27) were subjected to anal and endocervical swabs, HIV and HSV-1 and 2 serology and Pap smear. HPV DNA was detected by multiplex real-time PCR (Anyplex™ II HPV28, Seegene, Seoul, South Korea).

Results: Women were mainly from Central Africa (60.7%), while a minority (39.3%) was from other divers African countries. The prevalence of HIV infection was high (87.1%) and most of these women were also seropositive for HSV (82.1%) infection. Two-thirds (63.5%) of women showed cervicovaginal HPV DNA including 72.3% of high-risk (HR)-HPV and 25.6% of multiple genotypes (mean 1.14 genotypes; range, 1-3 HR-HPV). HPV-58 (33.3%) was predominant, followed by HPV-42 (15.7%), HPV-18 (11.1%), HPV-40 (11.1%) and HPV-68 (11.1%) (Figure). Most of the HPV-positive cervical samples (55.5%) contained Gardasil-9® vaccine (Merck & Co. Inc., New Jersey, USA) genotypes. One-third (28.6%) of anal swabs were positive for HPV, with 66.6% of low-risk HPV-42. 50% of HR-HPV including HPV-16 (n-1), and 50% of multiple genotypes (Figure). Two (7%) HIV-infected women (38 and 66 years positive for HPV-58 and HPV-42/HPV-68, respectively) showed low- and high-grade cervical squamous intraepithelial lesions, respectively, whereas cytology of remaining women was normal.

Conclusions: We report unexpected high prevalences of cervical and anal HR-HPV frequently harboring unusual genotypes that may be associated with cervical precancerous lesions and high HIV prevalence in a series of immigrant women originating from sub-Saharan Africa. These observations point that immigrant women from sub-Saharan Africa constitute per se high-risk population for cervical and anal HPV infection, HPV-related cervical lesions, and HIV infection.

WEPEB103

Integrating cervical cancer screening into HIV clinical care for women: A mixed methods study on adherence to screening guidelines, opportunities and challenges in an urban HIV center in Uganda

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Background: HIV-infected women remain at higher risk of cervical cancer compared to their negative peers (incidence rates of 7.3 vs 2.5 per 1,000 person years). Annual cervical cancer is recommended for HIV positive women however, little data exists on adherence to the recommendation and factors influencing integration of screening into HIV care.

We assessed the rates of cervical cancer screening and identified opportunities and challenges of integrating screening at the Infectious Diseases Institute (IDI), a non-profit organization that provides HIV care in Uganda.

Methods: The IDI started routine screening for cervical cancer in 2014 for women <50 years using Visual Inspection with Acetic Acid (VIA). Patients with a positive VIA result are referred to Uganda Cancer Institute (UCI) while those with a negative result are rescreened yearly. We conducted a retrospective study among 4,618 women who registered at IDI between 2014 and mid-2017 to assess proportion of patients who received cervical cancer screening using patient records. In addition, we conducted in-depth interviews in July 2016 among seven patients who received cervical cancer screening using patient records. In-depth interviews in July 2016 among seven patients who received cervical cancer screening using patient records.

Results: Of 4,618 women 1,408 (30.5%) had ever screened; with median time to screening of 18 (IQR 7-29) months. Of the screened, 133/1,408 (9.5%) had a positive result and were all referred to UCI. Of 1,275/1,408 (90.5%) with a negative result, 754/1,275 (60%) were eligible for annual repeat screening-procedure and 192/764 (25.1%) were rescreened in the study period.

Among the opportunities identified by healthcare providers: cervical cancer screening can be tied to the patients’ routine clinic visit. Tailored messages can be used to emphasize the importance of screening and

<table>
<thead>
<tr>
<th>HPV genotype</th>
<th>RLA Positive</th>
<th>Negative</th>
<th>Total</th>
<th>Concordance rate (%)</th>
<th>Kappa (κ)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
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<td>All</td>
<td>Positive: 31; Negative: 32</td>
<td>AB 9; 88</td>
<td>97</td>
<td>40; 89</td>
<td>129</td>
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<td>Positive: 7; Negative: 7</td>
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<td>116; 118</td>
<td>53</td>
<td>118; 129</td>
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<td>124; 124</td>
<td>5</td>
<td>124; 129</td>
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<td>16 and/or 18</td>
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<td>AB 0; 133</td>
<td>113; 113</td>
<td>5</td>
<td>113; 129</td>
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</tr>
<tr>
<td>Other</td>
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<td>79; 97</td>
<td>32</td>
<td>105; 129</td>
<td>84</td>
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*Cordance between the two molecular assays according to HPV genotypes*
WEPEB105
Increasing trends of HIV-syphilis coinfection among pregnant women in Cameroon highlights a population-based re-emergence of syphilis infection
C. Kengne Nde1, J.D.D. Anoubissi1, J. Kengne2, J.D. Fokam3, J. Zeh Meka1, C. Nguetsot4, M.-C. Okonko5, A. Ndjofo6, S.-C. Bilonga7, J.-B. Elat Nfetam1,3
1Central Technical Group, National AIDS Control Committee, Yaounde, Cameroon, 2Faculty of Medicine and Biomedical Sciences (FMB), University of Yaounde 1, Yaounde, Cameroon, 3National HIV Drug Resistance Surveillance and Prevention Working Group, National AIDS Control Committee, Yaounde, Cameroon, 4Chantal BIAY International Reference Centre (CBIRC) for Research on HIV/AIDS Prevention and Management, Yaounde, Cameroon, 5National Laboratory of Public Health, Yaounde, Cameroon, 6USAID, Yaounde, Cameroon, 7Instituto de Altos Estudios de Salud, Mexico

Background: Syphilis and HIV can be transmitted by pregnant women to their children and it remain a public health problem in Africa. Unlike HIV, there are limited efforts in monitoring the trends of co-infection with syphilis, which thereby suggest risks of re-emergence and spreading overtime. Our study aims were to determine the trends of HIV/syphilis coinfection and syphilis infection overtime through the national surveillance system in Cameroon.

Methods: Based on a prospectively designed analysis, we conducted a study of HIV and syphilis, targeting 7000 first antenatal care (ANC-1) attendees (4000 from urban and 3000 rural sites) in the 10 regions of Cameroon during the 2009, 2012 and 2016 sentinel surveillance surveys. HIV serological testing was performed by serial algorithm as per the national guidelines. Syphilis testing was performed using the Treponema Pallidium Hemagglutination assay (TPHA) / Veneral Diseases Research Laboratory (VDRL) as per the manufacturer’s instructions. Trends were assessed for HIV, syphilis and HIV/syphilis by estimating prevalences from one study to another.

Results: As of the 2016 survey, a total of 689 women coming at their first ANC-1 were enrolled. The median age was 26 years (IQR: 21-31) and 45.47% of them were housewife. Acceptability of HIV test was 99.19% (6513/6566). We found a significant increasing trend of the coinfection HIV/syphilis ranging from 0.05% (95% CI 0.01-0.13) in 2009 to 0.59% (95% CI 0.47-0.76) in 2016. Moreover, while HIV epidemic was on a decline from 2009, prevalence of syphilis 76% (95% CI 6.99 - 8.28) to 5.7% (95% CI 4.93 - 6.4) in 2016, a huge significant increase of syphilis prevalence was observed, going from 0.6% (95% CI 0.40 - 0.80) in 2009 to 5.82% (95% CI 4.93 - 6.69) in 2016 (Figure 1).

Conclusions: HIV/syphilis coin-infection is on an increasing trend, due to the re-emergence of HIV syphilis among ANC-1 attendees in Cameroon. This epidemiological dynamics of syphilis confirms a growing burden of syphilis in the general population of Cameroon, and the need to reinforce surveillance and prevention strategies to fight STIs, alongside current efforts on HIV prevention in resource-limited settings similar to Cameroon.

Figure 1: Evolution of seroprevalence of coinfection HIV-Syphilis, HIV and Syphilis from 2009 to 2016 in Cameroon.

WEPEB106
Seroprevalence of syphilis, hepatitis C and hepatitis B markers and associated risk factors in a Brazilian cohort of individuals with a newly diagnosed HIV infection
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Background: Rates of sexual transmission of Hepatitis C virus (HCV). Syphilis and Hepatitis B (HBV) are rising in most countries with great impact in public health. Sexually Transmitted Infections (STI) can increase the susceptibility and infectiousness of HIV and can have severe clinical repercussion in co-infected patients. The objective of this study is to describe the prevalence of serological markers for syphilis, hepatitis C, hepatitis B and verify associations with epidemiological data in a cohort of HIV newly diagnosed individuals.

Methods: Epidemiological, demographic and laboratorial data from participants of prospective cohort of newly diagnosed individuals with HIV infection were collected at the enrolment. The study was conducted at the STD/AIDS Reference and Training Center (CRT-DST/AIDS) in São Paulo, Brazil, from September/2013 to September/2017. Data analysis showed that 490 (89.3%) patients were MSM (men who have sex with men). Laboratory markers of Syphilis, HBV and HCV serologies were analyzed.

Results: Prevalence of hepatitis C was 2.13% (11/531), 22.7% (8/112) MSM age ranging 22-34 years old, 81.8% (11/110) reported casual partners; 100/108(100) more than 2 occasional partners (p<0.046). Susceptible individuals to hepatitis B (anti-Hbc, anti-HBs, HBsAg negative) represented 38,1%(108/271) vaccine immunization (anti-Hbs 100m U/ml) 46.0% (217/472).

Conclusions: Data of this cohort, predominantly composed of MSM patients, showed that sexual transmission can play a major role in HCV spread. The use of condoms is important to prevent HCV infections in HIV infected individuals. Further, less than 50% of patients had immunity to HBV, showing the importance to improve vaccine coverage for this population. The implementation of a sexual behavior assessment, vaccine coverage and other factors associated with transmission can be crucial to improve STI prevention strategies.
WEPEB108
Syphilis among HIV positive women in Gaborone, Botswana: A cross-sectional study utilising a dual antibody point care test

D. Lawrence1, I. Maan1, A. Khakoo1, K. Tshola1, K. Ramontshonyana1, C. Morroni2,3,4
1London School of Hygiene and Tropical Medicine, Faculty of Infectious and Tropical Diseases. London, United Kingdom, 2Botswana Harvard AIDS Institute Partnership, Gaborone, Botswana, 3Botswana-U Penn Partnership, Gaborone, Botswana, 4Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Background: Syphilis remains a major global health issue with over 18 million cases of syphilis worldwide, the majority of which occur in Africa. There is a lack of prevalence data in low and middle income countries, partly due to the complexity and cost of syphilis diagnostics and the widespread use of syndromic STI management, reducing the imperative to secure diagnosis. Point of care tests have been promoted by the WHO to expand the availability of testing but traditionally have only included treponemal and non-treponemal antibody tests. Using a point of care test for both treponemal and nontreponemal antibody tests in a high-risk population is a potentially cost-effective approach.

Methods: Participants were enrolled from the Princess Marina Hospital, Gaborone, Botswana. We used the Syphilis Health Check, a 10-minute assay detecting treponema pallidum antibodies (Diagnostix Direct, Stone Harbor, NJ). STI testing was conducted by trained paraprofessionals. Enrolled participants were predominantly home-based, median age 45 years (IQR 40-51), median CD4 565 cells/mm(3) (392-729) and 34% (9/26) had previous genital ulcers 72% (20/26) had previously tested for syphilis, of which 36% (8/22) had tested positive. 5 tested positive for active syphilis infection.

Results: Of the 390 participants, 311 (79.7%) were non-reactive, 11 (15%) had tested positive. 5 tested positive for active syphilis infection.

Conclusions: Asymptomatic CMV replication is common in HIV infected men, and is associated with increased immune activation, T cell proliferation and larger HIV reservoirs (Gianella et al). The prevalence of CMV shedding and its relationship to HIV persistence have not been systematically investigated in HIV-infected women.

Methods: Fifty virologically suppressed HIV-infected women with an intact uterus were prospectively enrolled in New York City between July 2014 and September 2016. Participants provided genital samples (self-collected vaginal swabs N=50, provider collected cervical swabs N=15 and cervicovaginal lavage (CVL) N=15), oral samples (rinses N=50, swabs N=40), peripheral blood mononuclear cells (PBMCs, N=50) and urine (N=50) at one cross-sectional time-point. CMV DNA was quantified in each specimen by real-time PCR. Cellular HIV DNA (pol and 2-LTR) and HIV RNA (encoding gag, tat-rev and PolyA) were quantified by droplet digital ddPCR. Clinical data collected included menstrual status, current and nadir CD4+ and time on suppressive ART. One woman was CMV seronegative and excluded from the analysis.

Results: Median age was 53 years; 28 women (56%) were post-menopausal; 43 women (86%) acquired HIV through heterosexual contact. Median time on suppressive ART was 78 years (IQR 4.2-13.1). Median current CD4+ was 721 cells/μl (490-930) and Nadir CD4+ was 172 cells/μl (56-286). Of the 49 CMV-seropositive women, 15/49 (29%) had detectable CMV DNA in at least one specimen type, most frequently self-collected vaginal swabs (16%) and PBMCs (15%), followed by oral swabs (3%) and rinse (6%), CVL and urine (both 0%). Presence of detectable CMV DNA was not associated with any clinical variable. Higher levels of HIV DNA were associated with a lower Nadir CD4+ and post-menopausal status (both p<0.05 in adjusted analysis) but not with presence of detectable CMV DNA as hypothesized. There was no difference in cellular HIV transcription between pre- and post-menopausal women.

Conclusions: Unlike HIV-infected men, CMV is less frequently detected in women and was not associated with increased HIV reservoir in this study. Interestingly, post-menopausal status was independently associated with increased HIV reservoir, even after adjusting for age and duration of HIV infection. The exact mechanism is under investigation as it was unrelated to increased cellular HIV replication.

Table: Antibody Test Result (n=390)

<table>
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<tr>
<th>Antibody Test Result</th>
<th>Number (Prevalence)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treponemal and Non-Treponemal</td>
<td>5 (1.3%)</td>
<td>0.5 - 3.0%</td>
</tr>
<tr>
<td>Treponemal Only</td>
<td>64 (16.4%)</td>
<td>13.0 - 20.4%</td>
</tr>
<tr>
<td>Non-Treponemal Only</td>
<td>10 (2.6%)</td>
<td>1.4 - 4.7%</td>
</tr>
<tr>
<td>Non-Reactive</td>
<td>311 (79.7%)</td>
<td>75.4 - 83.5%</td>
</tr>
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</table>

(Results of dual antibody point of care test)

WEPEB109
CMV Replication and HIV Persistence in Pre- and Post-menopausal HIV-Infected Women on Suppressive ART

S. Gianella1, S. McDonald Tran1, M.F. Oliveira1, S. Lada1, M. Zhao1, M. Vargas1, J.S. Mathad2, T. Wilkin1
1University of California San Diego, La Jolla, United States, 2Weill Cornell Medicine, New York, United States

Background: Asymptomatic CMV replication is common in HIV infected men, and is associated with increased immune activation, T cell proliferation and larger HIV reservoirs (Gianella et al). The prevalence of CMV shedding and its relationship to HIV persistence have not been systematically investigated in HIV-infected women.

Methods: Fifty virologically suppressed HIV-infected women with an intact uterus were prospectively enrolled in New York City between July 2014 and September 2016. Participants provided genital samples (self-collected vaginal swabs N=50, provider collected cervical swabs N=15 and cervicovaginal lavage (CVL) N=15), oral samples (rinses N=50, swabs N=40), peripheral blood mononuclear cells (PBMCs, N=50) and urine (N=50) at one cross-sectional time-point. CMV DNA was quantified in each specimen by real-time PCR. Cellular HIV DNA (pol and 2-LTR) and HIV RNA (encoding gag, tat-rev and PolyA) were quantified by droplet digital ddPCR. Clinical data collected included menstrual status, current and nadir CD4+ and time on suppressive ART. One woman was CMV seronegative and excluded from the analysis.

Results: Median age was 53 years; 28 women (56%) were post-menopausal; 43 women (86%) acquired HIV through heterosexual contact. Median time on suppressive ART was 78 years (IQR 4.2-13.1). Median current CD4+ was 721 cells/μl (490-930) and Nadir CD4+ was 172 cells/μl (56-286). Of the 49 CMV-seropositive women, 15/49 (29%) had detectable CMV DNA in at least one specimen type, most frequently self-collected vaginal swabs (16%) and PBMCs (15%), followed by oral swabs (3%) and rinse (6%), CVL and urine (both 0%). Presence of detectable CMV DNA was not associated with any clinical variable. Higher levels of HIV DNA were associated with a lower Nadir CD4+ and post-menopausal status (both p<0.05 in adjusted analysis) but not with presence of detectable CMV DNA as hypothesized. There was no difference in cellular HIV transcription between pre- and post-menopausal women.

Conclusions: Unlike HIV-infected men, CMV is less frequently detected in women and was not associated with increased HIV reservoir in this study. Interestingly, post-menopausal status was independently associated with increased HIV reservoir, even after adjusting for age and duration of HIV infection. The exact mechanism is under investigation as it was unrelated to increased cellular HIV replication.
WEPEB110
Syphilis prevalence and incidence are high among HIV-infected MSM in Thailand

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Background: Syphilis infection among men who have sex with men (MSM) has been increasing worldwide. We report here on syphilis prevalence and incidence in a cohort of HIV-infected individuals in Thailand.

Methods: Syphilis diagnosis was analyzed during 2009-2017 in the SEARCH 010/RV254 cohort of acute HIV infection (AHI) in Bangkok and Pattaya, Thailand. VDRL was performed routinely at baseline and every 24-48 weeks on all participants and in addition when clinically indicated. Positive results are confirmed with titer and TPHA. All participants were offered antiretroviral therapy (ART) at AHI diagnosis with clinical and virological monitoring performed every 12 weeks.

Results: Among 523 participants with AHI median age was 26 IQR 22-31 years. 97% were male and 93.5% were MSM. Syphilis prevalence at enrollment was 14.1% (n=74), rising from 4.4% in 2010 to 2011 in 2017 (Figure 1chi-square test for trend p<0.001). Incident syphilis occurred in 21.8% (n=58) annually increasing from 3.1% in 2010 to 15.7% in 2012 and remaining in the range 8-16% through 2017 (chi-square for trend p=0.42). Cumulatively, 32.9% of the cohort had at least one episode of syphilis. Participants with syphilis were more likely to be MSM (OR 3.93 95% CI 1.36-11.3), have multiple sex partners (OR 2.28, 1.55-3.36) and use recreational drugs during sex (OR 2.00, 1.30-3.07). Syphilis was not associated with age, education, alcohol use, or Fiebig stage at HIV diagnosis. Among 30 participants with incident syphilis who were on ART for at least 24 weeks and for whom data were available, all had undetectable viral loads at syphilis diagnosis and both 12 weeks before and 12 weeks after treatment.

Conclusions: Syphilis infection is very common among HIV-infected MSM in Bangkok and Pattaya, Thailand. Syphilis appears to have no effect on viral load among patients on ART for more than 6 months. Routine syphilis screening should be performed at diagnosis and routinely every 6-12 months while on ART for MSM with HIV in Thailand.

WePEB111
Patterns of antiretroviral drugs use and co-morbidity conditions in a cohort of older women living with HIV in Argentina

P. Mora1, M. Laurido2, L.M. Cabral3, M.C. Niccodemi2, I. Cassetti1, Hélotis Salud, Buenos Aires, Argentina

Background: Although women represent one third of the HIV-infected population in Latin America, studies addressing HIV infection, antiretroviral (ART) therapy and age-related events in older women living with HIV (WLHIV) within the region are limited. Hence, we describe the patterns of ARV drugs use and co-morbidity conditions in a cohort of older WLHIV receiving care at our institution.

Methods: Retrospective, observational study including WLHIV over 50 years old assisted at Hélotis Salud, Buenos Aires, Argentina from 1997 to 2017. Clinical, laboratory and demographic data from electronic medical charts were reviewed. History of ARV use and prevalence of common co-morbidities were assessed. The information was collected in an Ad Hoc database and T-test, Chi2, Fisher exact or Mid P tests, maximum likelihood odds ratio, and multiple regression were used as appropriate.

Results: 250 patients were included. Age mean (±SD) 58.1 (16.3) years. Time since HIV diagnosis, mean (±SD) 138.6 (65.9) years. AIDS at HIV diagnosis, mean (±SD) 11.7 (5.9) years. Viral suppression: 88.2%. Latest CD4 count, mean (±SD) 673 (312) cells/µl. Only 48 women (19.5%) remain on their first ART regimen. Currently, 134, 73, and 28 subjects are on NNRTI, PI and INI-based regimens, respectively. No preferred backbone between ABC/JTC or TDF/JTC was noted (139 vs. 107). 12 patients are still receiving AZT/3TC. In average, 2.7 co-morbidities per subject were observed. Prevalent chronic conditions were: dyslipidaemia (63.6%), low bone mineral density (66.1%), and psychotropic disorders (61.2%). Table 1 summarizes the associations among variables.

Conclusions: Chronic conditions related to metabolic syndrome were strongly associated. CVE also correlate with advanced HIV disease. Aging process negatively impacts on women’s BMD and fracture risk, as well as TDF and PI exposure. INI-based regimens demonstrate the best metabolic profile of the class, however they are almost not included as first-line therapies in our setting yet. Health care providers should be aware of this multi-morbidity when selecting treatment options for older women.

<table>
<thead>
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<th>Variable</th>
<th>LDL &gt;130 mg/dl</th>
<th>Type II Diabetes or IFG</th>
<th>Hepatic steatosis</th>
<th>Hypertension</th>
<th>Cardiovascular events (CVE)</th>
<th>Low Bone mineral density (BMD)</th>
<th>Psychiatric disorders</th>
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(Associations among variables according to multiple-regression analysis)
**WEPEB112**

**Gender differences in antiretroviral treatment outcomes in patients accessing care at a tertiary HIV care center in Southern India - need for dolutegravir based ART**

P. Selvanarayu, E. Chandrasekaran, A. Pradeep, C. Devanaj, R. Balakrishnan, N. Kumarakamy
YRGCA Care Medical Centre, VHS, Chennai, India

**Background:** Women and men differ in terms of susceptibility to HIV infection, disease progression and treatment outcomes. WHO guidelines recommend treatment for all. We undertook this analysis in our patient population to examine gender based differences in antiretroviral treatment outcomes after initiation of ART in a resource-limited setting.

**Methods:** Patients who were >18 years of age, attending YRGCA Care Medical Centre, a tertiary HIV care centre between Jan 1996 and Dec 2017 were included.

Data analyses was carried out using YRGCA Care HIV observational database. Descriptive statistics were calculated with mean and standard deviation (SD) for variables that were normally distributed, and the median and Interquartile ranges (IQR) were calculated for variables influenced by extreme values. To compare proportions, chi-square statistics were used, and the Mann-Whitney U test was used to compare median durations. Statistical analyses were performed with IBM SPSS software 24.0. A p-value <0.05 was considered statistically significant.

**Results:** 5291 patients who initiated ART were studied. Women were younger (41.1 vs 45.9, p<0.001), had higher CD4 at enrolment (318 cells/µL vs 200 cells/µL, p<0.001) and at ART initiation (246 cells/µL vs 194 cells/µL, p<0.001) and were less viremic (7733 copies/ml vs 3186 copies/ml, p<0.001). Women initiated treatment later than men (3 months vs at enrollment, p<0.001). TDF/XTC/EFV was the ART most commonly prescribed (47.4% vs 41.8%). 1.1% women and 1.5% men were on TDF/XTC/DTG.

Women experienced more CNS related toxicities to EFV and hence short. Women experienced more CNS related toxicities to EFV and hence women initiated treatment later than men (3 months vs at enrollment). Women were less viremic (7733 copies/ml vs 3186 copies/ml, p<0.001) and at ART initiation (246 cells/µL vs 194 cells/µL, p<0.001).

**Conclusions:** The majority of those initiating care in this resource-limited setting already had advanced HIV disease, stressing importance of earlier diagnosis and linkage to care. Men compared to women had more advanced HIV disease and poorer physical health status when initiating treatment. The majority of men and women had significant depressive symptoms, stressing the need to assess and address mental as well as physical health needs.

**WEPEB113**

**Advanced HIV disease among males and females initiating HIV care in rural Ethiopia**

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**Background:** Despite recommendations for early initiation of HIV treatment, many persons living with HIV in sub-Saharan Africa enter care with advanced HIV disease. Studies from some countries report that men initiate HIV care with more advanced HIV disease than women. As part of a community trial assessing impact of peer support workers for HIV patients newly entering care, baseline survey and clinical data were collected on 1,779 adults sequentially recruited from 32 district hospitals or local health clinics in rural southern Ethiopia.

**Methods:** Baseline surveys included questions on presence of each of six clinical symptoms that lasted >1 month (defined as chronic) and the 10-item Center for Epidemiologic Studies Depression Scale, with a score >20 indicating significant depressive symptoms. CD4+ count, body mass index (BMI) and WHO clinical stage were abstracted from participants HIV clinic records. Advanced HIV disease was defined based on UNAIDS criteria as either a CD4+ count <200 cells/µm3 or WHO stage III or IV disease.

**Results:** 733 (41%) males and 1066 (59%) females were enrolled. Advanced HIV disease was present in 66% of males and 56% of females (p<0.001). Males (compared to females) had a lower CD4+ count at enrollment (287 vs. 345 cells/µm3) and were more likely to be WHO Stage III or IV (46% vs. 37%) (p<0.001). Men were also more likely to have chronic diarrhea (23% vs 17%), fevers (47% vs 40%), cough (43% vs 32%), pain (41% vs. 36%), fatigue (70% vs. 64%) and weight loss (70 vs. 65%). Men also had a lower BMI (25.3 vs. 20.2 kg/m²). Fifty-two percent of males and 57% of females had significant depressive symptoms.

**Conclusions:** The majority of those initiating care in this resource-limited setting already had advanced HIV disease, stressing importance of earlier diagnosis and linkage to care. Men compared to women had more advanced HIV disease and poorer physical health status when initiating treatment. The majority of men and women had significant depressive symptoms, stressing the need to assess and address mental as well as physical health needs.

**WEPEB114**

**Trends in antiretroviral switching and discontinuation among Canadian women living with HIV**

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**Background:** Studies on antiretroviral switching and discontinuation among HIV infected persons is essential in order to monitor adherence, monitor drug resistant strains and improve treatment outcomes. We aimed to describe trends in ART use, and to identify characteristics associated with switches or discontinuation of ART among WLWH in Canada.

**Methods:** We analysed baseline (2013-2015, n=1422) and 18-month follow-up questionnaires (2015-2017, n=1262) from the Canadian HIV Women’s Sexual and Reproductive Cohort Study (CHIWOS). The outcome of interest was self-reported use of ART at 18-months compared to baseline. Multivariable logistic regression was used to identify correlates of ART regimen switching and discontinuation.

**Results:** A higher proportion of women reported taking ART at 18 months compared to baseline (85.3% vs. 82.6%). Of the 1232 women retained for current analyses, 49.5% continued the same ART, 28.1%...
switched their ART regimen. 4.4% discontinued therapy and 9.0% remained on ART between baseline and 18-month visits. The most commonly switched agent was lopinavir/ritonavir (45.0%); most commonly discontinued were efavirenz (18.0%) and darunavir (17.0%). At 18 months, more women were prescribed integrase inhibitors (30.6% from 12.4%) and the proportion of women on single tablet regimens increased (21.7% from 17.0%).

In multivariable analysis, the odds of an ART switch were significantly lower among women of Indigenous ethnicity (aOR 0.55; 95% CI:0.34-0.86) vs. Caucasian, women living in Quebec (aOR 0.66; 95% CI:0.48-0.93) vs. Ontario, and were higher among women with a baseline CD4 count < 200 cells/mL (aOR 1.91; 95% CI:1.02-3.51) vs. >500 cells/mL. The odds of ART discontinuation were significantly lower among women born outside Canada (aOR 0.29; 95% CI:0.18-0.49) vs. Canadian-born and higher among women aged 16-30 years (aOR 1.7; 95% CI:1.32-2.16) vs. >35 years. Women living in Ontario (aOR 0.9; 95% CI:0.62-1.26) vs. Quebec, or those who perceived that taking ART would somewhat reduce the risk of transmission (aOR 2.66; 95% CI:1.23-5.76).

Conclusions: Changes in ART are relatively common (28.1% over 18-months) among Canadian W/LWH, likely reflecting rapid changes in available ART options and guidelines. While a smaller proportion (4.4%) have discontinued therapy, women 16-30 and those who may have a misunderstanding of HIV transmission should receive particular attention.

Pregnancy (clinical management issues and pharmacokinetics)

WEPEB115

Timing of initiation of ART before or after conception is not associated with adverse pregnancy outcomes: Findings from the ANRS 12136 TEMPRANO trial in Côte d’Ivoire

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Background: ART-initiation before or early pregnancy has been associated with adverse pregnancy outcomes; however such findings could be confounded by ART eligibility, ART regimen and methodological issues. We assessed the risk of adverse pregnancy outcomes by ART initiation pre- or post-conception using data from a randomized trial in Abidjan to provide evidence on pre-conception ART safety.

Methods: We investigated adverse pregnancy outcomes (stillbirth, small for gestational age [SGA], preterm delivery [PTD] and low birthweight [LBW]) in first pregnancies; a composite outcome was calculated as any adverse pregnancy outcome. In the TEMPRANO trial women were assigned to either early (irrespective of CD4 count) or deferred (WHO standard) TDF-based ART. Risks of adverse outcomes were analyzed by trial randomization strategy (intent-to-treat) to account for timing of ART initiation in relation to conception; further, in a per-protocol analysis, women in the deferred ART strategy who became ART eligible and initiated ART before conception (e.g. before the end of the first pregnancy trimester) were excluded. Pregnancy was determined at each follow-up visit and confirmed by urine test. Gestational age was based on ultrasound. Adjusted Odds Ratios (aOR) were estimated in logistic regression allowing for women’s age, parity, and the nearest CD4 cell count before conception.

Results: In total, 119 and 122 pregnancies were reported, with 83 and 86 deliveries leading to 80 and 83 live births, in the early and deferred ART strategy respectively. 17 women in the deferred ART strategy started ART before conception, their exclusion resulted in 66 live births in this group. Overall, about 35% of pregnancies resulted in stillbirths; among livebirths 21% were LBW, 19% PTD and 23% SGA. Risk of adverse pregnancy outcomes did not differ significantly by randomisation strategy in either intent-to-treat or per-protocol analysis (Table 1). Risk of any adverse pregnancy outcome (composite variable) was not associated with trial arm (intent-to-treat or timing of ART initiation before or after conception).

Conclusions: Using data from women randomly allocated to initiate ART immediately or deferred, our results provide reassuring evidence on the lack of association with timing of ART pre- or post-conception. Adverse pregnancy outcomes were common in this population however.

WEPEB116

Pregnancy rates and postpartum virologic control among perinatally HIV-infected young women in the US

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Background: There is limited data describing pregnancy and postpartum health among perinatally HIV-infected (PHIV) young women. We compare pregnancy rates among PHIV and perinatally HIV-exposed, uninfected (PHEU) women, and describe pre-conception and postpartum HIV-1 RNA trajectories among PHIV women.

Methods: Pregnancy rates were calculated among PHIV and PHEU women in the PHACS AMP Up protocol. LOESS plots and linear mixed-effects models described trends in HIV-1 RNA starting one year prior to conception, during pregnancy, and through one-year postpartum for all pregnancies among PHIV women by pregnancy outcome (live-birth or spontaneous/elective abortion).

Results: Of 323 young women enrolled in AMP Up, 273 (234 PHIV, 39 PHEU) who reported age at sexual debut and history of heterosexual vaginal intercourse were included in analyses. Pregnancy rates were higher among PHIV compared to PHEU women (IRR per 100 person-years [95% CI]: 16.5 [11.4, 23.8] vs. 10.2 [8.4, 12.3]). Of the 99 PHIV women with at least one pregnancy, 60% had 1 pregnancy, 20% had 2, 12% had 3, 4% had 4, 3% had 5, and 1% had 6, with a total of 172 reported pregnancies. 72% of the pregnancies resulted in a live-birth; 6% were spontaneous abortions, and 19% were elective abortions. At one year prior to conception the average HIV-1 RNA was 475 copies/mL in all women and slowly increased over time up through conception (Figure). During pregnancy, HIV-1 RNA levels decreased with average HIV-1 RNA < 400 copies/mL at delivery. In the first 24 weeks postpartum, HIV-1 RNA levels increased by 3.3 (1.0, 2.2) log10 copies/mL per year after a live birth and subsequently stabili-
lized with a small decreasing slope from 24 weeks to one-year post-partum (slope: -0.3 ± 0.8, 0.11 log$_{10}$ copies/mL per year). In comparison, the average postpartum trajectory of HIV-1 RNA after a spontaneous/ elective abortion remained at levels < 400 copies/mL.

**Conclusions:** Compared to PHEU women, PHIV women had lower pregnancy rates. Among PHIV women however, HIV-1 RNA levels increased after a live birth in the first 6 months post-partum, potentially indicating a vulnerable time period for HIV progression among new mothers and the importance of continued engagement in HIV care.

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**WEPEB118 Pharmacokinetics of darunavir boosted with cobicistat during pregnancy and postpartum**

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**Background:** Darunavir (DRV), an HIV-1 protease inhibitor, is primarily metabolized by CYP3A and must be administered with a pharmacokinetic (PK) booster. The PK of DRV co-administered with ritonavir have been described in pregnancy; however, DRV co-formulated with cobicistat (COBI) has not been studied in pregnant women. This study described DRV exposure when administered in fixed-dose-combination with COBI during pregnancy and postpartum.

**Methods:** IMPAACT P1026s is an ongoing, nonrandomized, open-label, multi-center study of antiretroviral PK in HIV-infected pregnant women. Steady-state 24-hour PK profiles of DRV following once-daily dosing of 800/150 mg DRV/COBI were performed during the 2nd and 3rd trimesters (2T/3T) and 6-12 weeks postpartum (PP). DRV plasma concentrations were measured by a validated HPLC method. A two-tailed Wilcoxon signed rank test (κ = 0.10) was employed for paired within-subject comparison of PK parameters.

**Results:** Nine subjects from the US were enrolled with a median age of 24 years at delivery (range 17-43). DRV PK data were available for 5, 7, and 6 women in 2T, 3T, and PP, respectively. DRV exposure was lower and clearance higher in 3T compared to PP (Table 1). Compared to previously reported values in non-pregnant adults receiving DRV/COBI 800/150 mg once-daily, 24-hour trough DRV concentrations were 78%, 85%, and 61% lower in 2T, 3T, and PP, respectively. Overall, 2/5, 1/7, and 6/6 mothers had AUC$_{0-24}$ values above the 10th percentile in non-pregnant adult patients at 2T, 3T, and PP, respectively. All subjects had 24-hour trough concentrations above 0.055 ug/mL, the threshold for the average protein binding-adjusted EC50 for wild-type virus. Viral load at delivery was < 50 copies/mL for all women. Median infant gestational age at birth was 37.86 weeks. A patent foramen ovale and ventricular septal defect were reported in one infant and determined possibly treatment related 7/9 infants were HIV-negative based on best available data, and 2 are indeterminate or pending evaluations.
Conclusions: In women taking DRV in fixed-dose-combination with COBI, the exposure to DRV appeared to be lower in pregnancy compared to postpartum. Additional PK, safety, and outcome data in pregnant women are needed before DRV/COBI can be recommended for use during pregnancy.

WEPEB119
HIV testing, retesting, and seroconversion among pregnant women attending antenatal and maternity services in Manzini Swaziland

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Background: Ensuring HIV testing for pregnant and breastfeeding women at points along the prevention of mother-to-child (PMTCT) cascade is of critical importance. In Swaziland, which has a national HIV prevalence and incidence among women aged 15-49 of 32.5% and 17% respectively, national guidelines require retesting for HIV-negative pregnant women every 2 months. Understanding the frequency of seroconversion in this population is also important, as infection incidents in pregnant women pose substantial risk for transmission to the child. We describe the proportions of pregnant women in Manzini Region, Swaziland, who tested positive after initial negative HIV test.

Methods: All HIV negative pregnant/lactating women are to be retested every eight weeks during their antenatal/postnatal visits. We analyzed aggregate PMTCT data routinely reported to the Swaziland Ministry of Health between January 2016-September 2017. We examined the numbers of women newly attending ANC, with a known HIV status at first visit, completing HIV retesting in ANC or at delivery in the maternity, and the numbers testing HIV-positive at first visit or during retesting.

Results: Of the 17,739 pregnant women newly attending ANC during the period, 98% (17,384) were tested and/or had a known HIV status including 4,132 (2.4%) who were already known to be HIV-positive and 1,945 (1.1%) who newly tested HIV positive. Of the 10,587 women that tested HIV-negative at first ANC visit, 9439 (89.7%) were retested during their ANC visits and 1149 (11%) at delivery. Among women retested in ANC, 176 (9.5%) tested HIV-positive in maternity, 27 (1.3%) tested HIV-positive.

Conclusions: In Swaziland, high numbers of pregnant women who test HIV negative on initial visits test HIV positive on repeat testing possibly representing acute infection and/or false negatives during initial testing. The maternal seroconversion can contribute significantly to the pediatric HIV burden, and needs attention as the country seeks to avert new HIV infections. In view of this and considering the limitations of aggregate data, further study is required to validate the findings. It is critical to continue supporting HIV prevention services including PrEP in pregnant women.

WEPEB120
Changes in proportion of new diagnoses of HIV infection in pregnant women living with HIV (WLHIV) and of entering pregnancy already on ART in PEPFAR programs

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Background: Regimens for prevention of mother-to-child transmission (PMTCT) of HIV have evolved from single-dose Nevirapine to lifelong combination antiretroviral therapy (ART). Among women entering pregnancy on suppressive ART, transmission risk to the infant is below 1% and maternal mortality is reduced. Ideally, all women would enter pregnancy with known HIV status, and those WLHIV would be on suppressive ART. We evaluated the rates of HIV testing and positivity, including new versus known diagnosis, and of entering pregnancy on ART among pregnant women over time.

Methods: PEPFAR PMTCT program results from 2015-2017 for 20 countries were evaluated for the proportion of pregnant women with HIV status documented, and among those positive, the proportion who knew their status and those newly diagnosed. Among pregnant women receiving ART during pregnancy, the proportion entering pregnancy already on ART was evaluated over time and the proportion of women with a known diagnosis of HIV entering pregnancy on ART was calculated.

Results: During the three-year period, 36,947,696 pregnant women (95% of ANC attendees) had their HIV status documented and of these, 2,454,209 (6.6%) were WLHIV. The proportion of WLHIV with known status at first ANC visit, the proportion already on ART among all who received ART, and the proportion already on ART among WLHIV known before pregnancy across all 20 countries are shown below. The proportions of each increased annually, with year 46-4% of women known to be WLHIV already on ART at first ANC in 2017. All three indicators increased over time in each country. The proportion of known positive/total positive varied by country, ranging from 27% to 71% in 2015 and from 33% to 78% in 2017.

Conclusions: The proportion of pregnant WLHIV aware of their HIV status has increased annually, but remains below 60%, emphasizing the need for additional efforts for HIV prevention and testing in young women even before pregnancy. Since the introduction of Option B+ and test and start policies, among women with known HIV infection, an increasing proportion enter pregnancy already on ART, optimizing maternal health and minimizing the risk of maternal-to-child transmission.

WEPEB121
Adverse perinatal outcomes associated with maternal HIV infection in South Africa

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Background: HIV-positive mothers are at increased risk of having babies with adverse perinatal outcomes (APOs). The objective of this study was to assess the association between maternal HIV infection and APOs in accurately dated pregnant women in South Africa.

Methods: We conducted a prospective cohort study at the Chris Hani Baragwanath Hospital, Soweto, South Africa. Eligible women were those aged ≥18 years, Black South African, with singleton pregnancy and gestational age ≥14 weeks. Gestational age was estimated using a first-trimester ultrasound measurement of the crown-rump length in all women. Outcomes of interest included preterm birth (PTB), very PTB (VPTB), low birth weight (LBW), very LBW (VLBW), small for gestational age (SGA), very SGA (VSGA), stillbirth, neonatal death (NND), composite of APOs (composite outcome of PTB, LBW, SGA, stillbirth and NND) and composite of severe APOs (composite outcome of VPTB, VLBW, VSGA, stillbirth and NND). We used multiple logistic regression models to adjust for potential confounders: maternal age, education, marital status, socioeconomic status, smoking status, alcohol consumption, prepregnancy body mass index, parity, hypertensive disorders during pregnancy, history of PTB, history of LBW, history of stillbirth and history of NND.
Results: Data were collected on 404 HIV-negative and 229 HIV-positive mother and infant pairs. HIV-positive mothers were significantly more likely to be older (p< 0.001), less educated (p<0.0001) and parous (p<0.02) than HIV-negative mothers. Most HIV-positive mothers (98.4%) received antenatal antiretroviral therapy. Overall, there was a trend towards higher rates of each of the APOs in HIV-positive mothers compared to their HIV-negative counterparts. Maternal HIV infection was significantly associated with SGA (OR: 1.55; 95%CI:1.01, 2.38), NND (OR: 6.37; 95%CI:1.31, 30.90) and a composite of APOs (OR: 1.48; 95%CI:1.02, 2.16) remained significantly associated with maternal HIV infection.

Conclusions: Maternal HIV infection is associated with adverse perinatal outcomes, especially neonatal death and composite of APOs, in accurately dated pregnant women in South Africa. HIV-positive mothers should receive counselling regarding APOs, in addition to mother-to-child-transmission of HIV. Larger studies are needed to more accurately estimate APOs.

WEPEB122
Time of HIV diagnosis, viral load and CD4 count at antenatal care start in South Africa

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Background: The PMTCT program in South Africa is the most successful HIV prevention program given the effort in scaling up and maintaining the coverage of the service. However, as long as one third of women of childbearing age are HIV infected, the risk of HIV transmission will remain high. Therefore in the long run, it is important to ensure that ART is maintained throughout pregnancy and that ART management is enhanced during pregnancy.

Methods: We conducted an analysis of a cross-sectional survey among 411 HIV positive adult (>18 years) women who gave birth at Midwife Obstetrics Units (MOUs) in Gauteng between October 2016 and May 2017. Demographic, viral load (VL) and CD4 data at antenatal care (ANC) initiation were obtained from medical records of consenting women. We compared the CD4 count and VL suppression rates among ANC initiation (≤6 months before or ≥3 months after ANC start) among women with a pre-pregnancy HIV diagnosis to those who were diagnosed at ANC initiation. Predictors of having a suppressed VL at ANC initiation was assessed by logistic regression.

Results: Of the 411 participants, 239 (58.2%) had CD4 data and 172 (41.7%) had VL data for the period of interest. Overall women with a pre-pregnancy HIV diagnosis were more likely to present at ANC at higher CD4 (OR 2.5, 95%CI: 1.4-4.6 for CD4 ≥500, OR 2.0, 95% CI: 1.0-3.9 compared to CD4<350 cell/µl) and to those who were newly diagnosed. Similar viral suppression rates were higher among women with pre-pregnancy HIV diagnoses (OR 2.3, 95% CI: 1.1-4.0 for VL< 100 copies/ml rather than VL≥500 copies/ml).

Conclusions: The results suggest that HIV positive women with prior HIV care experiences enter ANC at better health levels than women who are diagnosed during ANC. This is encouraging and also means that the ANC processes can be streamlined to ensure that more resources are allocated to ensure that newly initiated women are adherent to ART and remain in care in the postpartum period.

WEPEB123
HIV status and viral load are not associated with shortened mid-trimester cervix, a major risk factor for preterm birth

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Background: Maternal HIV and its treatment are associated with preterm birth (PTB) and other adverse birth outcomes in many studies. The mechanisms underlying this association is not well understood. It is conceivable that HIV could cause cervical shortening – a key risk factor for spontaneous PTB and an indication for vaginal progesterone prophylaxis. We evaluated whether maternal HIV serostatus or plasma viral load (VL) were associated with mid-trimester cervical length (CCL).

Methods: We followed pregnant women prospectively in the Zambian Preterm Birth Prevention Study (ZAPPS) at the Women and Newborn Hospital in Lusaka, Zambia. Women underwent early ultrasound for gestational age determination at screening and returned for CL measurement between 16 and 24 weeks of gestation. We used logistic regression to evaluate the association between dichotomous variables (HIV infection, detectable VL) and CL.

Results: Between August 2015 and October 2017, 1451 women were enrolled into the ZAPPS cohort, of whom 1175 had at least one cervical length measurement performed at ≥16 weeks’ gestation. Among the 293 (26%) HIV+ women, 261 (89%) had a recorded viral load, of whom 122 (47%) had detectable virus. Median CL was 3.6cm (IQR 3.5,4.0). In both univariate and multivariable logistic regression (adjusting for age, parity, and gestational age at the time of cervical measurement), CL did not vary by HIV status (aOR 0.88, p=0.29). Among HIV-infected women, CL was not associated with detectable VL (aOR 0.80; p=0.43).

Conclusions: In this urban African cohort, we found no evidence of association between HIV infection and shorter CL. We conclude that the risk of preterm delivery known to be associated with HIV is likely not derived from mid-trimester cervical shortening. Routine CL screening is therefore not warranted in women with the sole risk factor of HIV.

WEPEB124
Mother-to-child transmission of HIV, pregnancy outcome and infant outcomes among HIV-positive women from a tertiary care facility

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Background: HIV prevention program given the effort in scaling up and maintaining the coverage of the service. However, as long as one third of women of childbearing age are HIV infected, the risk of HIV transmission will remain high. Therefore in the long run, it is important to ensure that the benefit of ART are sustained among previously initiated women and derived from mid-trimester cervical shortening. Routine CL screening is therefore not warranted in women with the sole risk factor of HIV.

Methods: We conducted an analysis of a cross-sectional survey among 411 HIV positive adult (>18 years) women who gave birth at Midwife Obstetrics Units (MOUs) in Gauteng between October 2016 and May 2017. Demographic, viral load (VL) and CD4 data at antenatal care (ANC) initiation were obtained from medical records of consenting women. We compared the CD4 count and VL suppression rates around ANC initiation (≤6 months before or ≥3 months after ANC start) among women with a pre-pregnancy HIV diagnosis to those who were diagnosed at ANC initiation. Predictors of having a suppressed VL at ANC initiation was assessed by logistic regression.

Results: Of the 411 participants, 239 (58.2%) had CD4 data and 172 (41.7%) had VL data for the period of interest. Overall women with a pre-pregnancy HIV diagnosis were more likely to present at ANC at higher CD4 (OR 2.5, 95%CI: 1.4-4.6 for CD4 ≥500, OR 2.0, 95% CI: 1.0-3.9 compared to CD4<350 cell/µl) and to those who were newly diagnosed. Similarly viral suppression rates were higher among women with pre-pregnancy HIV diagnoses (OR 2.3, 95% CI: 1.1-4.0 for VL< 100 copies/ml rather than VL≥500 copies/ml).

Conclusions: The results suggest that HIV positive women with prior HIV care experiences enter ANC at better health levels than women who are diagnosed during ANC. This is encouraging and also means that the ANC processes can be streamlined to ensure that more resources are allocated to ensure that newly initiated women are adherent to ART and remain in care in the postpartum period.
Wednesday 25 July

WEPEB125

The relationship between depot-medroxyprogesterone acetate and herpes simplex virus infection: Implications for HIV risk

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Background: In Sub-Saharan Africa, 8 million women preferentially use depot medroxyprogesterone acetate (DMPA) and norethisterone enanthate (Net-EN) for preventing pregnancy. Data from randomised control trials suggest a link between hormonal contraceptives (HC) and HIV acquisition among women in high HIV endemic areas; specifically injectable DMPA. There are however conflicting data, placing women at no such elevated HIV risk. With that in mind we sought to determine if women using HCs were at an increased risk of acquiring Herpes simplex virus-2 (HSV-2) infection that may act as a indirect proxy for HIV acquisition.

Methods: A retrospective sub-analysis of women enrolled in the Microbicides Development Programme (MDP) 301 trial at three Durban sites was performed. Demographic, behavioural and biological characteristics were collated and stratified by contraceptive use. HSV-2 and HIV testing was performed at enrollment and at follow up (week 40 and 52). Univariate and multivariate logistic regression assessed the effect of HC on HSV-2 acquisition. A Chi-squared test determined if the proportion of women with incident HIV infection was significantly different between HSV-2 incident and negative cohorts.

Results: 621 females were eligible for analysis. 58% used DMPA followed by 22% Net-EN and 20% oral contraceptives. 111 women had acquired an incident HSV-2 infection. Crude HSV-2 incidence was 12.8%, 20.1% and 18.8% per 100 woman-years in pill, DMPA and NET-EN users respective- ly. Regression univariate analysis revealed DMPA users at a 1.75 times elevated risk compared to women on oral contraceptives (OR 1.75, 95% CI 1.07-2.81). Women using DMPA were at an increased risk of acquiring HSV-2 compared to women on oral contraceptives (p<0.001). With that in mind we sought to determine if women using HCs were at an increased risk of acquiring Herpes simplex virus-2 (HSV-2) infection that may act as an indirect proxy for HIV acquisition.

Conclusions: Women using DMPA were at a moderate increased risk of acquiring an incident HSV-2 infection over oral contraceptives. Furthermore, we have identified a recent HSV-2 infection as a plausible contributing factor to the local HIV epidemic. It is a recommendation that women who reside in high HIV endemic communities be continually counseled about the importance of condom use – especially those using DMPA. This may be the most important strategy to ease the burden of both HSV-2 and HIV epidemics in the region.
WEPEB126
Contraceptive choices among women participating in a HIV-infected cohort: The PEPFAR PROMOTE Study

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Background: The demand for modern family planning methods in Africa is inadequately met. Furthermore, finding a suitable method of contraception is challenging in the context of HIV given various drawbacks with currently available options. Long acting reversible contraception (IMC) has the potential to curb maternal morbidity and mortality; however the World Health Organization advises against concurrent use of implants and oral contraceptive pills because it increases risk of pelvic inflammatory disease. Currently there are negative perceptions towards intrauterine devices (IUCD), short/intermediate acting injectable and oral contraception (OCP), reliance on user adherence, and use of progesterone injectables is not recommended long term due to effects on bone mineral density (BMD). This study aims to describe current contraceptive choices among African HIV-infected women.

Methods: In a prospective longitudinal cohort study across 8 sites in South Africa, Uganda and Malawi, we enrolled HIV-infected and non-infected women between December 2016-June 2017. Reported contraception use was collected through structured enrolment interviewer-administered questionnaires. Descriptive analyses of overall and country-specific methods, and categories of contraceptive choices are presented.

Results: Overall, 196 women were enrolled. Mean age was 31 years and 97% were on ART (including efavirenz). The prevalence of modern contraception use in all women was 80.2% (158/197). Excluding pregnancy and not currently sexually active, contraceptive data was available on 194 women. The frequency of contraception methods used was: injectables 54.6%, implants 23.1%, OC 19.4%, IUD 7.6%. Other 6.5%. Regular 69% (7.6%) and infrequent 58% (3.6%) condom use were in combination with other contraception. Preferred Contraceptive methods varied by country (figure). Categories of contraception method included: injectable (short/intermediate acting injectable/OCP/Condoms). 227 (72.7%) LARC (implant/IUD) and 95 (7.3%) permanent (TL/Hysterectomy). There were 1603 women on Efavirenz-based regimen; of these 166 (10.4%) received Implants.

Conclusions: Injectable and oral contraceptives remain popular choices in African women, followed by implants. However long-term effects of injectable contraception in combination with ART on BMD and potential interactions with ART, require additional evaluation. Likewise, further education of health professionals/providers is needed to increase wider usage of LARC and IUDs; and to re-educate against use of progesterone implants among women on EFV-ART.

WEPEB127
Changes in peripheral blood mononuclear cells after use of depot-medroxyprogesterone acetate (DMPA)

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Background: Depot-medroxyprogesterone acetate (DMPA), a commonly used hormonal contraceptive, may contribute to HIV acquisition risk in women. DMPA is a steroid hormone analogue. We hypothesized that DMPA use could lead to immune activation in peripheral blood, which is associated with increased HIV acquisition risk.

Methods: We enrolled postpartum HIV-negative women initiating DMPA in Kenya, and a control group of postpartum women using non-hormonal contraception (NHC). Peripheral blood mononuclear cells (PBMC) were collected at baseline (immediately before DMPA injection) and after 12 weeks. Using multicolor flow cytometry, we assessed markers of immune activation (CD38, HLA-DR, Ki67), senescence, differentiation state (InA vs. memory), and CCR5 expression on CD4+ T cells (targets of HIV infection) and compared mean percentages using t-tests.

Results: In 2014–2015, 33 women enrolled after choosing DMPA and 21 women enrolled after choosing NHC. Women choosing NHC were further from delivery (9.9 weeks v. 6 weeks) than women choosing DMPA. Baseline PBMC measurements were similar in both groups except for one marker: women in the DMPA arm had higher mean percents of activated CD4+CD38+HLA-DR+ T cells (0.57% NHC v. 1.05% DMPA, p<0.001). Women in the NHC arm demonstrated no significant change in mean percentages of all cell subsets over 3 months of follow up. Compared to NHC, women using DMPA had a 1.8% increase in mean percentage of T cells expressing CD4+ (p<0.05), a 2.1% decrease in mean percentage of T cells expressing CCR5 (p<0.03), and increases in CD27+CD45RA-CCR7+ central memory cells; CD4+: 1.9% increase, p=0.02; CD8+: 2.3% increase, p<0.001. Women using DMPA also had significant decreases over time in the mean CD10+CD56+ NK cell percentage of lymphocytes (2.4% decrease, p<0.05) and in CD4+CD28-CD57+ anergic T cells (4.5% decrease, p<0.02).

Conclusions: In this cohort study, DMPA use was associated with statistically significant, modest increases in peripheral CD4+ T cells and central memory cells. Strengths of this study were that DMPA dose was the same across all sites. Further study is needed to evaluate the effects of DMPA on immune activation in this population.

Changes in peripheral blood mononuclear cells after use of depot-medroxyprogesterone acetate (DMPA) (Peripheral blood mononuclear cells subsets before and after use of DMPA compared to a control group using non-hormonal contraception)
Menopause

WEPEB128

The association between menopausal symptoms and antiretroviral adherence in women living with HIV

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Background: Despite increasing numbers of older women accessing HIV services, there remains a paucity of data on HIV and the menopause. We explore the association between severe menopausal symptoms and adherence to antiretroviral therapy (ART) in women living with HIV (WLWH).

Methods: Analysis of data on 625 women on ART recruited to the PRIME Study, an observational study of WLWH aged 45-60 in England in 2016-17. We used the Menopause Rating Scale to ascertain symptom severity (score ≥17 indicating severe menopause symptoms). This validated scale captures data on psychological, somatic (e.g. vasomotor symptoms) and urogenital (e.g. vaginal dryness) symptoms. Adherence was measured using the CPCRA Antiretroviral Medication Adherence Self-Report Form, with patients dichotomised into optimal (100% adherence in past 7 days) or suboptimal (< 100% adherence in past 7 days) adherence. Odds ratios (adjusting for ethnicity, employment, alcohol use, current smoking and basic needs met) were obtained using logistic regression.

Results:

Median age was 49 years (interquartile range: 45-59). The majority were Black African (n=445, 72.6%), with low rates of recreational drug use (n=16, 2.6%). A minority had a CD4 count< 200 cells/mm³ (n=65, 10.9%). 10% (n=60) reported sub-optimal adherence. The majority were either peri- (n=283, 45.6%) or post- (n=201, 32.4%) menopausal; nearly a third of women (n=180) reported severe menopausal symptoms.

Adherence was associated with severity of menopausal symptoms, as well as employment status, financial ability to meet basic needs, and current smoking. Women who reported severe menopausal symptoms were almost twice as likely to report suboptimal adherence (AOR 2.47, 95% CI 1.27, 4.82, p=0.008). In adjusted analyses, there was no association between adherence and severe symptoms in the psychological, somatic and urogenital menopausal domains individually (all p>0.1).

Conclusions: We present one of the largest studies to explore menopausal symptoms and ART adherence. The majority of our participants reported optimal adherence. Severe menopausal symptoms were significantly associated with sub-optimal adherence, however we cannot assess the direction of this relationship, highlighting the need for longitudinal data. Holistic care that assesses and addresses menopausal symptoms may support midlife WLWH in maintaining optimal ART adherence.

WEPEB129

Immunological differences and increased HIV susceptibility of CD4+ T cells from healthy post- versus pre-menopausal women

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Background: Post-menopausal women are at a higher risk for HIV transmission compared to pre-menopausal women. Reasons for increased HIV risk are multi factorial and include hormone associated changes to vaginal and cervical epithetical structure, vaginal pH, condom use, and age associated immune suppression. We compared immunological markers associated with preferential HIV infection, HIV susceptibility, and the cytokine/chemokine profile of mucosal HIV transmission sites between healthy pre- and post-menopausal women.

Methods: 38 healthy women who met the eligibility criteria were enrolled. Patients were categorized into three age groups: group 1 pre-menopausal age range 18-28 (median age 23; IQR 20-26), group 2 pre-menopausal age range 30-43 (median age 37; IQR 34.5-40), group 3 post-menopausal age range 43-64 (median age 53; IQR 50-57). Peripheral blood and secretions from vaginal, endocervical, and rectal sites were collected. PBMCs were characterized by flow cytometry and the expression of cytokine/chemokines in vaginal, endocervical, and rectal secretions was determined by multiplex luminex assay.

Results: CD4+ T cells from group 1 had a significantly higher percentage of cells positive for integrin a4b7 compared to group 2 and a higher percentage of CD28+ cells (activation marker) compared to group 2 and 3. The percentage cells positive for HIV co-receptor CCR5 was higher in group 3, however this difference did not reach significance. Group 1 and 2 had a higher percentage of terminal effector memory cells (CD45RA-CCR7-) compared to group 3 while populations of naïve, central memory, and effector memory CD4+ T cells were unchanged between groups. Assessment of the susceptibility of PBMCs to HIV-1DPRK infection ex vivo found CD4+ T cells from post-menopausal women had higher percentage of HIV p24+ cells compared to group 1. Analysis of the cytokine/chemokine expression profile in vaginal, endocervical, and rectal secretions found older women in group 2 and group 3 had significantly lower levels of multiple soluble immune mediators compared to group 1.

Conclusions: This study presents clinically important information regarding immunological differences between pre- and post-menopausal women in regard to HIV transmission. Developing a better understanding of the mechanisms involved in increased HIV transmission risk has important relevance in HIV prevention.
Clinical issues in men who have sex with men

**WEPEB130**

Alarming rates of pretreatment HIV drug resistance in key populations: Results of a global systematic review

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**Background:** Key populations (KPs) (people who inject drugs (PWID), men who have sex with men (MSM), transgender people (TG), sex workers (SW) and prisoners) are disproportionately affected by HIV in all settings. HIV drug resistance (HIVDR) in KPs is poorly understood. We performed a systematic review to understand levels of pretreatment HIVDR (PDR) in treatment naïve KPs.

**Methods:** We searched 10 electronic databases to identify studies reporting PDR in treatment naïve KP groups. The search results were screened and data were extracted in duplicate, including study sample size, PDR prevalence and previous exposure to ARVs. Our analysis focuses on studies comparing levels of PDR in KP to those in the general population.

**Results:** Our search retrieved 602 articles of which 146 (81,835 participants) were eligible for inclusion. A subset of 50 studies comparing HIVDR in treatment naïve general population and at least one KP group were included for analysis, allowing for within study comparison.

Prevalence of any HIVDR was higher in treatment naïve MSM. SW and PWID compared to the general population although given limited data and heterogeneity between studies this difference only reached statistical significance for MSM (see table). A sub-analysis by WHO geographic region showed that in the Americas, PWID were more likely to carry HIVDR mutations than the general population (OR 1.55; 1.06-2.77; p=0.02).

**Conclusions:** Treatment naïve MSM, SW and PWID had consistently higher levels of any HIVDR compared to the general population, resulting in an increased risk of subsequent treatment failure and further spread of resistance. Our results have implications for HIV treatment in KP: 1) better surveillance of HIVDR in KP; 2) consideration of first-line ARV choices; and 3) increased viral load monitoring to promptly identify treatment failure. Our findings suggest that HIVDR mutations could be transmitted within KP groups and to their sexual and drug injecting partners making provision of prevention interventions for HIV positive KP and their partners imperative. Further research to understand the dynamics of HIVDR transmission and levels of virological suppression in treatment exposed KP is warranted. More data on HIVDR among prisoners and TG is needed.

<table>
<thead>
<tr>
<th>Key population</th>
<th>General population</th>
<th>Odds ratio</th>
<th>p value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSM 3077/21166 (14.5%)</td>
<td>1684/14925 (11.3%)</td>
<td>1.28 (1.08–1.52)</td>
<td>0.004</td>
</tr>
<tr>
<td>SW 23/90 (25.6%)</td>
<td>42/240 (17.5%)</td>
<td>1.04 (0.38–3.02)</td>
<td>0.940</td>
</tr>
<tr>
<td>PWID 839/2588 (33.1%)</td>
<td>1123/10015 (11.2%)</td>
<td>1.14 (0.81–1.59)</td>
<td>0.450</td>
</tr>
</tbody>
</table>

*Based on random effects meta-analysis of within study odds ratio for HIVDR

(Letters of HIV DR in treatment naive KP and general population)

Clinical issues in people who use drugs

**WEPEB131**

Depressive symptoms and association with substance abuse in the Miami adult studies in HIV (MASH) cohort

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**Background:** Depression is common among people living with HIV (PLWH) and especially prevalent in drug using populations. Depression in PLWH has been associated with greater disease progression and mortality and reduced antiretroviral therapy (ART) adherence. This study examined the prevalence of depressive symptoms using the Center for Epidemiological Depression Scale (CES-D) and its association with substance abuse in HIV infected adults on ART in MASH cohort.

**Methods:** A total of 251 HIV+ adults from the MASH cohort were consented. Questionnaires on demographics, socioeconomic status, ART, illicit drug use and Alcohol Use Disorders Identification Test (AUDIT) and CES-D were completed. CES-D score of ≥21 was considered moderate depressive symptoms, and ≥ 21 major depressive symptoms. Illicit drug use was determined with questionnaires and urine toxicology. CD4 cell count and HIV viral load were obtained from medical records. Regression models were controlled for age, gender, race/ethnicity and CD4 count.

**Results:** The median age was 53 years (IQR:49-58). 59% were male, and 65.7% were African American. The prevalence of moderate depressive symptoms was 35.5%; 22.3% had major depressive symptoms. Depressive symptoms were associated with higher AUDIT score (β=0.172, SE=0.121, P=0.008). Although, depression was not associated with CD4 count or HIV viral load, there was a significant positive association between AUDIT and HIV viral load (β=0.255, SE=0.054, P=0.039). Those with moderate depressive symptoms had greater odds of using marijuana (OR=1.94, 95%CI:1.07, 3.27, P=0.030), >1 illicit drug (OR=1.63, 95%CI:1.12, 2.77, P=0.011), sedatives (OR=1.95, 95%CI:1.08, 3.55, P=0.028) and any type of illicit drug (OR=0.86, 95%CI:1.07, 3.25, P=0.028). Drug use, regardless of type was associated with higher odds of higher viral load (OR=1.82, 95%CI:1.03, 3.24, P=0.041). Major depressive symptoms were associated with sedatives use (OR=2.07, 95%CI:1.06, 4.03, P=0.033).

**Conclusions:** Depressive symptoms were prevalent and associated with substance abuse in the HIV+ adults on ART in the MASH cohort. Although HIV viral load was not directly associated with depression, substance abuse that included alcohol, sedatives, and illicit drug use were predictors of depression. A better understanding of depression and how it may affect risky substance use behaviors among PLWH is crucial to improving their care, quality of life, and adherence to ART.

**WEPEB132**

Medical and non-medical cannabis use among HIV-positive people who use illicit drugs in Vancouver, Canada: Implications for the planned legalization of cannabis

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**Background:** The legalization of cannabis for medical and non-medical purposes is imminent in Canada. Cannabis is frequently reported among people living with HIV to manage symptoms of the disease and address side effects of antiretroviral therapy (ART). People who use illicit drugs (PWUD) living with HIV report comparatively higher rates of cannabis use, but little is known about reasons for cannabis use, particularly as they relate to HIV disease management, in this highly marginalized population.
WEPEB134

Defensive drugging - preventing drug overdose in a dynamic opioid market

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Background: The U.S. is amidst an opioid overdose epidemic, increasingly characterized by fentanyl-related deaths that may not be as amenable to peer response due to rapid progression from overdose to death. There is thus an urgent need to develop interventions that avert the occurrence of any overdose event. To improve our understanding of behavioral factors contributing to overdose, we utilized data from a pilot intervention trial addressing the syndemics of opioid overdose, HIV, and HCV to assess subjects’ understanding of the causes of personal compared to witnessed overdose events.

Methods: We analyzed 43 interviews from participants enrolled in REBOOT, a randomized-controlled trial of a behavioral intervention based on motivational interviewing to reduce overdose and HIV/HCV risk conducted from 2014-2016. Subjects were current users of illicit opioids (al but 2 injected) with opioid use disorder, had received take-home naloxone, and had overdosed within the past 5 years. Interviews were audio-recorded, transcribed verbatim, and analyzed using thematic content analysis rooted in grounded theory by three independent analysts. Concepts were determined inductively from data, which was applied to all interviews. Any coding discrepancies were discussed with the entire research team.

Results: Participants described their personal overdoses differently from those they witnessed, in a manner consistent with actor-observer theory. The actor-observer theory is an explanatory framework used in social psychology positing that individuals may be more likely to assign responsibility of one’s own actions to external factors, while assigning responsibility for others’ actions to internal mechanisms. We identified three external themes central to how individuals characterized their personal overdose:

1. change in potency or batch,
2. luck, or
3. ascribing blame to others.

Conversely, participants attributed witnessed overdoses to three priori codes and codes generated inductively from data, which was applied to all interviews. Any coding discrepancies were discussed with the entire research team.

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Conclusions: The differences between perceived causes of personal versus witnessed overdose align with actor-observer theory. Utilizing this theory in overdose prevention could support behavioral interventions aiming to encourage safer opioid use by teaching participants to employ universal safety precautions and always ‘expect the unexpected’ akin to defensive driving courses developed for at-risk operators of motorized vehicles.

WEPEB135

Experiences and lessons learned in implementing the differentiated care model in HIV clinics in Nyamira County, Western Kenya, Jan - Sept 2017

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Background: Kenya, which is globally fourth with approximately 1.6 million PLHIV, adopted “Differiated care model” (DCM) in 2017 to alleviate the burden on the health system. We describe experiences in implementing the DCM approach within Nyamira County of Kenya that has a HIV burden of 6.4% against the country’s national average of 5.6%.

Description: Between January and September 2017 DCM was rolled out in 103 HIV clinics: it commenced with an induction to the DCM as per the Kenyan national guidelines to health workers. The criteria for qualification for “DCM package for stable PLHIV,” was that patients should have been on ART over 2 months, aged above 20 years, completed IPT, be HIV virally suppressed, should have a BMI of ≥18.5 kg/m², not been treated for an opportunistic infection in the preceding 6 months, and if female should not be currently pregnant. Stable PLHIV would be offered an option of long-ART prescription refill via a facility-based fast track option (FTT) or a community-based ART group (CAG) comprised of 3-6 persons that belonged to a community psychosocial support group or were drawn from the same locality.

Lessons learned: Twenty-six percent (310/1225) of patients met criteria for stable PLHIV. Forty (41.7%) health facilities had introduced DCM among (78%) 2499/3100 patients; other facilities did not due to patients not having completed IPT (68.2%) 9356/12259 or not being virally suppressed (20.6%), other reasons (11.2%). FT was highly preferred to CAG (84.7%) vs. 15.3% due to fear of inadvertent disclosure of a positive status to community members. With the introduction of “family clubs” (groups of 2 to 6 extended family members that opted to form a CAG on their own initiative), patients found it easier to adhere to medication and clinic visits.

Conclusions: Next steps: DCM did not alleviate patient workload as majority of patients preferred FTT. HIV programs should provide the necessary infrastructure to enhance health status of majority of PLHIV to well PLHIV. An expanded definition of “stable patient” may be considered to include younger persons (e.g. school-going children) with committed care-givers. Specific adaptations of the recommended strategies may be required to facilitate the implementation of DCM.

WEPEB136

Clinical characteristics and hepatitis C (HCV) treatment outcomes among people who actively use drugs in an HIV cohort in Churachandpur and Moreh districts of Manipur, India

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Background: Hepatitis C treatment outcomes in active drug users coinfected with HIV/HCV is of interest to design programs of care. Treatment outcome in drug users is infrequently reported from limited resource contexts. MSF provides care to HIV/HCV coinfected patients through two clinics in Manipur state of eastern India. HCV care program includes integrated treatment for HCV, HIV, co-morbidities, psychosocial support and harm reduction services. Context experiences low-intensity conflict and high burden of HIV, HCV. Tuberculosis and drug use. This study explored HCV treatment outcomes among active drug users in a HIV/HCV coinfected population.

Methods: Retrospective cohort analysis was conducted on HIV/HCV coinfected patients treated for HCV between Oct 2017 & Jan 2018 at MSF clinics. Demographic, biological, clinical characteristics, treatment and outcome data of patients were retrieved from electronic database.

Results: Among 356 patients registered, treatment outcomes of 230 patients (74.1% male) were available. 28 (12.1%) patients, majority being male (n=26, 92.8%) actually used drugs during HCV treatment. Between active and non-drug users, 1/28 (3.6%) & 17/202 (8.2%) cured, 1/28 (3.6%) & 3/202 (1.2%) failed, 1/28 (3.6%) & 2/202 (0.99%) died. Six patients failed SVR22 but attained SVR42 among whom 5 (83.3%) were treated with sofosbuvir-peginterferonα2b. Of 12 patients with negative outcome and active drug use, four (33.3%) received interferon treatment. Negative treatment outcome risk in active drug users relative to non-users was 4.5 (95%CI 1.8-11.7, n=227) in model adjusted for sex, cirrhosis and interferon treatment.

Conclusions: Provision of HCV care in people actively injecting drug is feasible, when integrated with HIV and TB care. With link to psychosocial support and harm reduction. In our small sample size HIV/HCV coinfected patients actively using drugs during HCV treatment had higher risk of negative treatment outcomes. However, there was a strong association between the negative outcome with liver cirrhosis and interferon treatment, characteristics not linked to active drug use. Use of DAs without delay is a pre-condition for successful treatment outcomes in this population.

WEPEB137

Tuberculosis testing and treatment among people who use drugs in Abidjan: Results and perspectives for a community-based approach implemented in Abidjan, Côte d’Ivoire


Background: Tuberculosis (TB) remains a major public health issue, which strongly affects high-risk populations, such as people living with HIV, prisoners and people who use drugs (PWUD). Despite a growing number of PWUD in the last decade in Sub-Saharan Africa, data on TB prevalence and cascade of care among PWUD in this region are scarce. The objective of this study was to estimate TB prevalence and establish the TB testing and treatment cascade using a community-based approach for precarious PWUD in Abidjan, Côte d’Ivoire.
**WEPEB138**

Lack of effective opioid dependence and alcohol abuse treatment leads to high rates of treatment discontinuation among patients initiated on antiretroviral therapy in Kazakhstan

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**Background:** Limited data are available on factors associated with treatment interruption among people living with HIV (PLHIV) initiated on antiretroviral therapy (ART) in Kazakhstan. Although, approximately 60% of all PLHIV have a history of injection drug use, access to opioid maintenance therapy remains limited.

**Methods:** We conducted a retrospective cross-sectional analysis of routinely collected data on 6,399 ART-naive patients (15 years old) that initiated ART from 2014-2016. Bivariates and multivariable logistic regression analyses were conducted to assess factors associated with treatment interruption within 12 months of ART initiation.

**Results:** 3,933 men and 2,646 women initiated ART during the study period, including 272,434 (43%) that ever injected drugs. The median age at ART initiation was 36 years (IQR:31-42 years). The median time between HIV diagnosis and ART initiation was 791 days (IQR:77-2123 days). Median baseline CD4 cell count at ART initiation was 257 cells/µl (IQR:142-361 cells/µl). 98% patients died and another 1125 (17%) stopped ART within the first 12 months after ART initiation. Median number of days between ART initiation and the first ART interruption was 170 (IQR:95-254 days).

On multivariable analysis, discontinuation of ART within the first 12 months of initiation was independently associated with reported ART toxicities (OR:2.87, 95% CI:1.94-4.26, p = 0.0005), injection drug use (OR:2.03, 95% CI:1.31-3.16, p = 0.0005) and reported alcohol abuse (OR:2.16, 95% CI:1.48-3.15, p = 0.0005).

**Conclusions:** Substance abuse including injecting drugs and harmful use of alcohol were associated with treatment discontinuation among patients initiated on ART in Kazakhstan. Implementation of effective alcohol abuse treatment and scale-up of opioid dependence treatment are needed to improve ART retention and adherence among PLHIV in Kazakhstan.

**WEPEB139**

Health resource utilization and health outcomes in a cohort of persons of transgender experience living with HIV/AIDS in New York City

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**Background:** Transgender persons living with HIV/AIDS experience some of the highest rates of health disparities due to the contextual factors in which HIV occurs. There are significant research gaps related to comorbidities and integrated approaches to care among this population. There is a need for more data to answer pressing questions related to care for this population: comprehensive knowledge about health care outcomes is the first step needed in order to develop primary and secondary prevention interventions for persons of transgender experience.

**Methods:** Amida Care is a community sponsored, not-for-profit, Medicaid Special Needs health insurance Plan that serves over 6,400 individuals living with HIV/AIDS in New York City needing intensive services: approximately 400 are people of transgender experience. Amida Care developed a research cohort of 401 transgender persons living with HIV/AIDS served by the Plan in an effort to identify patterns in care that could inform effective strategies and priority interventions for reducing morbidity among persons of transgender experience.

**Results:** The mean age of the cohort is 38.5 years, the race/ethnicity breakdown is 63% Black, 27% Hispanic, 5% White, 5% Other, and the majority of the cohort resides in the Bronx borough. As a Managed Care Organization, Amida Care has access to claims data that is often difficult to obtain and centralize into one data warehouse. The top 3 co-morbidities experienced by the cohort as evidenced by ICD 9/10 codes are drug dependence (55%), depression (42%), and nutritional deficiency (29%). 82% (22%) of cohort members had gender affirming surgeries (since March of 2015) covered by the Plan. CD4 and viral load counts of cohort members were similar when compared to cisgender Plan members.

**Conclusions:** The results suggest that interventions for this population should focus on substance use programs, mental health initiatives, and nutrition. HIV-related laboratory results suggest that secondary HIV prevention medication/primary care adherence initiatives are working; however, more research is needed. Managed Care Organizations, with their access to claims, have a unique opportunity to mine and analyze data for populations disproportionately affected by health disparities that has the potential to inform primary and secondary HIV prevention strategies based on real-life data.

**WEPEB140**

Co-occurring psycho-social problems in transgender women living with HIV enrolled in a clinical trial in Argentina

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**Background:** Despite universal access to public health in Argentina, and the Gender Identity Law passed in 2012, transgender women (TGW) continue being one of the most vulnerable communities. Estimated life expectancy is 35 years old and HIV prevalence is 34%. Co-occurring health problems, including poor mental health, stigma and discrimination, and economic hardship are syndemic factors that cumulatively determine HIV vulnerability in TGW. The objective of our research is to evaluate the impact of co-occurring psycho-social factors in the retention and adherence of TGW in HIV treatment. This abstract depicts preliminary baseline data.
Clinical issues in migrants

**WEPEB141**

Comparing clinical outcomes of immigrants and citizens living with HIV in Botswana: A retrospective cohort study

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**Background:** Reaching the Joint United Nations Program on HIV/AIDS 90-90-90 targets requires inclusion of key and vulnerable populations. Mobile populations, especially immigrants living with HIV (ILHIV), encounter difficulties accessing healthcare. Botswana provides free access to HIV care for citizens, while non-citizens fund their own HIV care. Maipelo Trust, a non-governmental organization (NGO) in Botswana, offers financial support to above 200,000 treatment-naïve HIV-1 TGW were enrolled in a longitudinal clinical trial and completed a series of social and psychological assessments (CES-D, 4-item suicidal-ideation screener; PID-5; Wellbeing Index; STAI). Frequencies, independent sample t-tests and bivariate correlations were calculated with SPSS 24.

**Results:** TGW’s median age was 29 (IQR: 26-33). 74% reported current survival sex work and 62% drug use during the last year. 62% has incomplete secondary education, and 44% lives in community housing rooms. 50% has advanced HIV infection (27.1% CD4< 350, 22.9% CD4< 200). No significant differences in experiences of stigma and discrimination, mental health outcomes, and maladaptive personality traits were observed between advanced and non-advanced HIV TGW. However, the higher the Gender Identity Stigmatization (GIS), the higher the suicidal ideation (r=.52), depression (r=.51), and anxiety (r=.50) and the lower the quality of life (r=−.37). GIS was also associated with maladaptive personality traits (DSM-5); more negative affectivity (r=.48) and psychoticism (r=.39). More than half of the sample (70%) experienced clinical levels of negative affectivity (negative emotions and poor self-concept).

**Conclusions:** Results of this baseline analysis show that half of TGW initiate treatment with advanced HIV infection and present poor living conditions and co-occurrences of gender stigmatization and negative psychological outcomes. Since these factors might negatively impact in retention and adherence of HIV treatment, these results highlight the need of a multidisciplinary approach and a multi-component intervention (e.g., psychological assessments and gender affirmative practices) as standard of care when working with HIV TGW in clinical settings.

Clinical issues in other vulnerable populations

**WEPEB142**

Longitudinal virological outcomes and factors associated with virological failure in behaviourally HIV-infected young adults on combination antiretroviral treatment in the Netherlands, 2000-2015

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**Background:** To maintain viral suppression in HIV-infected young adults is challenging. Studies show overall low HIV viral suppression rates in young adults (18-24 years) as compared to adults. Longitudinal data can
provide valuable insight on dynamics of viral suppression and variables of potential influence on virological failure (VF), but is scarce in HIV-infected young adults on cART.

**Methods:** We analysed data from 2000-2015 from the Dutch national HIV database of 827 HIV-infected young adults (18-34 years old on cART for a minimum of six months). VF was defined as two consecutive detectable plasma HIV-1 RNA measurements > 200 copies/mL. Generalized linear mixed model analyses were used to assess HIV VF over time and identify risk factors associated with VF.

**Results:** HIV VF during the young adult age occurred at least once in 28% of cases. The probability of experiencing VF decreased over the study period per calendar year (OR 0.80, 95% confidence interval [CI] 0.75; 0.85). Factors significantly associated with VF were being infected through heterosexual contact (OR 4.23, 95% CI 1.64; 10.82) and originating from Latin America or the Caribbean (OR 3.08, 95% CI 1.73; 5.12). Effect was smaller yet significant in patients that started cART with a nadir CD4 count < 500 (OR 5.96, 95% CI 1.63; 21.72). The occurrence of HIV VF decreases with age, but after correcting for calendar year, not significantly.

**Conclusions:** In our large cohort of YA, a decrease in HIV VF was observed with older age. However, the effect of calendar time on improved outcomes was larger, with current suppression levels approaching the Dutch adult HIV population. These findings suggest that behaviourally HIV-infected YAs have greatly benefitted from improved cART regimes over time, that have become more potent, more forgiving and have fewer side effects. Specific subgroups continue to be at risk for suboptimal treatment.

**WEPEB143**

**Same-day medical visit in newly diagnosed HIV patients decreases time to viral suppression**

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4Rowan University, School of Osteopathic Medicine, Stratford, United States
5Saint Michael's Medical Center, Newark, United States

**Background:** Previous attempts to link patients to medical care involved meeting with a non-medical provider and obtaining baseline lab-work. The current impetus towards viral suppression (VS) includes rapid initiation of antiretroviral therapy (ART) which can only be accomplished if VS before and after implementation of a same-day medical visit for newly diagnosed HIV patients in an adult inner-city clinic.

**Methods:** This is a retrospective review of data collected from 2014-2017 among newly-diagnosed patients in an inner-city clinic. Patients were included if they had at least one medical visit, one viral load and an antiretroviral prescription documented in the electronic medical record. A same-day visit with a medical provider was implemented in 2016. Fishers Exact test was used to evaluate the proportions of newly-diagnosed and suppressed patients by demographic characteristics. Survival analysis for competing risks evaluated time to 1st suppressed viral load after a) HIV diagnosis, and b) ART initiation.

**Results:** Overall, 137 patients were newly diagnosed; 8 patients were censored as they were lost to care or moved prior to VS. New patients included males (81%), those aged 20-29 (45%), those with public insurance (43%), and those with non-AIDS status (79%). From 2014 to 2017, same-day medical visits for newly-diagnosed patients increased from 18% to 69%, the median time to VS decreased from 101 to 88 days after diagnosis and 70 to 35 days after receipt of ART. Overall VS increased from 91% to 97% and was similar among all population groups.

**Conclusions:** From 2014 to 2017, same-day medical visits as diagnosis increased almost four-fold, the median time to VS after diagnosis decreased by 13% and VS increased by 8%. This change in practice pre-dates the current recommendations for rapid initiation of ART, which may become a reality when patients are seen by a medical provider on the same-day as a new diagnosis. This evaluation presents the potential to further decrease the median time to VS at this clinic with initiation of ART on the same-day as diagnosis.

**WEPEB144**

**High rates of anti-retroviral treatment deferral for HIV-infected patients who use alcohol and drugs: Results from a national sample of medical doctors in Ukraine**


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5Quinnipiac University School of Business, Hamden, United States

**Background:** Despite reductions in global HIV incidence and mortality, Ukraine continues to exhibit elevated HIV concentration in key populations and sub-optimal antiretroviral therapy (ART) coverage. Physicians are the gatekeepers to ART prescription and are understudied as barriers to scale-up in key populations.

**Methods:** A national sample of current ART-prescribing physicians (N=153) in Ukraine were surveyed between August and November 2017. Participants underwent a series of randomized, hypothetical clinical scenarios of PLWH and decided whether to initiate or defer ART. Scenarios varied based on different CD4 counts (CD4+: 17, 17-47, 30-47, 520 and 10 different patient prototypes (key populations). Z scores and McNemar’s test for paired samples were used to test differences between key patient prototype and CD4+ count.

**Results:** Physicians were mostly female (80.4%), with 19 mean years of medical experience and trained in infectious diseases (75.5%); clinical work sites include dedicated HIV/AIDS centers (50.3%) or hospital (32.0%). Results are illustrated in Figure 1 below.

Patients who drink alcohol were most likely to have ART deferred (range: 24.8%-35.1%), even at the lowest CD4+ count (26.1%). Similar decisions to defer ART were observed for patients who use IPFWD (range: 19.0%-28.1%) or inject IPFW (range: 17.6%-24.8%) drugs. Patients on opioid agonist therapy like methadone (range: 9.2%-14.4%), however, were significantly (p<0.001) less likely to have ART deferred compared with PWID and PWUD overall and when compared by CD4+ counts. Men who have sex with men (range: 5.2%-12.4%), transgender women (range: 5.2-12.4%), sex workers (range: 4.6%-9.8%), and having an HIV-uninfected sex partner (range: 4.6%-9.8%) had the lowest likelihood of ART deferral.

**Conclusions:** Irrespective of national guidelines recommending ART prescription to all PLWH irrespective of risk or CD4+ count, deferral of ART remains high in certain key populations, especially in PWLD who drink alcohol or have a substance use disorder. Concerning the high deferral of ART for CD4+<17, relative to other CD4+ counts < 520, a group with markedly high risk for death. While ART deferral in substance-using PLWH may be related to concerns about adherence, adherence support rather than ART deferral should be prioritized to truly mitigate the current epidemic in Ukraine.
WEPEB145
Barriers and facilitators of higher patient activation levels among HIV-infected and uninfected midlife U.S. women

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Background: Higher levels of patient activation (PA) are associated with better health outcomes with chronic disease. Hibbard (2005) identified four stages of PA:
1) believing the patient role is important,
2) having confidence to take action,
3) actually taking action to maintain/improve health, and
4) staying the course under stress.

We sought to identify barriers/facilitators to achieving high activation levels among midlife women with HIV who experience significant life stressors and chronic disease burden.

Methods: We administered the well-validated 13-item Patient Activation Measure to 174 HIV-infected (HIV+I) and 69 HIV-uninfected (HIV-) Chicago Women’s Interagency HIV Study (WIHS) participants during a semianual visit in 2017. We conducted cross-sectional analyses using concurrently collected covariates. Resilience and PTSD were measured using the Connor-Davidson Resilience Scale (CD-RISC) and PTSD Civilian Checklist (PCL-C) respectively. Logistic regression was used to predict odds of being in the highest and upper two stages of activation.

Results: Women were predominantly black (77%), age 50-59 (56%), poor (62%), unemployed (59%), obese (45%), current smokers (42%), former/current drug user (37%), unstable housed (17%), 54% had hypertension, 24% had diabetes; with no significant difference by HIV status. Among HIV+, 75% were on HAART/≥95% adherent; 24% were viremic. Overall, 8% were in PA Stage (PAS)-1, 11% in PAS-2, 32% in PAS-3, and 49% in PAS-4 with similar distribution by HIV status. Employment, stable housing, and higher mean CD-RISC predicted greater odds of being in the highest PAS while current smoking, former/current substance use, and a PCL-C score >44 predicted lower odds of PAS-4. With the exception of PTSD symptoms, all factors remained statistically significant for increasing/decreasing odds of PAS-4 after adjustment for age (per 10 years), race/ethnicity, education, and income (Table 1). Similar factors were statistically significant for predicting odds of PAS≥3 except PCL-C>44 remained associated with lower likelihood even after adjustment.

Conclusions: HIV-infected and demographically similar uninfected U.S. women in this cohort study have high levels of activation. Programs that build resilience, reduce PTSD symptoms and substance abuse, and address housing instability may help facilitate greater patient activation among women with chronic disease.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Unadjusted model OR (95% CI)</th>
<th>p-value</th>
<th>Adjusted model OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>2.651 (1.562-4.498)</td>
<td>&lt;0.001</td>
<td>2.386 (1.122-4.777)</td>
<td>0.010</td>
</tr>
<tr>
<td>Stable Housing</td>
<td>2.942 (1.393-6.210)</td>
<td>0.005</td>
<td>2.973 (1.347-6.551)</td>
<td>0.007</td>
</tr>
<tr>
<td>Current smoker (vs. Never)</td>
<td>0.410 (0.218-0.770)</td>
<td>0.006</td>
<td>0.492 (0.245-0.987)</td>
<td>0.046</td>
</tr>
<tr>
<td>Former smoker (vs. Never)</td>
<td>0.709 (0.358-1.404)</td>
<td>0.324</td>
<td>0.806 (0.381-1.704)</td>
<td>0.572</td>
</tr>
<tr>
<td>Current hard drug user (vs. Never)</td>
<td>0.252 (0.087-0.729)</td>
<td>0.011</td>
<td>0.273 (0.090-0.825)</td>
<td>0.021</td>
</tr>
<tr>
<td>Former hard drug user (vs. Never)</td>
<td>0.447 (0.230-0.799)</td>
<td>0.007</td>
<td>0.490 (0.238-0.932)</td>
<td>0.030</td>
</tr>
<tr>
<td>PTSD Symptoms (&gt;44 PCL-C)</td>
<td>0.501 (0.249-1.007)</td>
<td>0.052</td>
<td>0.579 (0.277-1.208)</td>
<td>0.145</td>
</tr>
</tbody>
</table>

Resilience (>Mean CD-RISC) 3.264 (1.842-5.782) <0.001 3.063 (1.688-5.67) <0.001

Table 1. Predictors of high patient activation (Level 4: Stay the course under stress)

WEPEB146
Housing instability increases rates of urgent care visits, emergency department visits and hospitalizations among PLHIV

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Background: Housing instability is associated with acute care visits (ACV) among people living with HIV (PLHIV), but few analyses have evaluated how different levels of housing instability affect different ACV types. We evaluated the association between a three-category predictor variable of housing with urgent care (UC) visits, emergency department (ED) visits and hospitalizations in a large urban clinic-based cohort.

Methods: We collected self-reported housing data during check-in at a safety-net primary care HIV clinic in San Francisco from 2/1/17-12/17 using a pictorial survey depicting 6 different living arrangements. We defined housing as stable (Rental/Own, Hotel/Singel Room Occupancy), temporary (Treatment/Transitional Program, Staying with Friends), or homeless (Homeless Shelter, Outdoors/In Vehicle). ACVs included visits to UC, ED or hospitalizations from 11/2016-11/2017 and included only ACVs in our hospital system. We calculated unadjusted and adjusted incident rate ratios (IRR) by ACV type using separate negative binomial regression models given over-dispersion of the outcome variable. We adjusted for age, gender, race/ethnicity, baseline CD4<200 cells/mL and VL<200 copies/mL.

Results: 520 patients completed the survey. Median age was 50 years (IQR 41 to 57), 13% were female, 41% white, 26% Latino, 9% other. 10% had CD4<200 cells/mL and 26% had VL>200 copies/mL. 1371 UC visits, 719 ED visits and 199 hospitalizations were observed. Of all patients, 13% had ≥1 hospitalization, 27% had ≥1 ED visit and 47% had ≥1 UC visit. Mean ACVs increased in a monotonic fashion by housing instability. Unadjusted and adjusted IRR of UC visit, ED visit or hospitalization were statistically significantly higher for those at all levels of housing instability compared to those stably housed, except when comparing the frequency of hospitalizations for those temporarily housed (Figure).

(Mean Acute Care Visits by Housing Status and Visit Type)

Conclusion: We demonstrate a “dose-response” between category of housing instability and ED visits, UC visits and hospitalizations among PLHIV. Although homelessness is associated with the highest rates of ACVs, temporary housing (compared to stable housing) is also associated with increased care utilization. Interventions are needed to mitigate the potential impact of housing instability on the least cost-effective forms of accessing care (e.g. ED visits, UC visits, hospitalizations) among PLHIV.
WEPEB147
Hazardous alcohol screening rates among persons with HIV following implementation of screening, brief intervention and referral to treatment in a large healthcare system in the United States

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Background: Hazardous drinking is common among persons with HIV (PWH) and associated with reduced antiretroviral adherence. HIV viral control and substantial morbidity and mortality. Effective alcohol interventions in routine clinical care rely on robust screening for hazardous alcohol use.

We evaluated the equality of screening rates across key subgroups among PWH following the rollout of Screening, Brief Intervention and Referral to Treatment (SBIRT) in a large integrated healthcare system in the United States.

Methods: We identified all adult PWH who were healthcare system members between July 2013 (rollout of SBIRT) and December 2017. Patients were followed until they were first screened (event of interest), or until death, lost-to-follow-up or December 2017. Factors evaluated included baseline age, sex, race/ethnicity (Black, White, Hispanic, Other), HIV transmission risk (heterosexual, injection drug use [IDU], men who have sex with men [MSM]), and prior AIDS defining illness (ADI). We estimated proportions screened from Kaplan-Meier plots and adjusted hazard ratios (HRs) from Cox Regression models.

Results: A total of 11,330 PWH were included, with 70% MSM, 52% White, 45% ≤50 years of age at baseline and 46% with prior ADI. Overall, 8% of PWH were screened by four years after SBIRT rollout. Screening was less likely among those 50-59 years (HR: 0.93, 95% CI 0.89-0.98) compared with those 18-49 years of age (90%; reference); more likely among Blacks (83%; HR 0.78, 95% CI 0.74-0.83) compared with Whites (92%; reference); less likely among heterosexuals (82%; HR 0.89, 95% CI 0.82-0.96) and higher among IDU (93%; HR 1.19, 95% CI 1.10-1.29) compared with those without prior ADI (91%; reference).

Conclusions: Screening for hazardous alcohol use was highly successful with 8% of all PWH screened after four years. However, demographic and clinical disparities suggest strategies are needed to reduce such screening disparities among PWH to allow for equal access to appropriate treatment.

WEPEB148
Comparison of viral load suppression rates between military and civilians on antiretroviral therapy (ART) in military facilities in Uganda

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Background: Despite global evidence that military personnel are disproportionately affected by HIV, data on HIV treatment outcomes among military men living with HIV remain sparse. Military personnel on antiretroviral therapy (ART) are subject to a risk-taking culture, which increases exposure to infection, and deployment in clinically-underserved areas, which limits treatment adherence.

This study, funded by United States President’s Emergency Plan for AIDS Relief (PEPFAR) compared treatment outcomes between civilians and military personnel after initiating ART at military-managed health facilities in Uganda.

Methods: This cross-sectional study used data obtained from chart reviews and participant interviews. In total, 543 people living with HIV were randomly sampled from eight military ART clinics. Chi squared and t-tests were done to compare proportions and means, respectively. HIV viral load (VL) suppression was defined as a VL of <1,000 copies/ml.

Results: Of the 543 participants, 229 were military (96% men) and 314 were civilian (30% men). The age structure between the two groups was comparable, with a mean age of 39.8 years (SD = 7.5). Levels of HIV VL suppression and those reporting >6% adherence were not significantly different between the two groups (i.e., 86%-87.3% and 85%-86.6%, respectively). There was no difference between baseline CD4 count, ART regimen, condom use, and level of education. Military participants had been on treatment longer (3.1 years compared to 2.9 years [p = 0.03]), were more likely to have disclosed their status to a spouse (67% compared to 44% [p = 0.01]), be married (91% compared to 65% [p = 0.001]) and have higher income (90% military compared to 11% civilians with >$100/month [p = 0.01]). Additionally, military participants were more likely to be recent transfers to the clinic (42% compared to 19% [p = 0.001]) and report alcohol use (49% compared to 25% [p = 0.01]).

Conclusions: Levels of HIV VL suppression were similar between military and civilians despite differences in socioeconomic, clinical, and behavioral characteristics. Military personnel on ART can achieve similar levels of treatment success when consistent care packages are offered. This implies that targeted military HIV treatment programs can contribute to attainment of national HIV control goals.

New PrEP products (e.g. TAF and other antiretrovirals, long acting oral and injectable drugs, topical PrEP/microbicides)

WEPEC149
Effectiveness of Pre-Exposure Prophylaxis (PrEP) in Brazilian public health facilities: One-year results of the combine! study


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Background: PrEP can be an important tool to address the recent increase of the HIV epidemic. We present the results of 1-year follow-up of PrEP implementation in public health facilities in Brazil.

Methods: PrEP, with daily use of TDF/FTC, was offered to users of five public health facilities (two voluntary testing centers, one general hospital specialized in infectious diseases and two HIV ambulatories). Candidates had to be over 16 years old, have high risk (eg, history of unprotected anal and vaginal sex or multiple casual partnerships) or high vulnerability to HIV (ie, drug use and sex work). Quarterly clinical consultations were conducted, including testing for HIV and syphilis, and monitoring of adverse events. Behavioral questionnaires were applied every six months. Associations were analyzed using Odds Ratio (p < 0.05), calculated by logistic regression.

Results: Between Nov 2016 and Nov 2017, 526 people took PrEP (uptake of 72%), with a mean time of 107 follow up days (IQ: 41-156), with a total of 1542 person-month. Main motivations reported for using PrEP...
Impact of Long-acting Cabotegravir as Pre-exposure Prophylaxis on the Emergence of HIV Drug Resistance among Men who have Sex with Men: A Modelling Study

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Background: Long-acting cabotegravir (LA-CAB) is currently being tested in phase III trials for use as long-acting injectable pre-exposure prophylaxis (LAI-PrEP) to prevent HIV infection. However, the emergence of drug resistant mutations with subtherapeutic levels of LA-CAB when injections are discontinued is a concern. We used an agent-based model (ABM) to estimate the impact of LAI-PrEP use on the development of drug-resistance among men who have sex with men (MSM).

Methods: We simulated HIV transmission in a dynamic sexual network representing 11,245 MSM in Atlanta, Georgia from 2015 to 2024. The model was calibrated to reproduce current HIV prevalence and incidence among MSM in Atlanta (30.3% and 3.9 per 100 person-years). We assumed agents received bimonthly LA-CAB injections, with retention in the model was calibrated to reproduce current HIV prevalence and incidence among MSM in Atlanta (30.3% and 3.9 per 100 person-years). We assumed agents received bimonthly LA-CAB injections, with retention in phase II trial data (85% retained at 3 months). The efficiency of LA-CAB was estimated from published macaque data, and LA-CAB concentrations over time were estimated from human pharmacokinetic data. The impact of LA-CAB on the emergence of drug-resistant infections was modeled across different LAI-PrEP coverage levels (5% to 35%) and discontinuation rates, with varied probabilities of developing drug resistance as LA-CAB concentrations waned up to 12 months following LAI-PrEP discontinuation.

Results: Without PrEP use, there were an estimated 2,374 new infections from 2015 to 2024 among MSM. With 5% of MSM using LAI-PrEP, the cumulative number of new HIV infections over ten years was reduced by 9.8% compared to the scenario without PrEP. At this coverage level, infections resistant to LA-CAB were rare, ranging from 0-5 cases over ten years (Figure). With 35% of MSM using LAI-PrEP, the cumulative number of new HIV infections over ten years was reduced by 34.3%. At this level, infections resistant to LA-CAB were also rare, ranging from 2 to 35 incident drug resistant infections over the ten-year period. In sensitivity analyses, the number of drug resistant infections was proportional to discontinuation rates.

Conclusions: Simulations incorporating phase II clinical data and efficacy estimates from macaque models suggest that the emergence of resistance to LA-CAB will be rare. Further research is needed to monitor the development of drug resistance in ongoing LAI-PrEP efficacy trials.

WEPEC150

Impact of Long-acting Cabotegravir as Pre-exposure Prophylaxis on the Emergence of HIV Drug Resistance among Men who have Sex with Men: A Modelling Study

WEPEC151

Updating communities on ASPIRE and ring studies in Zimbabwe

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Background: Lack of meaningful involvement of communities in HIV Prevention research, in particular clinical research targeting women - risk jeopardizing a study. While Community Advisory Boards play a critical role, this is often limited due to a number of factors, chief among them lack of resources. Good Participatory Practices have moved beyond simplistic definitions of ‘community’ to encompass a diverse set of actors with various levels of proximity that impacts a women’s day to day lived realities. These include but are not limited to kinship networks, community services, and media agencies. The International Partnership for Microbicides partnered with the Southern African AIDS Trust Zimbabwe (SAT Zim) to keep the Zimbabwean community informed of two phase III randomized control studies (The Ring & ASPIRE studies); evaluating the safety and effectiveness of the Dapivirine vaginal ring for HIV prevention. Stakeholder engagement activities with journalists in trial communities sought to build correct knowledge facilitate discussion and participation with affected communities.

Description: SAT Zim provided training to 30 advocates and journalists in the communities of Harare and Chitungwiza, Zimbabwe. This resulted in a partnership with the Health Journalist Association of Zimbabwe, where health journalists were trained on the Ring Study and ASPIRE. Trained journalists mobilized other journalists within their networks and encouraged their participation across different stakeholder engagement activities hosted by SAT Zim.

Lessons learned: Meaningfully engaging journalist associations in clinical trials as part of stakeholder engagement strategies resulted in reaching a large community audience and led to sustained engagement that extended beyond the initial training. Engaging journalists from the onset of clinical trials resulted in ownership, timely and accurate reporting. To date, Zimbabwe has recorded zero negative media reports.

Conclusions/Next steps: A cohort of 20 Health journalists who successfully finished the training was maintained and has further expanded knowledge gained to networks within their own journalistic spheres of influence. Resources are being mobilized to support Health Journalists Association of Zimbabwe to facilitate monthly research update meetings.
WEPEC152
Determinants of voluntary or coerced sexual debut among Black female adolescents in Soweto, South Africa. Findings from the birth to twenty cohort study

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Background: Early sexual debut whether voluntary or coerced increases exposure to high risk sex which leads to unplanned teenage pregnancy, sexually transmitted infections including HIV and reproductive health problems during adolescence. Black African female adolescents in South Africa have been identified as a key population at increased risk of problems during adolescence. Black African female adolescents in South Africa have been identified as a key population at increased risk of sexual debut, and HIV infection.

Methods: We used sample data from go8 Black African female adolescents collected longitudinally from the Birth to Twenty cohort in Soweto, South Africa, between 13 and 18 years of age. Primary outcome was sexual debut, and whether voluntary or coerced. We used logistic regression to investigate odds ratios and the associated significance. Cox Proportional Hazards regression analysis was conducted to examine the effect of potential risk factors on the time to overall sexual debut. We further explored the effect of these risk factors on time to first voluntary and time to first coerced sexual debut respectively (multiple event types) by using competing risks method.

Results: Approximately 41% of the sample had experienced sexual debut but by 18 years of age; 76% of these sexual debut experiences were voluntary while 18% were coerced and 6% were undisclosed. Coerced sexual debut was 2.6 (95% CI: 0.9; 7.7) times more likely to occur in adolescents with partners of the same age than adolescents who initiated sex with age-disparate partners. The overall median age at sexual debut was 18 years. High socio-economic status was protective of the hazard to experience coerced sexual debut (hazard ratio = 0.23). Secondary levels of maternal education had a reduced hazard of 0.37 on experience of coerced sexual debut.

Conclusions: There is a need for interventions to delay sexual debut among Black female adolescents from low socio-economic background and lower maternal education. Interventions should target coercion between peers and partners of similar ages as well.

WEPEC153
Impact of a behavioral intervention on health outcomes among rural women living with HIV/AIDS at six month follow-up

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Background: In India, women living with HIV (WLA) in rural regions face significant barriers to disease maintenance. Challenges include critical nutrition deficits related to access and knowledge about diets that promote health and address HIV/AIDS-specific needs. Nutrition is a critical component of immune functioning, particularly for those living with HIV/AIDS who have an increased metabolic need to help fight the disease. This community-engaged intervention, based on a nurse-led Asha (Accredited Social Work Activists)-support healthcare model, sought to address this problem.

Methods: A prospective, randomized-controlled 2x2 factorial design assessed the impact of an Asha-support nutrition intervention. 20 Primary Health Centers serving WLA were randomized into one of four arms that included basic Asha-support; Asha-support only (control group), nutrition supplementation, nutrition education, and the combination of supplementation and education. Difference scores between baseline and 6-month follow-up for key physiological outcomes (body mass index (BMI), CD4 count) were analyzed using a mixed-models approach that accounted for clustering within geographic area. Covariates included age, MET, quality of life, food insecurity, social support, adherence, and years of education.

Results: Mean age was 34.53% were widowed; average monthly income was $32 U.S. dollars; and about half had no formal education. On average, HIV diagnosis occurred 4 years earlier; average baseline CD4 count was 447. All groups improved CD4 count over the 6-month period: Asha only (difference=343.37), nutrition supplement (difference=356.15), nutrition education (difference=459.66), and nutrition supplement + nutrition education (difference=530.82). In fully adjusted models, compared to Asha-support only, both intervention groups demonstrated significantly greater improvements in CD4 count; the interaction term was also significant (p=0.06). BMI also increased for all groups: Asha only (difference=0.66), nutrition supplement (difference=-1.28), nutrition education (difference=-2.38), and nutrition supplement + nutrition education (difference=-4.07). In comparison to control group, both intervention groups demonstrated higher mean increases in BMI; the interaction term was not significant (p=0.79).

Conclusions: An Asha-based nutrition intervention was efficacious at improving CD4 count and BMI in WLA in India. Interventions run by nurse-led community workers may be beneficial at meeting critical healthcare needs for vulnerable WLA. Implications for promoting effective HIV/AIDS care in India and other nations will be discussed.

WEPEC154
Calibrating estimators of HIV-1 infection time and founder multiplicity towards improved vaccine efficacy assessment

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Background: Knowledge of the time of HIV-1 infection and multiplicity of viruses that establish HIV-1 infection is crucial for in-depth analysis of the efficacy of various prevention modalities. Better estimation methods would improve the ability to characterize immunological and genetic sequence correlates of efficacy within preventive efficacy trials of HIV-1 vaccines and monoclonal antibodies.

Methods: We developed new methods for infection timing estimation and multiplicity estimation using maximum likelihood estimators that shift and scale (calibrate) estimates by fitting true infection times and founder multiplicities to a linear regression model. These methods also incorporate non-sequence covariates, including measurements of the viral load, HIV-1 diagnostics and alignment statistics, such as the mean entropy across alignment positions. Using Poisson models of measured mutation counts and branching process models (phylogenetic trees), we analyzed longitudinal HIV-1 sequence data from the RV127 and CAPRISA 002 acute HIV-1 infection cohort studies.

Results: We used leave-one-out cross validation to evaluate the prediction error of these calibrated estimators versus that of existing estimators, and found that both infection time and founder multiplicity can be estimated with improved accuracy and precision by calibration. Calibration considerably improved all estimators of time since HIV-1 infection. In terms of reducing bias to near zero and reducing root mean squared error (RMSE) to 5-10 days. Calibration of multiplicity assessments yielded strong improvements with near-perfect predictions in most cases.
Conclusions: Our study addresses an important and globally relevant need to improve HIV prevention and treatment intervention assessment through improved approaches to estimate timing of HIV infection and founder multiplicity. The unique granularity of the viral sequence data generated in recent HIV-1 acute infection trials has provided a valuable opportunity to build and evaluate our comprehensive pipeline, which brings together available tools and provides statistical calibration for estimators of the time of HIV-1 acquisition and founder multiplicity with enhanced accuracy and in a systematic and reproducible way.

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WEPEC155
Feasibility and acceptability of screening of sexually transmitted infections: HPTN0 71 (PopART) trial in Zambia and South Africa

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Background: HPTN071 (PopART) is a 3-arm community-randomized trial in 21 communities, 12 in Zambia and 9 in South Africa. The trial will determine the impact of a combination prevention intervention on HIV incidence. Community HIV care-providers (CHPs) deliver the intervention to all households in intervention communities. Due to the close association between HIV and sexually transmitted infections (STIs) screening questions for symptomatic STIs are included as part of the intervention.

Methods: Verbal consent was obtained for individuals 18 years and older, with assent for those < 18. An STI screening tool was delivered by CHPs to identify signs or symptoms suggestive of an STI (presence of genital sores/growth, vaginal/urethral discharge, dysuria, lower abdominal pains). All those screening positive were referred to the clinic for routine STI diagnosis and treatment. We present data for the period September 2016 to November 2017.

Results: Overall, 94.8% of households (70,831/74,657) were enumerated, including total of 192,679 household members aged ≥15 years. 139,892 individuals consented to the intervention and 95.7% (133,985/139,892) were screened for STIs. Overall, among those screened, 1.3% (1,775/133,985) reported STI-symptoms. Prevalence of STI-symptoms was higher in South Africa (1.6%) than Zambia 1.2% (p<0.001), and commonest among the 20-24 age-group in South Africa (2.1%) and among 25-29 age-group in Zambia (1.7%). Prevalence was similar in both males and females in Zambia, but higher in females in South Africa (OR:1.37, 95%CI 1.17-1.61). Those testing HIV-positive at this visit by the CHPs were more likely to report STI-symptoms than those testing HIV-negative (OR:9.9, 95%CI 2.8-33 in Zambia and OR:4.9, 95%CI 3.6-5.5 in South Africa). Prevalence of STI-symptoms was also in those newly identified with HIV. STI screening should be incorporated into community based HIV testing programs.

Conclusions: Large scale community-based STI symptom screening of individuals using a simple tool is acceptable and feasible. Symptoms of STIs were more common amongst young adults in both countries, and also in those newly identified with HIV. STI screening should be incorporated into community based HIV testing programs.

Table 1 Associated Factors of STI Symptoms

<table>
<thead>
<tr>
<th>Factor</th>
<th>SA</th>
<th>OR (95% CI)</th>
<th>p-value</th>
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<tr>
<td>STI symptom</td>
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<tr>
<td>Symptomatic</td>
<td>0.86 (0.80-0.92)</td>
<td>0.01</td>
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<tr>
<td>Sex</td>
<td></td>
<td></td>
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<tr>
<td>Female</td>
<td>1.87 (1.61-2.17)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1.00 (1.00)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Age ≤24</td>
<td>0.95 (0.89-1.01)</td>
<td>0.27</td>
<td></td>
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<tr>
<td>Age &gt;24</td>
<td>1.00 (1.00)</td>
<td>1.00</td>
<td></td>
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<tr>
<td>STI symptom</td>
<td></td>
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<tr>
<td>Symptomatic</td>
<td>0.99 (0.95-1.04)</td>
<td>0.67</td>
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WEPEC156
Reaching and recruiting key populations for HIV services (online, offline, online-to-offline)

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Background: The Centers for Disease Control and Prevention ICDCI estimates that 22% of new HIV infections diagnosed in 2015 were among youth 13 to 24 years of age. Youth with HIV are the least likely to be linked to care and achieve long-term viral suppression.Its critical to identify youth living with HIV to ensure they receive optimal treatment and care services. Its also imperative to identify high-risk HIV negative youth to ensure they are linked to appropriate HIV prevention services. This study highlights the Adolescent Medicine Trials Network (ATN) CARES’ community-based strategy to identify, recruit and engage youth at risk, living with HIV, or acutely infected with HIV.

Description: Youth 12 to 24 years of age are being recruited in Los Angeles County and New Orleans. Initial screening with the 4th generation Alere™ HIV Combo test assigns youth to one of three studies (acute infection study (n=36), HIV-positive (n=220) stepped care intervention study (n=220), and HIV-negative randomized four-arm intervention study (n=1500).

Lessons learned: To successfully identify and recruit youth at risk or living with HIV, the following five steps were applied: 1) Identify the underserved key vulnerable youth through key community-based organizations (CBOs) serving the homeless, incarcerated, and lesbian, gay, bisexual, or transgender (LGBT) youth; 2) Examine the context and needs of youth (e.g., HIV testing, STI testing and referral, housing services, mental health service referrals, and substance abuse treatment referrals); 3) Utilize multiple engagement approaches (e.g., automated messaging, online peer support, in-person coaching); 4) Select and support the right implementation strategy (e.g., recruitment by CBO staff vs. recruitment by research team); and 5) Provide ongoing monitoring and iterative adjustment of recruitment strategies with CBO staff.

Conclusions/Next steps: To date, ATN CARES successfully recruited 11 youth with acute/treatment naïve recent HIV-infections, 49 HIV-positive youth, and 494 high-risk HIV-negative youth. Community engagement plays a vital, often lifesaving role for vulnerable youth, especially in contexts where support services are underutilized and hindered by many structural factors. The five steps outlined here can serve as a guide to effectively engage and recruit youth at risk or living with HIV.

WEPEC157
Navigating Brooklyn - using online outreach to connect Black and Latino men who have sex with men to PrEP/PEP services in New York City, USA


Background: In New York City, Brooklyn had the highest number of HIV diagnoses among the five boroughs in 2016. This may be attributed, in part, to cultural biases, misinformation, and poorer health-seeking behaviors associated with recently migrated, undocumented, and uninsured residents. HIV programs have focused efforts on the hardest to reach populations and have adopted novel outreach strategies, including using social media and dating apps. Funded by the New York City
WEPEC158

Using social networking in reaching subpopulations of hard-to-reach men who have sex with men in Lagos, Nigeria

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Background: Due to multiplicity of factors, especially with the introduction of the Same Sex Marriage Prohibition (SSMP) Act, key populations, especially men who have sex with men (MSM), no longer consider physical hotspots as safe spaces. Thus, innovative strategies are needed to reach these highly hard-to-reach MSM. The Elton John AIDS Foundation (EJAF) Project explores innovative ways of reaching MSM through partnership with MSM-friendly public and private healthcare facilities in order to increase HIV positivity yield, HIV testing service (HTS) coverage, and linkage to and retention in HIV treatment.

Methods: Thirty (30) focal persons drawn from various MSM networks in Lagos were trained on how to conduct HTS from October 2016 to May 2017. These persons had responsibilities of recruiting and enrolling MSM into care and treatment. Clients were recruited via the physical hotspots (e.g., bars/clubs) and social media platforms. A cross-sectional analysis of data collected of MSM reached with HTS by focal persons between May and July 2017 were used for this analysis.

Results: A total of 525 MSM were recruited for HIV testing. 32% of whom were recruited through social networking sites (e.g., Grindr, Facebook); the remaining were recruited at physical hotspots. The mean age was 21 years, and 22% had never been tested for HIV within the past 6 months. The positivity rate was 9.6% among all who tested: the positivity yield was 36% among those recruited through social networking sites and 5.4% among those recruited at hotspots. (WHT)

Those recruited through social network were more likely to have unprotected anal sex with casual sex partners in the last 3 months (67% versus 53%; p-value) compared to those recruited by other means. Retention in ART treatment was 92% for clients being tracked using social and sexual service needs and of seeking an LGBT health provider.

Conclusions/Next steps: Online outreach has great potential for engaging hard-to-reach populations. By providing information conveniently and privately through users’ electronic devices or accounts. Interventions must include strategies to manage barriers in settings where services are available, but access might be low.

WEPEC160

Sabrang: Reaching the un-reached among MSM and transgender people through a mobile health application

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Background: The national HIV response in India has no focussed online outreach programmes on information provision, stigma reduction, addressing discrimination and services access among MSM and transgender women (adolescents and young adults). The m-health intervention addresses this gap. It consists of Sabrang, an interactive learning mobile application with textual, video-graphical and gamified content on sexuality, gender identity, self-stigma, and STI/HIV/AIDS and legal rights. It includes features of GPS enabled health services and chat with community-friendly health professionals. The intervention is led by MAMTA in partnership with three community groups active in the National Capital Region of India.
Description: A mixed research methodology was undertaken to quantitatively and qualitatively measure the results of the intervention against key indicators among the application users. Cross-sectional pre-post study, design with purposive and convenient sampling was used to select respondents among MSM and transgender women aged 15-24 years for the quantitative evaluation. Five focus group discussions with different sub-sections and age groups of the target audiences were conducted. Key informant interviews were conducted with three lead representatives of the partner organisations.

Lessons learned: Knowledge on mode of HIV transmission increased from 62.7% to 78.7% and HIV transmission myths decreased from 51.3% to 34.2%. Users reported receiving useful information on the risk of STI/HIV infection, STI/HIV prevention and treatment, HIV testing and counseling, gender identity, sexuality, self-stigma and legal rights. GPS enabled services access and chat facility were reported to be among most useful features. Around 78% of the users recommended the application to others emphasizing the privacy element of the application.

Conclusions/Next steps: Large sections of MSM and transgender women in India are believed to have moved on to digital media for social and sexual networking. But most sexual health interventions continue with physical outreach. Saubrang experience shows that online interventions with interactive and culturally sensitive content can successfully impact sexual health attitudes, knowledge and health-seeking behaviors. But they must address felt needs around stigma, gender transition and legal aid. Avoid text heaviness, and gain the trust of the users around confidentiality concerns.

WEPEC161

Innovative approaches to advancing key populations programming in Ghana despite inauspicious environment

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Background: Ghana, like many other African countries have laws that criminalise KP activities. Besides, the two major religions in Ghana, Christianity (71.2%) and Islam (17.6%) regard homosexuality and sex work as abominable. There exist traditions, cultural values and a vibrant media which are highly averse to KP lifestyles. In spite of these odds, KP interventions in Ghana are yielding remarkable results.

Description: The Ghana AIDS Commission (GAC) initiated a legal audit in 2010 in which a team of experts analysed anti-KP laws in Ghana to identify toeholds which could be leveraged to advance KP interventions. To ensure evidence-based KP programming, in 2011, the first Integrated Bio-Behavioral Surveillance Study (IBBSS) for MSM and FSW were conducted. In the same year, the KP Strategic Plan, and KP Standard Operating Procedures (undergoing revision) were developed. In 2014, the first PLHIV stigma index study was conducted. KP competent health workers were trained, deployed and drop-in centres have been established. Helpline Counsellors (HLCs) have been engaged to provide live telephone-based counselling to KP. FSW & MSM: KP BCC materials were developed (undergoing revision) and distributed with strict care. In 2016, a new GAC Act was passed which provides for non-discrimination against PLHIV and KPs. There exists a strong collaboration with law-enforcement agencies and the media.

Lessons learned: HIV prevalence among FSW plummeted from 11.1% in 2011 to 7% in 2015. The prevalence among MSM was 17.5% in 2011; current prevalence is to be determined through an ongoing IBBSS. Between April and September 2017, HLCs referred 1,00 FSWs KPs for HTS, 430 (93%) of whom tested positive for HIV. 340 (79%) of those who tested positive were initiated on ART. The outcome of the legal audit empowered a strong public health argument for making services available to KP. Effective collaboration with law enforcement agencies and the media has resulted in humane enforcement of anti-KP laws and professional reporting.

Conclusions/Next steps: A multi-faceted approach to KP programming helps improve their access to services despite widespread prejudices. Second Ghana Men’s Study, PREP and HIV Self Testing acceptability study are currently underway - all in furtherance of KP programming and the national HIV response.

WEPEC162

Casting a broader net: Increasing HIV case-finding among key populations using performance-based incentives and social networks in Cote d’Ivoire

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Background: Identifying people living with HIV, and linking them to treatment is critical to controlling the epidemic. USAID- and PEPFAR-supported and FHI 350-led LINKAGES/Cote d’Ivoire project implemented the enhanced peer outreach approach (EPOA) to expand the delivery of HIV services to female sex workers (FSW) and men who have sex with men (MSM) to engage those not previously reached by the project. The EPOA used incentives and social networks to improve HIV case finding.

Description: The EPOA was implemented among FSWs in 14 communes and MSM in eight communes over five weeks (JuneJuly 2017). Eighty-nine peer outreach workers (POWs) (73 FSWs, 16 MSM) were trained within three community-based organizations. Three hundred and fifty-six peer mobilizers (PMs) were selected, and each mobilizer was given four or more coupons to distribute. Each POW and PM received $1-3 USG per successful recruitment. HIV test, or link to treatment. Programmatic data were analyzed to review newly registered KPs, testing, HIV case finding, treatment initiation, and social network dynamics.

Lessons learned: A total of 18,796 coupons (15,524 FSWs, 3,272 MSM) were distributed and 3,476 FSWs and 744 MSM (22.3%, FSWs; 22.7%, MSM) were reached and tested. Ninety percent of those tested were new to the program, and 92% of individuals were recruited through PMs. The average network size for FSWs was 7.4 and MSM was 28.3. POWs re-recruited outside of their age group whereas MSM recruited within the same age group. Of those tested, 194 (6.8%) FSWs and 110 (14.2%) MSM were newly diagnosed with HIV. Of those tested positive, 149 (77%) FSW and 95 (87%) MSM were successfully linked to ART. By comparison, 5,840 FSWs and 1,539 MSM were tested (62% and 67% of the total), but only 106 FSWs (1.8%) and 93 MSM (6.4%) were diagnosed HIV positive during traditional outreach. For both FSWs and MSM, HIV case-finding was significantly higher during EPOA than during routine outreach (p < 0.01).

Conclusions/Next steps: EPOA was successful in recruiting new KP individuals and increasing HIV case-finding. In future implementation, findings can be used to improve targeting to ensure that KPs receive testing and treatment services.

WEPEC163

Project Moxie: A pilot-study of video counseling and home-based HIV testing for transgender youth

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Background: Transgender youth experience some of the highest HIV rates in the United States, and experience a number of structural barriers that may limit their engagement in HIV testing, prevention and care. Telehealth may provide an opportunity for transgender youth to experience HIV testing in their own home. This project aims to examine whether the addition of counseling provided via telehealth coupled with home-based HIV testing can create gains in routine HIV testing among transgender youth.

Methods: Project Moxie involves a pilot randomized control trial (RCT) of 110 transgender-identified youth ages 15-24, who are randomized on to a 11 basis to a control or intervention arm. Participants are recruited online via social media from across the US. Participants in the control arm are sent a home HIV testing kit. Participants in the intervention arm receive a home HIV testing kit plus a video-chat counseling session with a remotely located counselor. The video-chat session provides pre and post prevention counseling and examines barriers to future HIV testing.
WEPEC164
What characteristics predict whether intervention participants successfully recruit previously undiagnosed HIV-positives from their risk networks?

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1National Development and Research Institutes, Institute for Infectious Disease Research, New York, United States; 2Alliance for Public Health, Kyiv, Ukraine; 3University of Cyprus, Medical School, Nicosia, Cyprus.

Background: Although case-finding interventions using social and risk networks show great promise for diagnosing the HIV-unaware and linking them to care (Smyrno et al., in press), such interventions can be limited by the extent to which participants are willing and able to recruit their network members. Participant characteristics predicting successful recruitment of targeted network members, if identified, might be leveraged to modify or refine such interventions and improve their efficacy.

Methods: The TRIP project in Odessa, Ukraine recruited and tested 1271 injection and sex risk network members (79.2% male; 44.7% reporting injection and sex) risk network members (79.2% male; 44.7% reporting injection and sex). We distributed recruitment cards at venues frequented by injection and sex risk network members (79.2% male; 44.7% reporting injection and sex). Recruitment cards contained participant contact information, a deposit amount, and a commitment to retest at a future time. Participants were randomly assigned to receive: (a) a deposit worth of US$4 that would be returned with added interest (totaling ~US$5) upon retesting; (b) standard cash incentive (~US$4); and (c) commitment contract, in which participants could voluntarily make a deposit that would be returned with added interest (totaling ~US$5) upon retesting.

Results: Of 164 recruitment cards distributed, 151 (92%) adults presented cards and tested for HIV. Median age was 31 years (IQR: 25-37). 122 (75%) were men, and 23 (15%) tested positive. Of 128 HIV-negative adults, 123 (96%) enrolled and were randomized: 74 (60%) to commitment contracts, 25 (20%) to standard incentives, and 24 (20%) to no incentive. Of contract participants, 93% made a deposit and 7% declined (Table). Participant characteristics and HIV retesting uptake are shown (Table). Overall, 76% retested: uptake was highest in the standard incentive group (88%) and lowest in high-value contract (69%) and no incentive (70%) groups. Among contract participants who made a deposit, retesting was 81% in high-value and 76% in high-value groups. No seroconversions were observed.

<table>
<thead>
<tr>
<th>No Incentive</th>
<th>Standard Incentive</th>
<th>Commitment Contract: Low-value deposit</th>
<th>Commitment Contract: High-value deposit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number enrolled</td>
<td>24</td>
<td>25</td>
<td>38</td>
<td>36</td>
</tr>
<tr>
<td>Median age (IQR)</td>
<td>30 (28-36)</td>
<td>30 (25-37)</td>
<td>32 (25-37)</td>
<td>31 (25-35)</td>
</tr>
<tr>
<td>Male, n (%)</td>
<td>19 (79)</td>
<td>17 (68)</td>
<td>31 (82)</td>
<td>24 (67)</td>
</tr>
<tr>
<td>Married, n (%)</td>
<td>18 (75)</td>
<td>18 (72)</td>
<td>28 (74)</td>
<td>27 (75)</td>
</tr>
<tr>
<td>Self-reported earnings in 1 week in USD, median (IQR)</td>
<td>$14 (11-29)</td>
<td>$14 (9-23)</td>
<td>$14 (7-20)</td>
<td>$14 (6-20)</td>
</tr>
<tr>
<td>Successful deposits, n (%)</td>
<td>N/A</td>
<td>N/A</td>
<td>36 (95)</td>
<td>33 (92)</td>
</tr>
<tr>
<td>Reported willing to deposit, n (%)</td>
<td>23 (96)</td>
<td>23 (92)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HIV Retesting uptake</td>
<td>17 (70.8)</td>
<td>22 (88.0)</td>
<td>29 (76.3)</td>
<td>25 (69.4)</td>
</tr>
</tbody>
</table>

(Table: Characteristics and HIV retesting uptake of at-risk, HIV-uninfected adults enrolled in a randomized trial of incentive strategies to promote retesting)
WEPEC166
Can online interventions enhance HIV case finding and linkages to care? Comparing offline and online monitoring data from a combination prevention program with MSM and transgender women in Central America
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Pan American Social Marketing Organization, Guatemala City, Guatemala

Background: Under the USAID Combination Prevention Program for HIV in Guatemala, El Salvador, Honduras and Panama, the Pan American Social Marketing Organization (PASMO) implements offline and online interventions to increase HIV testing services (HTS) uptake among at-risk MSM and transgender women (TW), and link reactive cases to care. Offline interventions use an adapted respondent driven sampling recruitment model with “recruiters” (peers who refer individuals in their social network), and “seeds” (reactive individuals who refer partners and others in their social network). Online recruitment is performed by PASMO “cyber-educators” trained to use social media platforms (i.e. Facebook and WhatsApp) to generate demand for and refer to HTS among at-risk MSM and TW with emphasis on “hidden” populations. HTS is performed by PASMO counselors, laboratory technicians, or private laboratories.

Methods: PASMO uses a Unique Identifier Code (UIC) to track program participants from initial engagement through entry of care. The UIC is assigned by the counselor performing HTS or the cyber-educator and the information is documented in print monitoring forms. Print or online vouchers are used to refer to HTS. On a monthly basis, PASMO enters the monitoring data into its management information system, allowing it to track the number of individuals reached, percentage of individuals who receive HTS, yield (number of reactive cases identified per number of tests), and percentage linked to care.

Results: From October 2016 to September 2017, PASMO reached a total of 10,343 MSM and TW across the four countries through offline interventions, of which 10,187 (98%) received HTS, 406 were reactive (yield of 1 of every 26), and 52% were linked to care. When comparing to those reached through online interventions alone, PASMO reached 6,219 (98%) received HTS, 406 were reactive (yield of 1 of every 13 tests), and 64% were linked to care.

Conclusions: PASMO’s offline and online strategies contribute to HIV case finding among MSM and TW in Central America. Although online interventions reach a smaller number of individuals and test a smaller percentage, a better yield is produced; and a greater proportion of individuals are linked to care, proving an effective intervention for concentrated epidemics.

WEPEC167
The domino effect: Tapping into female sex workers’ social networks to increase demand and use of HIV services from previously unengaged women in Burundi
T. Lillie1, D. Gashobotse2, T. Nyongobayo2, D. Sakubu2, G. Kamariza3, V. Ranebennur4, M. Hamdallah5, N. Persaud3

Background: HIV case finding is the cornerstone to treatment initiation yet many programs struggle to engage populations not already reached through existing services. The enhanced peer outreach approach (EPOA) complements traditional outreach by incorporating performance based incentives linked to program milestones and working through untapped social networks to engage unidentified, hard-to-reach, and high-risk key population (KP) members — including female sex workers (FSWs) — for HIV services. The goal is to increase HIV case finding, link HIV-positive KP members to treatment, and connect HIV-negative KP members with services that will help them remain negative.

Description: Through the USAID- and PEPFAR-funded LINKAGES project, EPOA was implemented for nine weeks in two districts in Burundi—Bujumbura Mairie and Bujumbura Rural. Seventy-five peer outreach workers (POW) were trained in EPOA through two community-based organizations and provided with four or more coupons for free HIV testing. They distributed the coupons to peers, and in turn asked their peers to distribute the coupons to other peers in each of their networks. If friends or acquaintances of those peers got tested for HIV, both the peer and POW received an in-kind incentive.

Lessons learned: In both districts, a total of 2,451 coupons were distributed. A total of 929 (379 percent) FSWs were tested, 100 (7 percent) were found positive, and 90 (90 percent) were initiated on treatment. The average HIV case-finding rate was 11 percent, compared to the 5 percent HIV case finding found in the three months before the introduction of EPOA. Compared to KP’s tested during routine programming, those who were tested through EPOA were 2.5 times (95 percent CI: 1.97-3.25; p<0.001) more likely to test HIV positive. There were no significant differences in HIV case-finding rates between Bujumbura Mairie and Bujumbura Rural (11.7 percent (84/717) vs. 8.0 percent (16/212); p=0.09). See Figure 1.

(Figure 1. Burundi: HIV-positive case finding before and after EPOA)

Conclusions/Next steps: The preliminary data demonstrate the potential effectiveness of EPOA in identifying HIV-positive KPs and initiating them on treatment. LINKAGES/Burundi is scaling up EPOA in the other provinces where it operates. More widespread implementation of EPOA with high-risk populations not currently engaged in HIV programs could accelerate progress towards the UNAIDS’ 90-90-90 goals.

WEPEC168
Applying innovative methods to improve HIV testing uptake and case finding among men who have sex with men in Mali
S. Garangue Souko1, T. Madani Moctar Saidou2, A. Lambert3, A. Ag Albin1, E. Papworth4, D. Borer5, D. Mohamed Amadou1, F. Sidibe1, M. Hamdallah1, E. Cooper1, A. Dit Agali Wele6, H. Rodriguez Sherman5, S. Cisse6, J. Bashi Bacendambaga5

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Conclusions/Next steps: The preliminary data demonstrate the potential effectiveness of EPOA in identifying HIV-positive KPs and initiating them on treatment. LINKAGES/Burundi is scaling up EPOA in the other provinces where it operates. More widespread implementation of EPOA with high-risk populations not currently engaged in HIV programs could accelerate progress towards the UNAIDS’ 90-90-90 goals.
The reinforced approach consisted of training in and implementation of: i) community-based programming integrating an MSM environment assessment; ii) HIV risk assessment; iii) sub-group MSM engagement; and iv) an peer networking approach. Aggregate monthly data of MSM reached and tested for HIV by age group and location were analyzed for the pre-intervention period (January-June 2017) and post-intervention period (July-December 2017). The younger sub-group was defined as MSM under 24 years. A chi-square test was used to compare the HIV case finding between periods.

Lessons learned: During the intervention period, the project experienced a 30% increase in MSM reached compared to the pre-intervention period, mainly due to increases reaching older MSM (135%). However, HIV screening in the two age groups was mixed; older MSM reached were less likely to be screened post-intervention while younger MSM were more likely to be screened post-intervention. Among those screened, HIV case finding increased from pre- to post-intervention (2% to 7%, p<0.001), with similar results across age groups.

Conclusions/Next steps: The increase in HIV case finding indicates that the reinforced outreach approach was effective at engaging MSM at higher risk for HIV. MSM sub-group engagement of older MSM was also successful, as was HIV testing for younger MSM. LINKAGES will continue to implement this approach in Mali, examine gaps, such as barriers to testing in older MSM, and find potential solutions. This approach may be feasible in other African countries where MSM experience stigma and discrimination.

### WEPEC169

#### Quadrupling HIV case finding: Social media improves HIV testing and HIV case finding among key populations in Myanmar

**K. Gustafson**, M.M. Lwin, H. Ko Ko, T.N. Oo, R. Kelly

**Population Services International (PSI) Myanmar, Yangon, Myanmar; USAID Burma, Yangon, Myanmar**

**Background:** At Population Services International’s TOP clinics serving key populations, there was consistently high HIV yield among peers using social media. Myanmar experienced a digital technology leapfrog. From 2013 to 2017, the cost of SIM cards dropped from $1,000 to $1.50. By 2017, there were 14 million new social media users and 14 million new internet users in Myanmar — 70% of whom accessed the internet through mobile phones. Sweeping policy changes and rapid introduction of smartphones presented an unprecedented opportunity to reach key populations in Myanmar.

**Description:** In January 2017, PSI invested in a dedicated social media team at TOP to responded to private messages (on Facebook, Line, Beertalk, GRINDR and Viber), fielded hotline calls and offered online referral vouchers, which allowed users to track each conversation from online messaging to arrival at the clinic. Patients show their online referral vouchers at registration at the clinic and are eligible to receive a $1 incentive. TOP also posted daily to its separate MSM-targeted and FSW-targeted Facebook pages, private Facebook groups, and Instagram account. TOP also supplied phones to peer outreach workers, enabling them to hold private outreach conversations through Viber, overcoming a common barrier for sex workers to learning about services.

**Lessons learned:** Before the social media team, yields from clients recruited through the Facebook page were high - 21% in Yangon – but total numbers of clients coming from the site were still low (212 tested, 26 HIV+). After establishing the social media team with support from USAID and PEPFAR, the total numbers of clients reporting to TOP centers for HIV testing quadrupled from 121 to 589. Yield remained high at 19%. Rates of ART enrollment among these clients (93%) were similar to the high rates among those reached through traditional outreach (90%). TOP clients often send in photographs of opportunistic infections by private message, suggesting there are still substantial numbers of PLHIV among Myanmar’s hidden populations who have progressed to AIDS and are not on ART.

**Conclusions/Next steps:** Active engagement with social media for case finding has produced significant increases in HIV testing yields.

### WEPEC170

#### The role of social media in sexual connectivity among men who have sex with men (MSM) in Kenya & South Africa: Potential for innovative online sexual health promotion interventions

**A. Bourne1, S. Tenza1, A. Smith2, J. Liku1, K. Moodley1, A. Tukai3, R. Kabuti4, E. Fearon1, W. Nuttand1, P. Weatherburn1, J. Kimani1, T. Palenee-Phillips1, 1La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia; 2Wits Reproductive Health Institute, Johannesburg, South Africa; 3University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom; 4Partners for Health & Development, Nairobi, Kenya; 5London School of Hygiene & Tropical Medicine, Department of Social & Environmental Health Research, London, United Kingdom; 6University of Manitoba, Winnipeg, Manitoba, Canada**

**Background:** MSM in both Kenya and South Africa are at significant risk for HIV, other STIs and mental ill-health. Social stigma and, in Kenya, political hostility, has created significant barriers to the provision of traditional health promotion interventions to MSM. With the rapid escalation of smartphone use across both countries, new avenues for intervention may exist. This study sought to understand the challenges and opportunities that online platforms present for health promotion with MSM.

**Methods:** Between June 2016 and July 2017, in-depth interviews were carried out with 60 MSM (aged 19-56) equally recruited via purposeful sampling from Nairobi and Johannesburg. Semi-structured interviews examined if and how men used social media (including generic and gay-specific sites/apps) for online interaction with other MSM, including the mechanisms, benefits and challenges of use.

**Results:** Thirteen men were living with HIV and 31 had not tested within the previous 6 months. The majority (n=50) of participants across the age spectrum used social media on a regular basis to engage with other MSM, most frequently Facebook and WhatsApp groups. Both platforms were used for sexual facilitation purposes in manner less common in high-income settings, allowing for the exchange of sexual material, access to sex workers or clients, and the organisation of one-on-one/group sex. Although not risk free, social media platforms afforded a safer environment in which to meet other MSM, helping to build confidence in accessing MSM safe spaces in person (e.g. bars or community-based services) and enabled risk-management conversations ahead of time. Careful management of online identities was required so as not to inadvertently disclose sexual orientation or lose control of identifying images, such as a profile photos.

**Conclusions:** Social and sexual media spaces provide an opportunity for MSM in Kenya and South Africa to meet, make friends and facilitate sex. There is significant scope for the delivery of HIV prevention and care interventions for MSM in these countries via social media. Promoting techniques for safer sexual connections in social media should therefore be prioritised. Sufficient resources should also be directed towards delivering and evaluating high quality online peer-based education and healthcare referrals.
WEPEC177
Assessment to determine reasons for repeat testing amongst key populations and the general population

O. Fajemisin
Society for Family Health, Research, Measurement and Results, Abuja, Nigeria

Background: The burden of HIV in Nigeria is high, especially amongst key populations (KPs). Nigeria seeks to identify at least 90% of the persons who are HIV positive these identified persons on treatment. The SFH supports this process amongst KPs and the general population. Analysis of the program data revealed a percentage of persons who identified as positive had known previously. This study aims to determine the factors leading to repeat testing amongst persons who knew their HIV status.

Methods: The assessment used mixed method approach. All data generated during programming in the year 2017 available at the time of the study was analyzed. Knowledge gained from the assessment of existing data was used to carry out guided interviews with the implementers in focal states.

Results: As many as 40% of PWID, 59% of FSW, 50% of MSM and 20% of the general population who tested positive for HIV previously knew their HIV status in the first semester of 2017. While this decreased slightly in the second semester of the year. It remained high. This was attributed to the fact that refusal to test for HIV by KPs can be looked on by their peers as evidence of the fact that they are known positives. Retesting was therefore a means to conceal a known HIV status. Beyond this, some were in denial and sought a second opinion. Others were checking to see if “miracle cures” had occurred. Most all persons with a known status had commenced HIV care. Retesting, therefore, offered the opportunity to reach these persons who have yet commenced HIV care/ART or who were “lost to follow-up.”

Conclusions: Effort must be made to ensure that all identified HIV positive KPs complete their referral within a week. Counselling and follow-up of persons who already know their status but are not on treatment should mirror to reflect that of those persons who are newly identified. Counselor Testers may need further training to overcome these new issues emerging especially amongst key populations.

WEPEC172
PrEP-plus: An unpunited outcome of a program for pre-exposure prophylaxis

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1Thilium Health, Rochester, United States; 2MOCHA Center, Rochester, United States

Background: Thilium Health (TH) is a community health center in Rochester, NY USA, a medium-sized city. Founded in response to the AIDS epidemic (1989), TH offers multidisciplinary primary/specialty care, house pharmacy offers 24/7 PEP. TH merged with The MOCHA Centers for LGBTQ people of color where specialists, and insurance navigator. An outreach specialist piloted “digital outreach” (DOI) using smartphone “hookup” apps for MSM. Recently, TH met with The MOCHA Centers for LGBTQ people of color where programs focus on linkage to care (PrEP, PEP, STI screening) and to address housing, transportation and other social determinants of health, and a standardized approach to RSA among all TH providers.

Innovative HIV testing strategies (peer-led testing, peer-mediated testing, self-testing with and without online/offline support, use of fourth generation and recency assays)

WEPEC173
Utilisation of HIV self-testing among rural gay and bisexual men and ethnic minorities in New Zealand

New Zealand AIDS Foundation, Auckland, New Zealand

Background: HIV transmission in New Zealand is concentrated among gay, bisexual, and men who have sex with men (GBM) and migrant communities. In 2016, GBM accounted for 89% of HIV notifications where infection was considered locally acquired. Past HIV prevention efforts have kept HIV prevalence, and incidence low in New Zealand, compared to other countries. Yet, the rise of new infections is indicative of the need for improved prevention strategies. HIV self-testing (HST) was identified as a tool to address barriers to testing for typically hard to reach GBM, including indigenous Māori and other ethnic minorities, those in rural areas, and African migrants. An ongoing HST pilot project, consisting of 500 HST kits, seeks to study the utilization, acceptability, and pre and post test health seeking behaviours.

Description: The HST service was promoted to GBM through community events and social media. Individuals searching for the nearest HIV testing service on the NZAF website, are shown HST as an option. Clients are asked to verify order details using a unique code via SMS. The shipped order contains an Oraquick Advance Rapid Test, printed instructions, educational materials, and links to an instructional video. During the order process an option is provided for additional telephone support. Two SMS reminders to report results are sent to clients. If no results are reported at 28-days after shipment, a peer educator attempts to contact the client.

Lessons learned: The uptake of the service among target groups, and HIV positivity rate, compared favourably with rapid HIV tests conducted in community settings.

<table>
<thead>
<tr>
<th>HIV self-test kits shipped</th>
<th>Rapid HIV tests completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>by NZAF between 1 Dec 2017 and 31 Jan 2018 (n=126)</td>
<td>at NZAF community centres 1 Oct - 21 Dec 2017 (n=109)</td>
</tr>
<tr>
<td>% clients GMB</td>
<td>86%</td>
</tr>
<tr>
<td>% GMB clients indigenous Māori</td>
<td>9.9%</td>
</tr>
<tr>
<td>% GMB clients Pacific Islander</td>
<td>4.5%</td>
</tr>
<tr>
<td>% clients African</td>
<td>7.1%</td>
</tr>
<tr>
<td>% clients outside Auckland, Wellington or Christchurch</td>
<td>54%</td>
</tr>
<tr>
<td>% GMB reporting non-recent testing (never or not in last 12 months)</td>
<td>90%</td>
</tr>
<tr>
<td># preliminary positive results</td>
<td>2 (both linked to care)</td>
</tr>
</tbody>
</table>

(†HIV self-testing service utilisation, compared with testing in community settings)
Conclusions/Next steps: Thus far, HST is increasing utilisation of HIV testing among typically hard to reach GBM in New Zealand. Full results will be available by June 2018 with recommendations on whether to scale-up this strategy.

WEPEC174
Understanding who accepts and who is reached through secondary distribution of HIV self-tests in a cluster-randomised trial of door-to-door offer of HIVST nested in four HPTN071 (PopART) communities in Zambia

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1London School of Hygiene and Tropical Medicine, London, United Kingdom, 2Zambart, Lusaka, Zambia

Background: In sub-Saharan Africa, men are harder to reach with HIV-testing services (HTS) than women. HIV self-testing (HIVST) and secondary distribution of HIVST are strategies that may increase men's HTS uptake. Measuring HIVST outcomes through secondary distribution is challenging. In a cluster-randomised trial of door-to-door offer of HIVST as an option for HTS, lay counsellors also offered HIVST for secondary distribution to absent partners. We describe characteristics of individuals accepting HIVST for their partner and of individuals for whom a secondary distribution HIVST result was recorded.

Methods: This study was nested within a community-randomised trial of a universal test-and-treat intervention (HPTN071(PopART)). Sixty-six zones in four PopART communities were randomized to the HIVST intervention or PopART standard-of-care. In HIVST intervention clusters, lay counsellors offered individuals choosing to test the option of HIVST or finger-prick HIV-testing. Individuals aged ≥18-years whose partner was absent were offered HIVST for this partner. We describe characteristics of individuals accepting a secondary distribution HIVST and of the individuals for whom a secondary distribution HIVST result was recorded. In this abstract, data on use and results of secondary distribution HIVST are reported by the distributor.

WEPEC175
More than just a testing service: Evolution of a peer-led rapid HIV and STI testing service in response to shifting community needs

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Background: PRONTO! opened in August 2013 as Australia’s first shopfront and peer-led community-based rapid HIV testing service for gay, bisexual and other men who have sex with men (GBM) in the context of a resurgent HIV epidemic driven by undiagnosed infection. While initially offering standalone peer-delivered HIV testing to overcome structural and stigma-related barriers to frequent testing, broader aims emerged in response to community needs. These included creating a safe space supporting entry into regular sexual health testing and knowledge transfer, particularly for younger GBM, providing comprehensive STI testing, becoming a major part of PrEP expansion and supporting the creation of a dedicated gender diverse health service.

Description: PRONTO!’s evolution is detailed in Table 1 and service utilisation summarised in Figure 1. Developments were informed and supported by a mixed-methods evaluation and a governance structure including local government (responsible for funding), evaluators, reference laboratory experts, peak community HIV organisations and all major local GBM-focused sexual health services.

Lessons learned: While the original service model’s convenient, comfortable and engaging peer environment appeared to overcome barriers to frequent testing, standalone HIV testing contributed to suboptimal return HIV testing rates and missed opportunities to detect STIs. Service expansion was required to respond to client needs for comprehensive sexual health care, demand for new biomedical intervention approaches and improve reach to gender and geographically diverse populations while preserving the valued peer relationship. Outcomes of service changes included significantly increased return testing after introducing STI testing and SMS reminders, the PrEP clinic rapidly reaching capacity and strong uptake of outreach services.

Conclusions/Next steps: Cooperative partnerships between government, evaluators, health service providers and community organisations enabled PRONTO! to respond to shifting community needs and prevention priorities. While a lack of government subsidy for rapid HIV tests (unlike conventional serology) has limited their rollout in Australia, the PRONTO! experience demonstrates their capacity to facilitate community-engaged and responsive models of care. Further directions include meeting rising demand for PrEP and addressing persistent financial, social and geographical barriers to frequent testing for rural populations and migrants ineligible for free STI testing through Australia’s universal healthcare system.
WEPEC176
HIV testing strategies in Europe
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Background: In recent years, new technologies and approaches to the implementation of HIV testing have emerged. The objective of this systematic review was to critically appraise and synthesise recent evidence on strategies/approaches aimed at increasing the uptake of HIV testing in Europe.

Methods: Systematic searches were run in Medline, Embase, PsycINFO, Cochrane and Scopus including studies published between January 2010 and March 2017. Abstracts from relevant conferences (2014-2017) were also reviewed. Title and abstract screening was used to select studies presenting strategies to improve HIV testing. Study selection, data extraction and critical appraisal were performed by two independent reviewers. Outcomes of interest included uptake and positivity.

Results: The searches resulted in 368 studies; over half were from Northern Europe (55%) and many of the remainder from Spain and France. A number of approaches to improve HIV testing were identified: HIV testing implementation (n=158), audits to identify gaps in testing (n=88), education interventions (n=16), campaigns (n=10), economic evaluations (n=13), communication technologies (n=8) and clinical and decision making tools (n=8). Testing implementation included 63 studies targeting risk groups (20-99%) tested for HIV, 18 self-testing/sampling (0-78%) and 18 emergency departments (3-66%) and 28 primary care (4-94%). 70 utilised rapid testing (4-98%) and 13 focussed on indicator condition testing (4-91%). Audits revealed between 22-64% of patients with indicator conditions were not tested for HIV at an earlier attendance. Only 28 studies presented before and after intervention data with testing rates 4-72% before and 12-85% after. Education interventions focused on medical staff/students (n=14) and inpatients (n=3). The majority of campaigns promoted national/European HIV testing week (n=20). Innovative use of technology to increase HIV testing included: use of social media to offer testing (n=1), active testing recall via text message (n=1), educational videos for testing offer (n=2), computer testing prompts (n=1), automatic test ordering (n=2) and risk assessing (n=4).

Conclusions: This review has identified several promising strategies to achieve high HIV test uptake across a variety of settings in Europe. However, there are considerable missed opportunities for earlier HIV diagnosis. Few interventions reported before/after data, preventing evaluation of improvement in test coverage and very few studies were from Eastern Europe.

WEPEC177
Increased HIV case finding rate among MSM and TG in Laos from a community-led HIV oral fluids screening project
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Background: HIV prevalence among men who have sex with men (MSM) in Laos has been estimated to 1.6% in 2014 while for transgender (TG) this prevalence was around 3.1% in 2012. Based on the regional epidemiological context, particularly in neighboring countries, the HIV prevalence among MSM and TG remain low. Furthermore, HIV testing services are only provided in governmental structures, mainly health facilities, where stigma and discrimination is still impeding the access to services for these populations.

Methods: The USAID LINKAGES Project in collaboration with the Lao Center for HIV/AIDS and STI and LaoPHA, a local community-based organization, developed a community-based peer-driven HIV oral fluids screening (test-for-triage) project since September 2016 in three provinces bordering with Thailand. On-to-offline outreach activities were initiated during the last two quarters of 2017. Monitoring data were collected in real time using a mobile data collection application.

Results: The positivity rate using all reactive results (n=46) during September-December 2017 reached almost 6%. As depicted in Figure 1, there was a steady increase of MSM and TG screened reactive under test-for-triage from October 2015 to December 2017. During the last quarter of 2017, positivity rate significantly varied across key populations (p-value = 0.016) and was higher among MSW and TGSW: 18 (4.5%) out of 368 MSM screened; 3 (2.4%) out of 126 TG tested; 20 (9.7%) out of 206 MSW tested; and 5 (8.2%) TGSW tested (Fisher exact: 0.016). Those recruited through social media were more likely to be screened reactive when meeting offline.

Out of the total recruited and screened through on-to-offline (n=55), 8 (14.5%) were screened reactive, and all of them accessed HTC services for HIV confirmatory testing; while out of the total recruited and screened through face-to-face recruitment (n=235), 38 (5.2%) screened reactive (p-value = 0.004) and 36 (95%) accessed HTC services.
Conclusions: It is critical that CBSSs are encouraged to recruit more peers, as it seems a promising strategy contributing to the increase case finding. Program data will be compared with the last IBBS recently conducted in December 2017. Profile of individuals screened reactive versus non-reactive will be assessed to further target outreach.

WEPEC178
Improving access to HIV testing services among clients of FSWs: Experiences of the LINKAGES project in Zomba and Machinga, Malawi

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Background: In Malawi, HIV prevalence among clients of female sex workers is 16.2% compared to the national prevalence of 8.8%. Clients are regarded as a priority population because they are vulnerable to HIV infection and transmission due to their interaction with female sex workers (FSWs) and other risk behaviors, like not using condoms. Though clients are typically difficult to identify and reach with comprehensive HIV services, we were successfully able to reach them through peer outreach in the Zomba and Machinga districts of Malawi through the PEPFAR/USAID-supported LINKAGES project.

Description: The LINKAGES project held focus group discussions with FSWs to identify categories of clients. We then conducted additional focus group discussions with 122 of the identified clients (who were bicycle, minibus and taxi operators; minibus touts; fishermen; and truck drivers) to explore their service needs. The project trained 50 peer educators among clients of FSWs to reach out to their peers with a wide range of comprehensive HIV messages. The project also trained 50 peer navigators among HIV-positive clients of FSWs to reach out to their HIV-positive peers with treatment adherence messages. Day and moonlight outreach services were provided on weekly basis to the clients within hot spots, at times that were convenient to them.

Lessons learned: Between January and September 2017, a total of 6,187 clients were reached with HIV prevention, care, and treatment interventions; 5,053 tested for HIV and received results, of whom 2,812 (63%) tested HIV positive and were all initiated on treatment. There were 5,027 clients screened for STIs, and 249 (5%) of them were diagnosed and treated and we also did repeat HIV testing at 3 months, and of the 248 people who were tested this time, only one seroconverted (0.4%).

Conclusions/Next steps: We successfully identified a hard-to-reach group and provided them with comprehensive HIV prevention, care, and links to treatment. A seroconversion rate of 0.4% among repeat testers, which is similar to national incidence, will serve as a benchmark against which continuing prevention efforts can be evaluated.

WEPEC179
Enhancing HIV testing coverage through peer-driven recruitment models among transgender women in Pattaya

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Background: Transgender individuals (specifically transgender women and transgender sex workers) are at elevated risk of HIV infection due to stigma and discrimination against their gender and illegal status of work. Although HIV testing is key to achieving epidemic control, only a limited number of transgender people know their serostatus. The USAID- and PEPFAR-supported LINKAGES project in Thailand introduced the Enhanced Peer Mobilization (EPM) model to improve access to high-risk transgender women and transgender sex workers and strengthen HIV testing uptake among these groups.

Description: The EPM model was adopted by Sisters Foundation, a transgender-led organization in Pattaya that provides quality and non-discriminatory comprehensive health services to transgender women. Under the EPM, a small team of full-time and trained Community-Based Supporters (CBS) was responsible for managing an informal network of incentivized Peer Mobilizers (PMs) to recruit peers from their social networks to receive an HIV testing Data on risk behaviors and referral were collected real-time on smartphones with a reminder system to inform CBS to monitor referral to an HIV testing service.

Lessons learned: The introduction of EPM by Sisters led to greater reach in the transgender community as well as increased uptake of testing among transgender women. Prior to the introduction of EPM, between October 2015 and September 2016, Sisters reached 945 transgender women and transgender sex workers and tested 367 trans individuals. Among those tested, 38 were diagnosed HIV positive. During October 2016-September 2017, the number of transgender people reached increased significantly to 1,549. The HIV testing rate doubled, compared to the previous year, to 783 individuals, 52 of which tested positive. The contribution of engaging PMs in cabaret theatres accounted for 25% (n=189) of clients tested and 37% (n=19) of the HIV case finding.

Conclusions/Next steps: The EPM recruitment strategy leveraging transgender social networks improved access to those at elevated risk of HIV infection and uptake of HIV testing among transgender individuals. Sisters will continue to work with existing networks of key opinion transgender leaders as well as to scale up recruitment of transgender peer mobilizers in different contexts, especially factories and educational institutions.

WEPEC180
Who is using the HIV Self-test among Black/African-American MSM and transgender women in New York City? Baseline results from project TRUST

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Background: Increasing consistent HIV testing is critical to the United States’ HIV prevention strategy, particularly among Black/African-American gay/bisexual and other men who have sex with men (MSM) and transgender women (TW). HIV self-testing may increase consistent HIV testing.

Methods: We analyzed baseline survey data from 347 MSM and TW enrolled in 2016/17 in ‘TRUST,’ a randomized controlled trial of a dyadic (friend pairs) intervention to increase consistent HIV self-testing among young (mean age = 23.7 [sd=4.8]) MSM and TW. We describe frequency, motivations, contexts and characteristics of HIV self-testing in the sample.
Results: The majority (87%) had HIV tested in their lifetimes; 50% in the last three months. 54% knew about the HIV self-test and 13% had self-tested in their lifetimes; 3% in the last 3 months. There were no statistically significant differences in age, race/ethnicity, US-birth, sexual identity, socioeconomic status between those who had and had not ever self-tested. Of those who had ever self-tested, most (61%) had only used it once; 18 reported that their most recent test was a self-test. Almost a quarter (23%) got the self-test from a drug store; 23% from a friend; 20% on-line. A third (34%) received the test from a health professional or test counselor. Two-thirds did the self-test at home; 16% at a friend/sex partner’s home. The majority tested themselves, although 16% reported having a friend or sex partner test them and 2 reported being tested by their mothers. Approximately half conducted the test alone, with the remainder having friends, counselors or mothers present. The most common reason for self-testing was wanting to do it themselves (34%); having one available (29%); wanting to do it in private (27%); and easier than going to clinic (20%).

Conclusions: HIV self-testing offers another option for those at risk of infection. These results suggest that, among at-risk Black/African-American MSM and T&W, there is significant room for increased uptake of self-testing. Further, those who are self-testing are not typically self-testing alone and are motivated by a desire for privacy, control and easy access. Dissemination should integrate these findings into efforts to promote self-testing to increase consistent testing among at-risk populations.

WEPEC181
Development and application of a social entrepreneurship testing model to promote HIV self-testing among men who have sex with men

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Background: HIV self-testing (HIVST) offers an opportunity to increase HIV testing among people not reached by facility-based services. However, the promotion of HIVST is limited as a consequence of insufficient community engagement. We built a social entrepreneurship testing (SET) model to reach more hidden people and promote HIVST linkages in Guangdong and Shanxi province, delivering about 700 kits and 6-months.

Objectives: The objective of describing the profile and motivations of people interested in HIV self-testing among Black/African-American MSM, who are disproportionately affected by HIV, there is a critical need to increase consistent HIV testing. Current testing options include self-testing, couples HIV-testing-counseling (CHTC), and clinic-based testing, though few efficacious HIV testing interventions exist for young Black MSM and transwomen. ‘All About Me’ was developed as a brief, web/mobile-based intervention that provided a personalized recommendation for an individual’s ‘optimal’ HIV testing method, hypothesized to increase HIV testing.

Methods: From 2016-2017, 236 Black/African-American, HIV-negative (self-report), sexually active (past 12-month insertive/receptive anal intercourse with a man/transwoman), aged 16-29, MSM or transwomen living in the New York City area were randomized to one of two conditions (1:1 in randomly ordered age blocks). Participants in the experimental condition completed an algorithm based on behaviors and personal characteristics found to be associated with HIV testing option preferences, yielding the personalized recommendation. Controls were given information about various testing approaches, but no recommendation. Analysis of outcomes, self-reported testing over 6 months of follow-up, was conducted on an intent-to-treat basis.

Results: Self-reported HIV testing during the 6-month follow-up period increased from 32.4% to 84.6% (p<0.001), but did not differ by study arm (experimental: 67.9% to 85.3%; control: 57.1% to 83.9%) (p=0.85). Use of the HIV self-test did not differ by study arm at 3- or 6-month time points (3-month: experimental: 12.0%; control: 12.7%; p=0.88; 6-month: experimental: 8.6%; control: 4.9%; p=0.30). Use of CHTC did not differ by study arm during follow-up (3-month: experimental: 10.2%; control: 8.2%; p=0.61; 6-month: experimental: 18.8%; control: 9.5%; p=0.22). Among intervention participants, 19.5% reported using their recommended testing method at 3-months and 16.1% at 6-months.

Conclusions: Increasing consistent HIV testing among high-risk groups is a National HIV/AIDS Strategy priority. Although testing among study participants increased by 20%, receiving a personalized recommendation did not impact HIV testing rates. It may be that engaging in a study about HIV testing motivated participants to increase HIV testing regardless of study arm, obscuring the impact of the algorithm.

WEPEC183
Profile and motivations of people who are using the HIV self-test: Results from the “VIH: Teste-Toi Toi-même” study in France

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Background: HIV self-tests (HIVST) are expected to increase the uptake and frequency of HIV testing, particularly for key populations. One year after the HIVST received approval for sale in France, are people from vulnerable populations actually using HIVST?

Methods: An online survey was launched in October 2016 with the objective of describing the profile and motivations of people interested in or having already used the HIVST. Participants were recruited via ads on
Facebook, dating apps and websites, and community networks, with a particular focus on social media for two key communities in France: men who have sex with men (MSM) and migrants from Sub-Saharan Africa.

**Results:** Of the 4554 respondents who completed the survey, 395 (8%) declared having already used an HIVST. A total of 308 (8%) were MSM; 216 (6%) were women. People who had used the self-test were more likely to live in the Paris area (35% vs. 25% in the overall sample), to have a university diploma (62% vs. 49%), to be currently employed (77% vs. 61%) and to have a monthly income over €1600 (53% vs. 42%). All MSM (100%) and 93% of non-MSM had had sexual intercourses in the preceding year with a median of 10 partners for MSM versus 3 for non-MSM. Non-MSM were more likely to have a steady partner than MSM (68% vs. 53%), but less likely to use a condom with casual partners (13% vs 28% stated always wearing a condom).

Participants gave three main reasons for having used an HIVST: rapidity accessing results (74%), autonomy (60%) and convenience (57%). One in four (27%) had used an HIVST more than once. All participants who had used an HIVST declared having already done an HIV test during their lifetime and 83% had been tested in the preceding year. However, of the three respondents who declared receiving a positive result, only one had sought confirmation for this test result.

**Conclusions:** The present survey targeting vulnerable populations highlights rapidity accessing results, autonomy and convenience as key motivations for self-testing. However the question of linkage to care remains open and clearly requires further investigation.

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**WEPEC184**

**Online self-testing service yields yearly growth, high user satisfaction, stable STI positivity rates and lower HIV rates among MSM in the Netherlands**

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**Background:** In the Netherlands, men who have sex with men (MSM) are at elevated risk for HIV and other STIs. To enable early diagnosis and treatment, MSM are recommended to test twice a year. To facilitate regular STI screening of MSM who are asymptomatic and did not receive partner notification, Dutch public health organisations (PHOs) piloted Man tot Man Testlab, a free online self-testing service in 2008. Ten years after its first implementation, Testlab has become a structural component of PHOs’ testing services across the Netherlands.

**Description:** Testlab is embedded in a comprehensive online resource for MSM (Man tot Man) that provides pre- and post-test information and tailored advice about sexual risk. Users register online and answer questions about their sexual history. Eligible users receive a testing form for HIVST. PHOs communicate the results online and offer related papers to their STI clinic for free treatment and counseling.

**Lessons learned:** Between 2008-2017, the number of consultations grew from approximately 530 to more than 7,000 per year. Despite this growth the overall STI positivity rate remained high around 14%, while HIV rates dropped to 0.5%. Over time, the amount of users ever tested for HIV before increased to 93% while median age decreased to 33 years. Testlab primarily reached those less educated, younger MSM at considerable risk for bacterial STIs. One in four reported an STI diagnosis in the previous year. An online survey among users showed high satisfaction and recurrent use of the service. 88% would choose Testlab for their next STI test. Two out of three were tested via Testlab in the past six months, meeting national recommendations for regular testing.

**Conclusions/Next steps:** Continuously reaching MSM at high risk for STIs, Man tot Man Testlab has been successfully implemented since 2008, achieving yearly growth, high STI positivity rates and good user satisfaction. In the coming years, the need and opportunities for online self-testing are expected to grow further as MSM, especially those taking PrEP, will be advised to be tested up to four instead of two times a year.

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**WEPEC185**

**Experiences with use of oral HIV self-testing (HIVST) among men who have sex with men (MSM) and linkage to care: Translating evidence to programmatic strategies for HIVST scale-up in Nigeria**

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**Background:** HIV self-testing (HIVST) offers an alternative to facility-based HIV testing services, particularly for highly stigmatized populations such as men who have sex with men (MSM). HIVST facilitates privacy, confidentiality, and convenience. Lessons learned from user experiences are invaluable in developing programmatic strategies for scale-up of HIVST programs and facilitating linkage to care.

**Methods:** MSM aged 17-59 years (N=316) who were HIV-negative or of unknown status were recruited by peer educators for a pilot HIVST distribution intervention study in Lagos, Nigeria. Participants completed a baseline survey and received two HIVST kits. A helpline counselor followed-up with calls at 5/7/10 days from baseline to provide support. After three months, a post-intervention survey (N=257), in-depth interviews with 20 MSM purposively selected from the cohort and two focus group discussions (with 12 peer educators) were conducted to explore MSM self-testing experience, operational aspects of HIVST kit distribution, and linkage to HIV care. Interviews were audio-recorded, transcribed verbatim and analyzed using thematic analysis. We report the post-intervention qualitative findings here.

**Results:** Qualitative results indicated that majority of participants were very satisfied with their use of the test kit because it made HIV testing less cumbersome, demystified the testing process, and improved confidentiality. Most participants found the pictorial illustrations to be self-explanatory and easy to follow. There was consensus among participants that a 24/7 helpline was a critical resource for addressing concerns with the kit use, receiving counseling and guidance on linkage to care for those who test positive. Most who reported using the helpline did so to receive confidential, non-judgmental advice from the counselor about the next steps to take, and those who tested positive found the guidance for linkage to care extremely valuable. Some participants, however, reported that inclusion of pre-counselling information on the HIVST kit would help reassure MSM who are prone to self-harm prior to testing.

**Conclusions:** Lessons learned from user experiences in this study show that the scale-up of HIVST in Nigeria must include provision of adequate pre-and post-test counselling information as well as the availability of helpline support to improve user experience and linkage to care for those who test positive.
WEPEC187

"If you don't have the courage to go get a test, you won't have the courage to go for treatment": Consumer perspectives on the introduction of HIVST in Central America

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Background: The introduction HIV self-testing (HIVST) could overcome stigma-related barriers to HIV testing among Central America’s vulnerable populations. The Pan American Social Marketing Organization, through the USAID Combination Prevention Program in Central America, explored knowledge and acceptability of HIVST among vulnerable populations in four studies. This analysis summarizes HIVST knowledge and intentions among men who have sex with men (MSM), online MSM and female sex workers (FSW), and describes factors that may support or hinder the success of HIVST introduction in Central America.

Methods: The results presented come from four 2017 research studies: population-based RDS/time location studies among 1522 MSM and 677 FSW in three Honduran cities; an online study among a convenience sample of 582 MSM residing in Guatemala. El Salvador, Honduras, Nicaragua and Panama; and an ethnographic study among 50 NGO-affiliated MSM and TW (Transgender Women) in Guatemala. Univariate and bivariate statistics are presented for quantitative indicators. Qualitative data was analyzed thematically. Results were validated through a consultative focus group with the target population.

Results: Twenty percent of MSM and FSW, and one-third of TW had heard of HIVST in Honduras, despite their unavailability. After a brief description, >90% of respondents agreed that they would take and HIVST if presented the opportunity. Key reasons for not accepting one included not trusting the test (36%-40%) and preferring to receive services at a clinic (28%-30%). Results from the qualitative study highlight that there is limited exposure to HIVST, but strong feelings favorable and unfavorable regarding the introduction of HIVST in the MSM/TW community. Some view HIVST as a means to increase the frequency, regularity, access and privacy of HIV testing. While other MSM/TW NGO/community leaders suggested that, absent counseling, HIVST could lead to risk behaviors and potential violence. Participants also expressed confusion and doubts regarding HIVST and operationalizing linkages to care and access to medications.

Conclusions: While there is little knowledge of the HIVST in the region, vulnerable populations have favorable intentions toward accepting HIVST. These results are consistent with studies in other contexts. Successful introduction of HIVST in Central America is limited exposure to HIVST, but strong feelings favorable and unfavorable regarding the introduction of HIVST in the MSM/TW community.

WEPEC188

The role of youth champions in linkage of adolescents and youth from the community for HIV testing services

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Background: At national level, young people find challenges accessing HIV testing services at health facilities because they do not fit in or even fear stigmatization from their parents and health workers. Others do not know where to get youth friendly services. We describe how youth champions played a key role in linking up their peers to youth friendly centres for HIV testing services in Kalungu district.

Methods: PREFA with support from UKAID set up youth friendly centres in 12 health facilities in Kalungu District run by 24 health workers trained in handling youth as they come for services including HIV counselling and testing.

24 active youth who could ably mobilize and sensitize their peers were selected by the health facility management committee and trained by PREFA in counselling and mobilization skills. These are called youth champions whose main role is to go to the community targeting 40 households per month to identify peers eligible for HIV testing. Linkage was done using confirmed referral notes. The youth champion retained...
WEPEC189
Integrating voluntary referral from HIV-positive people into a risk-network engagement approach to improve case detection and linkages from outreach in India

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Background: In India, key population (KP) outreach is associated with relatively low HIV case-finding rates, despite surveillance estimates of high HIV prevalence among KPs. In response, the USAID- and PEPFAR-supported LINKAGES/India project, led by FH1 360, introduced the enhanced peer outreach approach (EPOA). The EPOA adapts respondent-driven sampling from surveillance to improve the capacity of outreach to engage KPs at highest risk of HIV and link them to services. To further optimize this approach, we explored opportunities to extend the EPOA with voluntary partner referrals from identified HIV-positive individuals.

Methods: From July to October 2017, we conducted the EPOA, targeting men who have sex with men (MSM) and transgender (TG) women not covered by the national KP intervention program in four subdistricts of Andhra Pradesh, India. Primary seeds were encouraged to engage as peer mobilizers (PMs), referring peers within their social or sexual networks to nearby HIV testing services. Clients who were successfully referred to HIV testing were then asked if they would serve as PMs and were provided four coupons with unique identifying codes to refer their peers. In November and December 2017, we supplemented the EPOA with an index-based HIV testing approach, by offering HIV-positive clients voluntary assisted partner notification in a manner consistent with World Health Organization guidelines.

Results: The distribution of 648 EPOA coupons through 12 primary PM seeds and 150 secondary PMs resulted in 333 successful referrals (64.5%) to HIV testing. Of these 333 participants (286 MSM and 67 TG women), 67 (82%) were confirmed HIV positive. Over time, the clients reached through the EPOA declined from 160 (July) to 43 (October). However, 28 HIV-positive index clients identified were counselled to provide voluntary referrals of their partners for HIV testing; they successfully referred 44 additional clients (38 MSM and 6 TG women) and 13 (29.5%) of whom were diagnosed HIV positive. Ninety-two percent of all newly identified cases were linked to HIV treatment services to date.

Conclusions: Augmenting the EPOA with HIV index-based referral approaches has contributed to additional HIV case detection among KPs, and underscores the dividends of innovating to combine and integrate prevention approaches.

WEPEC190
Improving voluntary HIV testing in low and middle income countries (LMIC): A report from a field experiment in Ecuador

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Background: HIV/AIDS prevention and control relies heavily upon timely diagnosis and treatment. UNAIDS has set the 90-90-90 target by 2020 (i.e. 90% of PLHIV know their status, 90% of those diagnosed will be under treatment, and 90% under treatment will achieve viral suppression). HIV/AIDS under-detection may stretch scarce public health resources in LMIC. We conducted a field experiment in a LMIC to test the hypothesis that a financial incentive intervention, compared to an information-only or to a behavioral nudge, will significantly increase voluntary HIV testing.

Methods: A randomized controlled trial was conducted in a large Ecuadorian city that carries a disproportionate burden of HIV/AIDS from June to December 2017. Consented participants were randomly assigned to one of three arms: 1) control arm where participants received information on HIV testing; 2) soft-commitment (behavioral nudge) arm, where participants received a narrative to overcome social stigma and activate the sense of social responsibility; and, 3) financial incentive arm where participants were offered a US$10 reward received either at time of testing or when they picked up their test results. Participants were recruited from three heavily trafficked public sites around the city. Socio-demographic information was captured using a self-administered survey. The identities of the participants were masked. Outcomes included testing rate and HIV seropositivity rate. Chi-square tests were used to compare rates across treatment arms.

Results: 7,721 participants were approached and 1,321 got tested. Randomization was effective and no systematic biases were identified. Socio-demographic variables (age, ethnicity, education and previously tested for HIV) did not differ between treatment arms (p>0.05). Testing rate was 12.2, 11.3 and 33.5% for control, behavioral nudge and financial incentive treatment arms, respectively (p< 0.05). HIV seropositivity rate was 1.2% for participants in both control and behavioral nudge arm and 1.5% for financially incentivized participants (p>0.05). These were individuals that would have gone undetected but for the intervention.

Conclusions: Our preliminary results indicate that financial incentives provided at the time of outreach can overcome the psychosocial barriers of voluntary HIV/AIDS testing. The subsequent detection of new HIV/AIDS cases support infection control with early intervention, limit economic costs, and improve surveillance accuracy.

WEPEC191
Towards 90-90-90: Findings from innovative peer driven outreach approach for rapid HIV case detection among people who inject drugs in Kyrgyzstan

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Background: The HIV epidemic in Kyrgyzstan is mainly concentrated among people who inject drugs (PWID). The last size estimation was 25,000 PWID (2014). Nearly 50% of those infected with HIV do not know their status, making clear the need for innovative case finding strategies as peer driven outreach (PDO) in addition to traditional prevention. PDO is based on chain recruitment within the target groups.

Methods: The paper attempts to explore the effectiveness of PDO in case finding in Kyrgyzstan. Routine data collected through MIS online database is analyzed in STATA 13.0, including descriptive and explorative (multivariate) analysis.

Results: During 4 months’ period, 5,349 PWID were recruited and tested through PDO and 106 HIV+ cases were found (23% of all cases in the country for the same period). Recruitment continued for an average of
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WEPEC193
Developing a voluntary partner referral strategy for HIV testing among key populations: A pilot program in the Dominican Republic

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Background: Partner notification strategies are a hallmark of sexually transmitted infection prevention/control programs. There is renewed interest in such approaches to increase HIV testing yield and early diagnosis. We previously piloted partner referral with female sex workers living with HIV in the Dominican Republic (DR) and their steady partners and found high levels of acceptability, unmet need for HIV testing, and yield. Description: Our team, under the USAID/PEPFAR-supported and FHI 360-led LINKAGES Project, reviewed peer-reviewed and grey literatures and consulted with local key informants to develop a voluntary partner referral (VPR) strategy in the DR including: 1) a manual for passive and active referral modalities; 2) participatory training on implementing VPR and strengthening cultural competency for working with diverse types of partners and; 3) protocol and tools for documenting implementation and outcomes data.

Lessons learned: The first lesson was the need to shift away from “partner notification”, which emphasizes the act of informing a partner, to “partner referral”, which focuses on the act of supporting a partner to test. We also included “voluntary” to emphasize the importance of both voluntary referrals among index patients (IPs) as well as voluntary uptake among partners. From August to December 2017, across four clinics, 76 IPs were offered VPR. Among IPs, 10 identified as MSM and one as transgender. Six reported active involvement in sex work. Sixty-eight (83%) accepted participation and identified 69 partners for referral, mostly steady partners (70%). Forty-three (62%) partners came for HIV testing, 42 (98%) were tested, and 17 (45%) were newly diagnosed. All newly diagnosed partners initiated treatment. The most common modality of referral was passive/patient-initiated (83%). Implementation has required continuous training. The time burden has created challenges to wider use of VPR in participating clinics.

Conclusions/Next steps: Based on the initial findings documenting acceptability and yield, we are training seven new NGO and governmental HIV clinics. We will continue to monitor acceptability and outcomes and conduct qualitative interviews with providers, IPs, and referred partners on their experiences with VPR. Future scale-up should consider the cost and value-added of each VPR modality and how to tailor VPR to different partner types.

WEPEC192
OptTEST programme interventions for Indicator Condition HIV testing are effective in significantly increasing HIV testing rates in non-specialist healthcare settings across Europe

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Background: OptTEST, an EU co-funded project, aimed to improve HIV detection and linkage to care across Europe. Part of this programme was to improve HIV Indicator Condition (IC) testing (HICT) by introducing a clinic policy utilising implementation tools and delivering quality improvement (OI) interventions.

Methods: From Jan 2015, an HICT policy was introduced for up to 3 ICs (Pneumonia, Hepatitis B and C, Infectious Mononucleosis-like syndrome) in different clinical settings (primary care, emergency department, Acute Medical Unit, Specialist OPD) in 10 pilot countries. Baseline retrospective audits (offer and number of tests/total presenting with IC) were performed. Programme data collection included IC age, IC status, test offer, performed test result and transfer to care details (including CD4 cell count and treatment initiation). Implementation tools included a strategic pack (slide set, guideline review protocol, financial calculator), interactive service design module. Staff training module and resource pack. Plan-do-study-act interventions were designed and implemented by local study teams and monitored using run charts.

Results: To the end of July 2017, 43 sites had begun testing in 8 countries. Of the 9661 HIV tests performed 97 were positive: 1.00% [95%CI 0.82-1.22]. Offer (where data was available) and testing rates all increased significantly, overall: 48.12% [46.24-50.00] to 93.1% [92.5-93.5] and 39.82% [38.10-41.57] to 90.8% [90.27 - 91.37] respectively, both p < 0.05. Uptake of offer was above 90% for all ICs at baseline (range 90.03 - 91.81%) and increased significantly for all except IM (range 92.10 - 99%). Of those patients testing positive, data is currently available for 95, of whom 74 (78%) transferred to care, with a median CD4 count of 345 cells/ul (range 2-1304). 53% were late presenters.

Conclusions: Introduction of HICT policy, supported by implementation tools and OI increased HIV testing offer rate by 81% and testing rate by 128%. This approach is an effective way to increase HIV testing and identify cases of undiagnosed HIV in non-specialist healthcare settings.

4 waves (Range: 0-4). The majority of clients were male (88.9%), from urban areas (68.6%) and aged 25-49 years old (82.4%). The majority of HIV+ cases (71.7%) were identified at waves 2-6, and no cases were detected after wave 12. Clusters with HIV+ seeds were on average shorter than those with HIV- seeds (4 vs. 5 waves, p<0.05) and had fewer PWID tested (ES vs. 4 vs. 5 waves, p<0.05). However, the odds of having an HIV+ test result were higher in clusters with HIV+ seeds (OR=1.89, 95% CI: 1.13-3.17). Further, the yield among clients recruited by HIV+ PWID was significantly higher compared to those reached through HIV- PWID (5.0% vs. 1.8%, p<0.001) though most of HIV cases were found through HIV- PWID (89) of the total 106 cases). Yield was highest in the first wave of recruitment by an HIV+ client, and decreased as waves continued (9.1% in 1st wave, 2.5% in 2nd wave).

Conclusions: The PDO approach is effective in quick reaching a high number of PWID with HIV testing or HIV prevention activities. Case detection can be increased through recruitment of effective HIV+ seeds and controlling the length of negative waves in clusters. Training or education for better recruitment of partners and other support to seeds can increase their effectiveness.
WEPEC194
Utilizing a network model in HIV case-finding among people who inject drugs (PWID) in Northeast India
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Background: Success in achieving the UNAIDS 90-90-90 target largely depends on reaching the first 90, i.e. 90% of people living with HIV know their HIV status. It is critical to reach out to individuals who have not yet been tested for HIV. It is also challenging to reach and test people who inject drugs (PWID), especially in remote locations in Northeast India.

Description: Project Sunrise, funded by President’s Emergency Plan for AIDS Relief (PEPFAR) and implemented in Northeast states, initiated HIV case-finding through the network of known HIV-positive PWID. Known HIV-positive PWID within the government-supported targeted interventions (TIs) were selected and approached by outreach workers to refer spouses and individuals from their injecting and sexual networks who had not yet been reached by the TI. The outreach workers of the TI contacted the referred clients, counseled them, and accompanied them for HIV testing. The project has completed two periods of this chain referral process and will continue for several more months until there is no more HIV case detection.

Lessons learned: During October and November 2017 we identified 383 injecting partners through 237 index PWID. Of these 383, 238 injecting partners were contacted and counseled, and 211 PWID were tested for HIV. Among these 211 who had never been tested for HIV, 20 (9.5%) were confirmed HIV positive, and 19 were initiated on ART. Of 12 spouses of index HIV-positive PWID contacted, three were tested for HIV and two were confirmed HIV positive. No HIV cases were found among sexual partners of index HIV-positive PWID. Based on our experience, reaching out to individuals within injecting networks is easier than reaching those in sexual networks. PWID were reluctant to disclose their sexual partners due to social taboos.

Conclusions/Next steps: This innovative network model improved HIV case detection among PWID and reached injecting networks outside the coverage of the Indian national program. More efforts are required to reach out to the sexual partners by adopting more targeted strategies.

Project Sunrise will advocate with the National AIDS Control Organization (NACO) to incorporate and scale up such approaches within the national TI program.

WEPEC195
Partner notification based on urine self-sampling for officially-sanctioned HIV testing in cooperation with community-based organizations among men who have sex with men in Beijing, China
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Background: Partner notification (PN) in generally acknowledged to be an important element of controlling sexually transmitted infections (STIs) and HIV. However, given that both HIV infection and homosexuality remain highly stigmatized in China, health department and clinics face great challenges in performing sexual partner mobilization among MSM. We developed a model of urine self-sampling for HIV testing (USST) to conduct a PN and HIV testing program for MSM in cooperation with MSM-serving CBOs to conduct HIV testing intervention in MSM gathering areas of Beijing from December 2015 to January 2016. MSM who were reached and were willing to have a HIV test were referred as on-site MSM in our study. They were referred to CBO-run HIV testing points for HIV oral rapid testing and urine self-collection. The staff of CBO interviewed them face-to-face to complete a questionnaire, collect information on their sexual partners, and encourage them to take packages of oral rapid testing kit together with disposable urine sampling kit for their sexual partners who would perform oral rapid testing, collect urine, and mail them back to the designed laboratory. Personal details including socio-demographic characteristics and results of oral rapid testing were collected through self-administered questionnaires.

Results: In total, 60 on-site MSM were reached and were willing to take 70 packages for their sexual partners. Of 70 packages, 69 urine samples and questionnaires were obtained. For on-site MSM, the positive rate of HIV oral rapid testing and urine ELISA were 3.3% (2/60) and 6.7% (4/60), respectively. Nevertheless, the positive rate of HIV oral rapid testing and urine ELISA among their sexual partners were 7.2% (5/69) and 15.5% (11/69), respectively. In addition, 100% (5/5) of the individuals screened as urine ELISA HIV positive were followed up within five weeks. Of these, 50% (2/4) and 72.7% (8/11) were reported as newly identified for on-site MSM and their sexual partners, respectively.

Conclusions: Combining the advantages of CBOs and officially-sanctioned HIV testing services, it was feasible and efficient to implement the promotion of PN based on USST model among MSM in cooperation with CBOs.

WEPEC196
Are US black, Hispanic and white YMSM at risk for HIV acquisition being tested in accordance with national HIV testing recommendations? Results from a national study
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Background: Since 2006, the United States (US) Centers for Disease Control and Prevention (CDC) has recommended HIV testing for men-who-have-sex-with-men (MSM) at least once annually, with more frequent testing based on continued risk of HIV acquisition. Given the recent increases in HIV acquisition among US black, Hispanic and young adult MSM (YMSM), there is concern that YMSM are not being tested in accordance with CDC recommendations. Among a national sample of US black, Hispanic and white YMSM at higher risk for HIV based on self-reported sexual behaviors, we aimed to: (1) determine how well their HIV testing history aligns with CDC HIV testing recommendations, and (2) identify structural and other barriers to testing.

Methods: Using multiple social media platforms, we recruited black, Hispanic, and white US YMSM (18-24 years-old) who reported condomless anal intercourse (CAI) within the prior year. Participants completed an online survey regarding their sexual behaviors, HIV testing history, HIV risk perception, and healthcare access. Multivariable logistic regression was used to examine factors associated with HIV testing in accordance with national guidelines.

Results: Of the 1,835 YMSM who had CAI within the prior year, 30% (95% CI: 28-32%) had not been tested for HIV in the past year. Of the 652 not tested within the past year, 62% (95% CI: 58-66%) had never been tested. Factors associated with not being tested in the past year included not having a primary care provider, discomfort with asking a provider for an HIV test, living outside of a large city/suburb, younger age, and greater self-perception of having an undiagnosed HIV infection.

Conclusions: Almost a third of YMSM at high risk for HIV infection had not been tested for HIV in the past year in accordance with national guidelines, and a substantial proportion never had been tested. Structural, knowledge, risk perception, and clinician relationship barriers must be overcome to improve HIV testing in this higher risk population. Implementation research examining how to address structural and health systems barriers, such as lower access to and trust in medical care, to promote adoption of HIV testing guidelines among this population are warranted.
WEPEC198
High-yield HIV testing, facilitated linkage to care, and prevention for female youth in Kenya (GIRLS Study): Preliminary baseline findings
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Background: Adolescent girls and young women (AGYW) ages 15–24 years are twice as likely as their male peers to be infected, making females in sub-Saharan Africa the most at-risk group for HIV infection.

Methods: Within a framework of implementation science, we are evaluating interventions to increase uptake of HIV testing, linkage to and retention in care, and prevention among AGYW. We compare two “seek” recruitment strategies, three “test” strategies, and pilot “linkage” to care interventions among AGYW in western Kenya. Participants are recruited from Homa Bay, Mbita, and Ndhiwa subcounties representing urban, fishing, and rural communities. AGYW are recruited via home-based or community-based strategies that run concurrently. AGYW are offered interventions among AGYW in western Kenya. Participants are recruited from Homa Bay, Mbita, and Ndhiwa subcounties representing urban, fishing, and rural communities. AGYW are recruited via home-based or community-based strategies that run concurrently. AGYW are offered AGYW demonstrates the importance of prevention interventions at the point where it is most needed.

Results: We have enrolled 664 participants, 518 (78.0%) in the home; 146 (22.0%) at mobile health events. Mean age was 19.6 (SD: 2.4); 118 (17.8%) are 15–17 years old. 86% reported ever having sex, with sexual debut mean age of 16 years (SD: 1.9). Only 34% reported condom use at last sex. Most, 534 (80.2%) chose staff-aided rapid HIV testing; or health care facility referral. Newly diagnosed HIV positives are enrolled in a trial (SMART design) to pilot adaptive interventions to support initial linkage to care. We also evaluate a primary prevention messaging intervention to support high risk HIV-negative AGYW to reduce their HIV risk behavior and adhere to HIV testing recommendations.

Conclusions: Preliminary findings indicate AGYW prefer the home-based recruitment strategy and staff-aided HIV testing regardless of recruitment site. Although HIV prevalence (2.3%) is lower than reported for the region (27.8%), prevalence of high risk HIV-negative AGYW demonstrates the importance of prevention interventions at the point where it is most needed.
WEPEC199
Building mobile phone-connected diagnostics and online pathways for HIV care: Early findings from the m-Africa formative study in KwaZulu-Natal, South Africa

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Background: Globally, South Africa has the highest number of people living with HIV/AIDS. The Province of KwaZulu-Natal (KZN) has a prevalence of 45% in antenatal clinics, and within our vicinity, 30% of people are unaware of their status and only 50% of those diagnosed reach clinical services within one year. Uptake of confidential HIV testing services is key to achieving the 90-90-90 objectives. However, extant HIV counseling and testing strategies are inadequate in our settings and new approaches are needed. This study aims to develop a new generation of mobile phone-connected HIV diagnostic tests and online clinical care pathways to support decentralised HIV testing (including self-testing), linkage to care, and prevention in South Africa.

Methods: Twenty-five semi-structured in-depth interviews and four focus group discussions were conducted (between November 2017 and January 2018) with healthcare providers and potential end-users (both sexes aged 18-58 years) in uMkhanyakude district in KZN, to understand their views of HIV care including HIV self-testing (HIVST) and their willingness to use the proposed technology. Themes were identified from the interview transcripts, manually coded and thematically analysed following an interpretivist approach.

Results: Participants (particularly males) believe that HIVST and the proposed technology for diagnostics and linkage to care will benefit them and others given its privacy and time saving when compared to fixed clinics. Most participants would like to make an appointment via phone with a health worker (non-community member) and meet at home or elsewhere for consultation or treatment to reduce stigma. However, some potential end-users raised concerns that people may commit suicide after testing HIV positive, without provider support. This was deemed less of an issue by providers, given the community awareness (involving traditional leaders) is key to the success of HIVST.

Conclusions: Despite a few concerns, participants show high levels of willingness to perform HIVST and to use online pathways technology for HIV care. The proposed technology could be a game-changer in achieving the 90-90-90 objectives given its potential to attract first-time testers and hard-to-reach populations. Implementation must draw on the support of community leaders.

Rapid/Same-Day ART initiation
WEPEC200
Darunavir/cobicistat/emtricitabine/tenofovir alafenamide (D/C/F/TAF) in a Test-and-Treat model of care for HIV-1 infection: Interim analysis of the DIAMOND study

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Background: Test-and-Treat models in newly diagnosed, HIV-1-infected patients have led to improved virologic outcomes, retention in care, and decreased mortality. Antiretroviral regimens used in this setting should optimally be a single-tablet regimen (STR), abacavir-sparing, well tolerated, and have a clinically-proven high genetic barrier to resistance.

Methods: DIAMOND (ClinicalTrials.gov: NCT03227860) is an ongoing, phase 3, single-arm, open-label, prospective, multicenter study assessing the efficacy/safety of D/C/F/TAF 800/150/200/10 mg as a Test-and-Treat model over 48 weeks. Adults diagnosed with HIV-1 infection within 14 days were immediately enrolled and started on D/C/F/TAF without screening/baseline laboratory information. Investigators reviewed screening/baseline laboratory findings as results became available; patients not meeting predefined safety or resistance stopping rules continued treatment. A planned interim analysis for retention and clinical outcomes was conducted when all patients reached Week 4 of enrollment.

Results: Baseline patient (N=109) characteristics were: median (range) age 28 (19-66) years; 13% women; 32% African American; median (range) HIV-1 RNA 4.6 (1.3-8.2) log10 copies/mL; 24% ≥100,000 copies/mL; median (range) CD4 count 369 (7-1,082) cells/mm3; 21% < 200 cells/mm3. Median (range) time from diagnosis to screening/baseline was 5 (0-14) days: 29% of patients enrolled within 48 hours of diagnosis. At the interim analysis, 95.4% (104/109) of patients continued on D/C/F/TAF and only 5/109 discontinued (3 due to safety stopping rules, 1 protocol violation, 1 adverse event [AE]). Through Week 12, mean HIV-1 RNA decreased by 2.72 log10 copies/mL (n=41; Figure). Incidences of grade 3 (5.5%) and serious (2.8%) AEs were low, with no grade 4 AEs or deaths. Week 24 results will be available for presentation.

Conclusions: In the first known phase 3 trial of an STR in a Test-and-Treat model, a decline in HIV-1 RNA ≥2.00 log10 by Week 4 and patient retention of 95% on D/C/F/TAF were achieved at interim analysis, with no discontinuations due to predefined resistance stopping rules or lack of
They struggled to link those who tested positive into care and treatment. While CSOs improved their ability to reach and test KPs, men (MSM), and transgender people—to initiate ART on the same day of HIV diagnosis versus those who delayed during the implementation period.

**Methods:** A retrospective cohort study analyzed electronic medical records of HIV positive patients 18 years and above, enrolled from September 2015 - June 2017. HIV-positive individuals were offered ART using a targeted approach by fast linkage, point of care CD4 testing and intensified counseling about HIV. Patients ultimately made the choice on when to initiate ART. Baseline characteristics and outcomes associated with same-day ART were tested using Chi square, independent t and Mann Whitney U tests.

**Results:** Of the 367 patients who were eligible to initiate ART, 167 (45.5%) started ART on the same day of HIV diagnosis. The average time taken to initiated ART in the delayed group, was 15 days. After 6 months of ART, more patients on the same day ART arm, 98 (78.5%) had achieved viral suppression than 80 (62.8%) in the delayed group (p=0.016). At baseline, 122 (77.7%) of patients in the same day arm were in WHO stage 1 and 2. Adherence to appointments was at 73.1% in the same day ART arm compared to 78% among those who delayed (p=0.269). Attrition from care was similar in both arms at 27.5% vs 26.6%, of note no death or transfer was reported in the same day arm.

**Conclusions:** Similar clinical outcomes are seen in patients in both arms of the study. Sub optimal adherence to ART and poor retention in care pose significant barriers to the effectiveness of the test and treat strategy.

**WEPEC202**

Peer navigation is strongly associated with increased uptake of same-day ART initiation among KPs living with HIV in Angola

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**Background:** In October 2015, the PEPFAR-funded LINKAGES project in Angola began working with civil society organizations (CSOs) to provide key populations (KPs) — sex workers (SWS), men who have sex with men (MSM), and transgender people — with access to the full cascade of HIV services. While CSOs improved their ability to reach and test KPs, they struggled to link those who tested positive into care and treatment. The antiretroviral therapy (ART) initiation rate for KPs who tested positive in the first seven months of the program was only 19 percent (11/53). LINKAGES Angola integrated peer navigation into the program to improve ART initiation.

**Methods:** In May 2016, LINKAGES introduced HIV-positive peer navigators (PNs). The PNs would meet positive KPs for pretest counseling and accompany them to the health facility to start ART. We started with few PNs, and in May 2017, the program increased its number so that each team of peer educator and HIV counselor had a navigator. The government of Angola supported in principle same-day ART initiation for KPs since October 2015 but did not make official the policy until September 2016. This is a retrospective analysis of routine program data on ART initiation.

**Results:** Same day ART-initiation is strongly associated (p<0.0001, Fisher’s exact test) with being assigned to a PN. Out of 355 KP patients, 62.8% (n=150) who were accompanied by a PN were initiated on ART the same day of their first medical consultation compared to only 29.4% (n=30) who initiated ART on the same day without the support from a PN. The rates of same-day ART initiation have improved over time, as shown in fig 1. From May 2017 with 68% of patients being initiated on ART the same day to 100% of patients on same-day ART by January 2018.

**Conclusions:** Employing PNs can substantially increase ART initiation rates. It is important that PNs meet beneficiaries on the day their test results are provided so that they can forge a bond right away. Well-trained PNs are educating health professionals and empowering patients. LINKAGES in Angola will work with more PNs to maintain 100% same-day ART initiation.

**WEPEC203**

Operational feasibility and scope of same-day ART initiation under the WHO treat-all approach in the public sector of southern Swaziland- a prospective cohort study

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**Background:** Since 2015 WHO recommends antiretroviral therapy (ART) initiation on the day of HIV diagnosis. However, its feasibility in resource constrained settings remains uncertain. We describe predictors and outcomes of same-day ART in a well-established routine public sector HIV programme in Swaziland.

**Methods:** This is a prospective cohort of adults (≥16 years) newly enrolled into HIV care and eligible for ART irrespective of CD4 cell count (WHO treat-all approach) at 9 health facilities in southern Swaziland, between 10/2014 and 3/2016. ART was offered on the day of HIV care registration (same-day ART) and deferred for up to 3 months for patients not ready to start treatment. Follow-up time was until 12/2016. We identified predictors of same-day ART initiation utilizing multivariate logistic regression analysis. Flexible parametric survival models were built to compare time from facility-based HIV-care registration and time from ART initiation (for patients successfully initiated on ART) to the composite endpoint loss to follow-up/death.

**Results:** Of 1726 patients registered in HIV-care, with median age of 30 (IQR 25-36) years, 413/1726 (23.9%) were pregnant, and 566/1726 (32.5%) and 332/1726 (19.2%) had CD4 cell counts ≤200 and >500 cells/µL. Of 1726 patients, 628 (36.4%) were young (≤18 years), 125/1726 (7.2%) were pregnant, and 218 (12.6%) and 137 (15.5%) did not start ART. The probability of same-day ART initiation was lower (27.6% vs 32.5%; p=0.009) while ART-attrition was higher (27.6% vs 20.4%; p=0.009) compared to deferred ART. Confounder adjusted analyses also showed a tendency of decreased risk of HIV-care attrition (aHR 0.85, 95%CI 0.65-1.05) while the risk of ART-attrition remained increased (1.65, 1.30-2.10).

**WEPEC204**

A comparison of outcomes of same day versus delayed Antiretroviral treatment (ART) initiation in the ‘Test and Treat era’ in Kenyatta National Hospital

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**Background:** A generation free from HIV is now feasible through universal Antiretroviral treatment for all people living with HIV. Late HIV diagnosis, late ART initiation and poor retention in care are challenges in achieving the UNAIDS 90-90-90 targets. Structural barriers such as poor linkages, patient and providers attitudes on willingness and readiness to start ART are the main impediments to same day ART initiation. Kenya adopted test and treat strategy in September 2016. This study compared viral suppression rates, ART adherence, development of new opportunistic infections and death events in patients who chose to initiate ART on the same day of HIV diagnosis versus those who delayed.
Demonstration and pilot projects for PrEP, PEP, male circumcision

WEPEC204
A comparative study of risk among adolescent girls and young women who accept or decline PrEP uptake from a community-based mobile clinic

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Background: Achieving an AIDS-free generation critically depends on identifying populations at highest HIV risk and scaling up HIV testing, knowledge of HIV status, and HIV prevention uptake, including PrEP. An understanding about adolescent girls and young women (AGYW) acceptance or declining PrEP uptake is needed, which we evaluated in a PrEP delivery project through an adolescent mobile clinic.

Methods: A demonstration project (POWER) was implemented to determine whether AGYW at risk for HIV are motivated to start PrEP and what the preferable mode of distribution could be. Prevention including PrEP was offered to all sexually active AGYW ages 16-25; accessing sexual reproductive health services (SRHS) from an accessible, friendly, adolescent-tailored mobile clinic servicing limited-resource high disease-burden communities of Cape Town, South Africa. All AGYW completed a standardized sexual behaviour HIV risk assessment and risk reduction counselling. A causal-comparative approach, using chi-squared and t-tests, explored the potential effect of HIV risk factors comparing AGYW accepting to those who declined PrEP.

Results: Between June-December 2017, 347 AGYW accessed SRHS in which PrEP was offered and 265 (76%) initiated PrEP on the same day. Overall, there was no significant difference in total HIV risk factors reported among acceptors (median-3 risk factors) and decliners (median-3) of PrEP. No significant difference in correlates of PrEP accepters and decliners were observed in age of sexual debut, whether her primary partner has other partners, knowing her partner’s HIV status, or being involved in intergenerational or transactional sex. Factors significantly associated with PrEP uptake were visiting the mobile clinic previously (p<0.001), frequent HIV testing (every 3 months; p<0.001), inconsistent condom use (p<0.023), and reporting multiple partners themselves (p<0.011). Conclusions: No significant difference existed in risk factors in AGYW accepting or declining PrEP uptake from the mobile. PrEP uptake in this cohort was associated with AGYW’s personal agency in sexual and health-seeking behaviour more than the risks associated with their current partners. The incongruity between HIV risk awareness and how that translates to behaviour (PrEP uptake) indicates that demand creation should include messaging to build AGYW’s confidence to take ownership of their health and thus apply self-using prevention options.

WEPEC205
Worldwide PrEP: Online-to-offline HIV prevention for foreigners in Bangkok

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Background: Formal Pre-Exposure Prophylaxis (PrEP) as a form of biomedical prevention is not available in many countries, while generic PrEP available in Thailand offers low threshold access to this form of HIV prevention. Yet this form of access requires special online-to-offline measures and a counselling procedure that is tailored to the needs of foreign clients and a travelling population.

Description: Pulse Clinic Bangkok implemented an online-to-offline procedure to counsel men-having-sex-with-men (MSM) for PrEP and to provide HIV & STI testing. PrEP provision and regimen advice on location. From January till September 2017, after engaging in online counselling first, 208 became so-called “PrEP tourists” with visits to the clinic. A total of 1703 (84%) returned for follow up visits after the initial visit. MSM can engage via different social media channels and gay dating apps with the clinic prior to their visit. During these chats knowledge about PrEP is provided. Later visits can be scheduled also outside regular office hours. Special online and offline counselling for substance users and alternative HIV prevention strategies for MSM who later (have/want to) stop using PrEP are offered. Clients are empowered and furnished with the knowledge to arrange HIV testing and continuous medical follow-up in their home countries.

Lessons learned: There is a large number of so-called “PrEP tourists” who regularly procure PrEP in Thailand and make use of local medical service provision. While continuously procuring PrEP via Bangkok, HIV testing and continuous medical follow-up is also executed with local health care providers in their home countries. Overall, this mode of provision allows PrEP access for vulnerable MSM populations who cannot access PrEP at home. Yet at the same time, due to split health care provision, potential sero-conversions cannot always be traced.

Conclusions/Next steps: Affordable PrEP can contribute to a successful individual HIV prevention strategy even for MSM who cannot access PrEP formally in their home countries (e.g. due to lack of availability, high costs or stigmatizing health services). The model applied here comes with high counselling demands for medical service providers, and demands a high level of independent, responsible individual health care management by the PrEP users themselves.

WEPEC206
Pre-exposure prophylaxis in Zambia: Policy engagement and initial implementation

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Background: Pre-exposure prophylaxis (PrEP) is a highly effective HIV prevention measure not yet widely deployed in sub-Saharan Africa. The University of Maryland Baltimore (UMB) has worked with the Zambian Ministry of Health (MOH) to develop and implement national guidelines for PrEP since September 2016. UMB has engaged MOH and stakeholders on key population (KP) health services, leading to the first implementation of PrEP in Zambia.

Description: UMB provided medical and technical expertise to MOH to introduce PrEP in the 2018 Zambia National Consolidated ART Guidelines for sero-discordant couples (SDCs) and persons at high risk of HIV infection. The 2017 guidelines expanded eligibility with risk-based criteria targeting KPs, including SDCs, men who have sex with men (MSM), female sex workers (FSWs), and transgender (TG) persons. From April to November 2017, UMB piloted a PrEP intervention package at Pulse Clinic, a KP referral site in Lusaka, that included community education about PrEP and trained 24 health care workers (HCWs) on PrEP service delivery. We present programmatic data on PrEP initiation and follow-up at one month.

Lessons learned: Discussions with KPs show near-universal positive perception of PrEP, but cite KP stigma, HCW reluctance, and negative media reports as barriers to PrEP access. In eight months of program implementation, UMB identified 649 HIV-negative clients: 168 (26%) were screened for PrEP, 57 (47%) were eligible, and 50 (88%) enrolled in PrEP of those, 32 (64%) followed up at one month. Enrollment among SDCs (5/9), MSM (31/31), and TGs (5/5) was 100%, but 54% among FSWs (9/16). One-month follow-up was 100% among FSWs (9/9), 80% among SDCs (4/5), 60% among TGs (3/5), and 52% among MSM (16/31).
WEPEC207

Predictors of low medication possession ratio (MPR) in individuals receiving PrEP in the EPIC-NSW study in New South Wales (NSW), Australia

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Background: Medication adherence is a critical determinant of the efficacy of daily TDF/FTC as HIV PrEP, and adherence has varied widely in clinical trials and in some population-based settings. We report one-year medication possession ratio (MPR) as a proxy measure of adherence, and predictors for low MPR in a population-based study of rapid, targeted, and high-coverage PrEP implementation in NSW, Australia.

Methods: EPIC-NSW is a single arm study of daily TDF/FTC as PrEP. Adherence was evaluated in the 3,700 individuals at high-risk of HIV who were enrolled between March and October in 2016 and followed for a minimum of 12 months. Drug dispensing logs were reviewed and one-year MPR was determined as the total number of TDF/FTC pills dispensed from the date of first dispensing to the end of the first year of follow-up divided by 365. Total dispensing was truncated to a maximum of 365 doses. We examined predictors of low MPR (less than 80%)

Results: Participants were almost all men (99.4%) and identified as gay (99.0%) and bisexual (0.5%). Median age was 36 years (Interquartile range IQR 29-45 years). Most (95.5%) were Australian-born, lived in suburbs with a high concentration of gay men (gay Sydney, 38.2%) or elsewhere in Sydney (47.7%). The median one-year MPR was 97.8% (IQR 74.0%-100.0%), and low MPR (< 80%) was recorded in 30.1% of participants. Younger men were significantly more likely to have low MPR than their older counterparts (45.6% aged under 25 and 23.1% aged above 45, p trend=0.001). Low MPR was also more common in transgender people (50.0%) than cisgender men (30.0%, p=0.033), and in bisexual (36.0%) and heterosexual (56.8%) men compared with gay men (29.7%, p=0.006). Participants who lived outside Sydney (35.0%) and other metropolitan areas of Sydney (30.3%) were more likely to have low MPR than those who lived in gay Sydney (28.0%, p=0.007). In multivariate analysis, younger age (p=0.001) and sexual orientation other than gay (p=0.006) were significant predictors for low MPR.

Conclusions: Median MPR was high in EPIC-NSW. Low MPR, possibly indicating poor coverage of risk events, was more common in the young and in those who were not gay-identified.
WEPEC209
Barriers to PreP implementation: The Ministry of Health demonstration projects in Swaziland
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Background: Whilst the efficacy of HIV pre-exposure prophylaxis (PreP) is proven, little is known about feasibility and acceptability of implementing PreP in Swaziland. We present our experience in implementing oral PreP demonstration projects amongst population at substantial risk of acquiring HIV infection from August to December 2017.

Methods: We used a Ministry of Health national implementation framework in collaboration with three partners: FHI 360, Clinton Health Access Initiative and Medicine San Frontiers using oral PreP preparations of TDF/3TC 300mg or TDF/FTC 200mg. Ethical approvals were obtained from Swaziland Ethics Committee. Eighteen MoH clinics were chosen to implement the projects. Consenting participants aged 16 and above, who are sexually active, HIV sero-negative and at substantial risk of acquiring HIV infection were enrolled in the project. HIV testing was conducted at 0, 1 and 3 months visits. Clients who missed an appointment were followed-up three days after their scheduled visit expired and three phone calls at 2-days intervals were made. MoH approved tools were used to collect quantitative and qualitative data.

Results: A total of 1003 clients were screened. 75%(762) were established at substantial risk. Of these, 55%(422) were eligible and 93%(356) were initiated on PreP. Among those initiated 75%(281) were females (to self-identified as female sex workers and 1 man who have sex with men). Non-condom use was cited as the reason for accepting PreP in 7(134)-22) of the PreP initiates. Sixty percent(n=216) returned for their one-month follow-up visit and among those who did not, 27%(n=39) were contacted by phone calls and 38%(n=15) cited various personal reasons for not showing up including distance to travel to clinic for PreP refills. Twenty three percent (n=9) cited that they were no longer at risk and opted out.

Conclusions: PreP uptake is promising and the demonstration project appears well integrating in existing MoH clinics. Key barriers to PreP implementation remains as retention. PreP demonstration projects should consider innovative ways to improve retention, for meaningful impact in HIV prevention.

WEPEC210
“It’s like plan B for HIV!” Formative research results of PEPTALK: A study to design and test a media campaign to drive demand for, uptake of and adherence to PreP
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Background: PreP is an effective and underutilized HIV prevention tool in the United States. The PreP treatment period offers opportunities for promoting uptake of PreP. However, among some gay/bisexual and men who have sex with men (MSM) and transgender women (TGW) PreP awareness and uptake is low. PEPTALK conducted formative research to inform a multi-media campaign to drive demand for PreP among Black/African-American MSM/TGW in upper Manhattan and the Bronx, NY.

Methods: We conducted 38 in-depth interviews and 5 focus groups (N=48) with participants: 18; male at birth; Black/African-American; at-risk (condomless insertive/receptive anal intercourse with a man past 6 months); HIV-negative/unknown status; Bronx or upper Manhattan resident/worker. Interviews and groups covered sexual health: “exposure”; PreP awareness/experiences; barriers to and facilitators of PreP use; and diffusion of innovation (DiO).

Results: What behaviors constitute “exposure” varied by HIV knowledge level and the term itself was not consistently understood or well-received. PreP knowledge tended to be low and PreP was sometimes confused with PreP. Among those who knew about PreP, several compared it to “Plan B” for pregnancy prevention.

When participants knew about PreP, they had often learned from friends or fellow MSM/TGW and sometimes health professionals. Concerns about PreP focused on access and cost, and effectiveness. PreP users reported that PreP reduced anxiety, noting however that sometimes anxiety persisted since one cannot tell if PreP is “working” (observability). In terms of other DoI domains, disadvantages of PreP are that it cannot be tested or observed; positives are that it is relatively simple to use and is a good “backup” (but not the first line of prevention).

Media messages and images were generated and tested, with feedback emphasizing the need to clarify the difference between PreP and PreP, the desire to see PreP effectiveness data; and use of analogies that increase understanding (“Plan B for HIV”). Diversity in images presented was assessed to crucial.

Conclusions: PEPTALK awareness is low; campaigns must make a distinction between PreP and PreP. Simple and easy to understand messaging is needed. Increasing access via accessible PEP/PreP providers and pharmacies is important, but without awareness and demand, these will not increase PreP uptake.

WEPEC211
Men who have sex with men (MSM) eligible for PreP: Do they differ from other MSM clinic attendees?
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Background: The PreP Impact Trial, a non-randomised trial, began recruitment in October 2017 in sexual health clinics in England. We report early findings from participating clinics on MSM PreP-eligible by clinical assessment compared to other MSM attendees.

Methods: GUMCAD, the national sexually transmitted infection surveillance system, collects clinical and demographic data for each patient attendance, and since the start of the trial, has included PreP eligibility codes. We extracted data from GUMCAD for HIV-negative MSM aged ≥16 who attended participating clinics from trial start to 30-Nov-2017. A proxy indicator of high HIV risk was based on data available from the preceding year, defined as: a prior HIV-negative test and an ano-genital bacterial STI. Using Pearson’s χ2 test, we compared PreP-eligible MSM to other MSM attendees by ethnicity, age-group, clinical history and our proxy HIV risk indicator.

Results: A total of 13,657 MSM attended 41 trial clinics during the study period. Of these, 3,672 (26%) were identified at high HIV risk. Of all MSM attendees, 16% (2,262/13,657) were assessed as PreP-eligible by clinicians; compared to those not assessed eligible, there was a higher proportion of PreP-eligible MSM aged ≥16 who attended participating clinics from trial start to 30-Nov-2017. A proxy indicator of high HIV risk was based on data available from the preceding year, defined as: a prior HIV-negative test and an ano-genital bacterial STI. Using Pearson’s χ2 test, we compared PreP-eligible MSM to other MSM attendees by ethnicity, age-group, clinical history and our proxy HIV risk indicator.

Conclusions: Initial data indicate that MSM assessed as PreP-eligible are at higher HIV risk than those not eligible, suggesting that PreP is being appropriately targeted. Nonetheless, a quarter of MSM not coded as eligible for PreP met proxy high HIV risk indicators; this may represent poor coding or missed opportunities for PreP. Our proxy measure for high-risk was based on historical GUMCAD data where patients cannot be tracked across clinics, a key limitation of our
WEPEC212
HIV pre-exposure prophylaxis (PrEP) for the general population in Swaziland: A detailed cascade study

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Background: Under the leadership of the Swaziland Ministry of Health (MOH) a prospective cohort study was started in August 2017 with the aim to assess the operationalization of oral pre-exposure prophylaxis (PrEP) in one of the world’s first public-sector demonstration projects of PrEP for the general population in sub-Saharan Africa.

Methods: Between 1 August 2017 and 31 January 2018, clients attending any of the six public-sector primary care clinics participating in the PrEP demonstration project were informed about PrEP. Those interested in PrEP received counselling and clinical eligibility screening. If eligible, same-day PrEP initiation was offered. Data from the six clinics was extracted from MOH risk assessment forms and client files, and analyzed.

A clustered linear probability model was used to identify differences in males and females progressing across each step of the cascade.

Results: Among the 592 clients individually engaged in PrEP, 94% (95%CI: 88-101) consented for HIV risk screening. A majority of clients screened were female (85%), which reflects clinic attendance composition. Overall 78% (95%CI: 69-87) of clients screened were identified as at risk for HIV. Those at risk and expressing interest (55%; 95%CI: 42-68) were assessed for clinical eligibility screening. If eligible, same-day PrEP initiation was offered. Data from the six clinics was extracted from MOH risk assessment forms and client files, and analyzed.

A clustered linear probability model was used to identify differences in males and females progressing across each step of the cascade.

Among the 592 clients individually engaged in PrEP, 94% (95%CI: 88-101) consented for HIV risk screening. A majority of clients screened were female (85%), which reflects clinic attendance composition. Overall 78% (95%CI: 69-87) of clients screened were identified as at risk for HIV. Those at risk and expressing interest (55%; 95%CI: 42-68) were assessed for clinical eligibility screening. If eligible, same-day PrEP initiation was offered. Data from the six clinics was extracted from MOH risk assessment forms and client files, and analyzed.

A clustered linear probability model was used to identify differences in males and females progressing across each step of the cascade.

Conclusions: PrEP engagement of the general population attending public-sector primary-care clinics is acceptable but engagement of males is lagging. Large proportions of those who can benefit from PrEP do not initiate, or they disengage within one month. Increased efforts are needed to understand the reasons for PrEP decline and early discontinue-ration, and to find innovative ways to bring men into the PrEP cascade.

WEPEC213
Safety and acceptability of day 0 Foreskin Removal PrePex™ circumcision among men in Kenya

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Background: PrePex™ is a nonsurgical circumcision device being promoted to speed up the scale-up of voluntary medical male circumcision (VMMC) in Africa. However, concerns over odour and the risk of anaerobic infection such as tetanus when the foreskin is left for a week, undermines its acceptability. A modified PrePex™ procedure where the foreskin is removed on day 0 (Day0 Foreskin Removal Procedure (Day0 FRP)) may address these concerns. We assessed the safety and acceptability of Day0 FRP in Kisumu, western Kenya.

Methods: A phase IV, open-label, single-center, single-arm study was conducted among men aged 13-49 years seeking VMMC. After written informed consent (parental consent with minor assent for those aged 13-17 years), participants were offered HIV testing services, educated on the PrePex™ circumcision, assessed for contraindications to circumcision, administered a questionnaire, then offered Day0 FRP. They were scheduled for phone follow-up on days 3, 21, 28, 35 and 42 and in-person follow-up on days 7, 14 and 49. Outcome measures were safety and acceptability. Pain was assessed using visual analog scale (VAS). Percentages were used to summarize selected attributes on safety and acceptability.

Results: Between September and November 2017, 515 participants underwent Day0 FRP, with 7 (1.37%), 3 (0.57%) and 3 (0.57%) adverse events (AEs) reported between day 0 to 22. 3 were moderate (2 self-removals and 1 device displacement that were corrected by surgical intervention) and 1 was severe (mild tetanus possibly related to circumcision). Of the 505 participants contacted 3 days post device placement, 2.3% reported unusual odour and 5% (25/496) had difficulty in passing urine. Pain was highest (2, IQR; 2-4) during device removal, with 22% (114/512) and 97% (497/512) reporting pain before and after device removal, respectively. Only 5% (23/512) reported being disturbed while wearing the device or that it affected their usual daily activities. Wound healing, as assessed by full epithelialization and no granular tissue formation, showed that 97% were completely healed by day 49.

Conclusions: This study demonstrates that Day0 FRP PrePex™ circumcision method is acceptable and relatively safe, hence should be considered for men concerned about surgical circumcision or odour following PrePex Day7 FRP.

WEPEC214
Provision of youth-friendly VCT and VMMC during football training sessions and sports tournaments to drive hard-to-reach adolescents to clinical services

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Background: Lack of youth-friendly and affordable services, peer- and self-stigma, fear and low level of understanding of the benefits of both Voluntary Counselling and Testing (VCT) and Medical Male Circumcision over traditional practices can pose significant barriers to effective HIV prevention for adolescents.

Description: Observations from a program in Kenya funded by a grant from PEPFAR as part of the DREAMS Innovation Challenge, managed by JSI, indicated the effectiveness of using weekly football sessions and regular football tournaments as tools for engaging young men, informing and providing adolescents with VCT and VMMC information and services. Football coaches trained as sexual health educators provided adolescents with a trusted source of information. The football team provided a natural support network for adolescents that can be lacking in a clinical setting. In January 2017 a cohort of forty community football coaches were trained to deliver innovative and interactive football drills, with VCT and VMMC sexual health messages built-in to the sessions.
All learning and information unfolded through play, making education interactive and experiential. By linking with the Ministry of Health and local NGOs, free, confidential VCT and VMMC were provided at pitch side, taking services to where the young people were and removing significant barriers to access. In one year, 856 interactive football sessions with integrated sexual health messaging reached 1314 players. 85% of those attended more than 5 sessions. 121 VCT services completed. 414 VMMC performed.

**Lessons learned:** Weekly football sessions and quarterly tournaments, where medical advice and clinical services are available for free to adolescents in a youth-friendly setting, are key ways to create demand and drive uptake of VCT and VMMC.

**Conclusions/Next steps:** The intervention will expand in year 2 to additionally reach the wider community, and not just those adolescents enrolled in the weekly football sessions. Tournaments and other outreach events proved successful in engaging older age groups and people who do not play football, but who took advantage of the free services offered in a friendly non-clinical setting in the heart of their communities.

**WEPEC215**

Evidence for public family planning clinics as potential PrEP delivery sites in the Southern U.S.

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**Background:** Atlanta is a geographic “hot spot” for HIV in minority women. Public family planning (FP) clinics are vital sources of care for women in high HIV burden areas, and could be ideal delivery sites for pre-exposure prophylaxis (PrEP), which is currently underutilized by women. Little is known about PrEP interest and eligibility among women seeking care at public FP clinics.

**Methods:** We performed a PrEP screening and referral training for providers in a of the 25 public FP clinics in the Atlanta metropolitan statistical area (AMSA). Among 500 women seen in these clinics after the training (47% < 28 years, 68% Black, 12% Hispanic), we conducted a pre-visit survey of HIV risk indicators (e.g., partner HIV status, recent STI, transactional sex) and post-visit survey of PrEP interest, provider counseling, and referral. We mapped patients and clinics against zipcode-level HIV prevalence data to assess clinic reach and contextualize patient geographic risk.

**Results:** FP clinic patients lived in 103 of 113 (91%) AMSA zip codes; 313 (63%) lived in zip codes with HIV prevalence >0.8%, and 196 (39%) in zip codes with prevalence >1.85% (Figure 1). Of the 376 sexually active women, 110 (29%) had 1 risk indicator consistent with PrEP eligibility. Among PrEP-eligible women, 72 (66%) reported the provider talked to them about PrEP and 32 (29%) were interested in taking PrEP; only 20 (18%) accepted a referral to an off-site public FP clinic. Overall, 19% previously knew about PrEP, and 76% were more willing to take PrEP if provided by the FP clinic.

**Conclusions:** Public FP clinics in AMSA overwhelmingly serve women who reside in communities with high HIV prevalence. Despite nearly a third of women reporting HIV risk indicators consistent with PrEP eligibility, few knew about PrEP. Once informed about PrEP by FP providers, most women expressed interest if it were offered at the FP clinic. But few accepted an off-site referral. Our results demonstrate strong patient acceptability and interest in PrEP delivery in public FP clinics and highlight the potential impact that PrEP capacity building in this setting may have on PrEP scale up for women in high HIV burden areas.

**WEPEC216**

Willingness and actual use of pre-exposure prophylaxis in men who have sex with men in Taiwan: Results from a 2017 Hornet/HEART survey

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**Background:** Men who have sex with men (MSM) remain the most affected population by HIV infection in Taiwan. Taiwan CDC implemented the first pre-exposure prophylaxis (PrEP) demonstration project in 4 major cities from October 2016 to December 2017. However the willingness and actual use of PrEP in the MSM community since PrEP implementation in Taiwan remained unknown.

**Methods:** We conducted a survey by convenience sampling of the users of a social network application for MSM in Taiwan. The survey was conducted between November 22 and December 22, 2017. The survey included 15 questions regarding age, residence, HIV serostatus, PrEP-related indications, PrEP awareness, willingness and current use. The users were invited to take the survey by responding the app inbox messages. Responses from the same IP address were excluded.

**Results:** There were a total of 2,009 responses, of which 1,734 were eligible for analysis. The respondents had a mean age of 28.3 years (SD, 7.8), and nearly 80% lived in the major cities. There were 10.3% of the respondents reported HIV-positive. More than half of the respondents were aware of PrEP (68.0%). Nevertheless, there were only 1.4% used dai-
ly PrEP and 1.7% used on-demand PrEP currently. Among those who reported HIV-negative or unaware of one's serostatus, there were a quart er reported willingness to use PrEP in the coming 6 months. The major reasons affecting PrEP willingness were difficult access (32.3%) and high cost (40.6%). Multinomial logistic regression model revealed previous use of post-exposure prophylaxis (PEP) and having condoms: anal intercourse (ICA) were significantly associated with PrEP willingness; meanwhile younger age, residence in major cities and having Chemsex, in addition to previous PEP use and having CLAI, had significant correlation with the respondents' willingness and actual use of PrEP (Table 1).

**Conclusions:** While the actual use of PrEP remained low in Taiwan, our research has identified a gap between awareness, willingness and initiation of PrEP. To bridge PrEP efficacy to the real world setting, policy makers, the providers and the community should address these barriers with different strategies to scale up PrEP use in the future.

### WEPEC217

**HIV preexposure prophylaxis uptake after low-intensity outreach to patients with sexually transmitted infections**

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**Background:** Patients with rectal sexually transmitted infections (STIs) and syphilis are at risk for HIV acquisition, yet many are not using preex exposure prophylaxis (PrEP). We assessed the feasibility and preliminary effectiveness of a one-time email or letter to individuals in this at-risk population to increase linkage to PrEP care.

**Methods:** We identified all HIV-uninfected adult members of a large integrated healthcare system, Kaiser Permanente (KP), in San Francisco and Oakland, who were not on PEP and were diagnosed with rectal gonorrhoea or chlamydia, or treated for syphilis, during January-July 2017. These patients were sent a secure, password-protected email message through the KP electronic health record, or a letter if an email was not available. Information about PrEP was provided, as well as information about how to access PrEP at KP, including a phone number for self-referral or additional information. We assessed feasibility by the proportion of emails opened, and preliminary effectiveness by the proportion of patients linked to PEP care in the following three months, using Fisher’s exact tests to identify characteristics associated with linkage to PrEP care.

**Results:** A total of 128 HIV-uninfected patients had a rectal STI (63.5%) or syphilis (43.7%), and were sent a one-time email (77.3%) or letter (22.7%). Patients had a median age of 36 (IQR 28-52), most were male (94.5%), and 37.6% were White, 28.1% Hispanic, 15.6% Asian, and 14.8% Black. Of those sent an email, 78.8% read the message, 12.4% were linked to PrEP care, and 11.3% initiated PEP; no individuals sent letters were linked to PrEP care (p<0.07). Among those sent an email, Hispanics were more likely to be linked (32.0%) compared with White (4.8%) and Black (0%) individuals (p=0.019, Table 1).

**Conclusions:** A one-time secure email to HIV-uninfected patients with recent STIs is feasible and may be sufficient to increase linkage to PrEP care, while there were no patients linked to PrEP care in the group sent letters. Linkage to PrEP care was higher among Hispanic individuals compared with other racial/ethnic groups. Additional outreach may be needed to overcome barriers to PrEP uptake among Black individuals at risk of HIV acquisition.

### WEPEC218

**Rapid uptake of care by men who have sex with men who use informally and self-obtained pre-exposure prophylaxis in Amsterdam: The InPrEP project**

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**Background:** Pre-exposure prophylaxis (PrEP) is a highly effective method to prevent HIV among men who have sex with men (MSM). In the Netherlands, an unknown number of MSM have chosen to self-obtain PrEP through informal ways, as PrEP is not yet implemented and costs are not reimbursed. We initiated a program to prevent potential harm caused by unmonitored PrEP use and assessed the uptake of informal PrEP and related care.

**Description:** Starting September 2017, with additional funding from the Amsterdam City Council we implemented a program at the Amsterdam sexually transmitted infections (STI) Clinic. InPrEP, providing PrEP-related health care for informal PrEP users and intended future users. Care encompassed quarterly monitoring visits in accordance with Dutch PrEP guidelines. STI, including hepatitis C virus, HIV and kidney function tests were performed at each visit and visitors were counselled on PrEP related subjects, e.g. adherence and sexual health. PrEP is prescribed if indicated, however, not provided by the STI clinic.

**Lessons learned:** In less than 4 months 2928 MSM visited the Amsterdam STI clinic of which 273 (9.1%) reported PrEP use in the past 3 months. 140 informal PrEP users (mostly highly educated MSM, median age 32, IQR 26-42) have been included into the program, which shows that MSM want to use PrEP even if they have to obtain PrEP informally and have to cover medication costs. Several different dosing regimens were used or combined: 54.4% of users used daily PrEP, 36.5% event-driven PrEP or both 7.0%. Other non-evidence based regimens (e.g. alternately one day on, on day off PrEP) were used by 2.1% of users. No incident HIV infections nor serious adverse events (e.g. renal failure) were observed.

**Conclusions/Next steps:** The very rapid uptake of PrEP-related health care shows the popularity of PrEP use among MSM and the high need for PrEP-related care among informal self-obtaining PrEP users. Upscaling of PrEP-related care is needed in the Netherlands to meet the demand. Informal PrEP users used both daily and event-driven dosing regimens, indicating that implementation programs should offer both modalities to ensure optimal uptake of PrEP.

### WEPEC219

**Sexual behavior and PrEP uptake among young African women in a demonstration project about PrEP delivery**

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**Background:** Adolescent girls and young women (AGYW) in sub-Saharan Africa are an important population who could benefit from PrEP. We assessed PrEP uptake and sexual behavior in the Prevention Option for Aging Youth (AGYW) aged 16-25 years. PrEP is integrated with reproductive health services at family planning clinics (Kisumu, Kenya), an adolescent and youth-friendly clinic (Johannesburg, South Africa [SA]) and a mobile van for reproductive health services for youth (Cape Town, SA). AGYW are offered PrEP according to national guidelines at quarterly visits over three years. Using baseline demographic and behavioral data,
a standardized risk score derived from the VOICE clinical trial was calculated. This VOICE risk score (VRS) was modified to exclude bacterial STIs and HSV2 seropositivity, which are not available at screening, and has a high level of correlation to HIV incidence. Results: From June through December 2017, 330 AGYW enrolled in POWER (Kisumu n=137, Johannesburg n=107, Cape Town n=86). The median age is 20.5 years (interquartile range [IQR] 19-22) and marital status varied by geographic region (30% married in Kenya vs. 0% in SA). Most participants (82%) were single but had a steady sexual partner, and 17% reported >1 partner in the past three months. Two-thirds (68%) did not know their partners' HIV status and only 4% were in a known serodiscordant relationship. Self-reported consistent condom use was low (18%) and half (54%) reported contraceptive use. HIV risk, as measured by the VRS, was high; 72% had a VRS >15 and 93% had a VRS >14. PrEP uptake at the initial visit was 90% across all sites. The main reasons for declining PrEP were fears of HIV stigma or partner reactions.

Conclusions: AGYW in Kenya and South Africa had evidence of high HIV risk using a previously validated risk score, indicating that women initiating PrEP would benefit from it. Notably, they also had high willingness to initiate PrEP when delivered in these youth-friendly settings.

WEPEC220
Outcomes of a pilot intervention of voluntary medical male circumcision and HIV education program for adolescent street youth in Western Kenya

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Background: There is a substantial epidemic of HIV among street-con- nected children and youth (SCY) in Eldoret, Kenya. Voluntary male medi- cal circumcision (VMMC) is extremely effective in reducing the risk of HIV transmission. For many Kenyans, circumcision and traditional teach- ings are a cultural rite of passage. This paper describes the outcomes of a pilot project offering a coming-of-age initiation retreat that included VMMC and educational modules to this population.

Methods: Through outreach and sensitization, male street youth aged 12-24 were invited to participate. The retreat took place over 10 days in three groups from December 2016 to May 2017. After circumcision and healing, youth participated in education modules covering sexual health, substance abuse, HIV/AIDS, and life skills. Pre- and post quan- titative surveys assessed HIV knowledge and attitudes, resilience, and self-esteem. HIV knowledge was scored out of 20, and the Rosenberg Self-Esteem Scale was used to measure resilience and self-esteem, respectively. Pre- and post-intervention response frequen- cies were compared using McNemar’s test, and composite scores were compared using the paired Student’s T-test or the Wilcoxon Sign-Rank test.

Results: One hundred and sixteen male SCY (median age 14, IQR 13- 15) took part. There was a significant increase in HIV knowledge scores before and after the retreat (45.6 vs. 77.6, p<0.001), with those aged 12- 14 showing a greater increase compared to the older age group. There was a significant increase in the number of youth who thought condoms were safe (85.2% vs. 95.7%, p<0.005), who said a man and a woman should decide to use a condom together (78.7% vs. 56.5%, p<0.001), and who said they would treat a friend the same way if they found out they were HIV positive (68.7% vs. 87.0%, p<0.001). RS-14 scores increased after the retreat (72.5 vs. 80.8, p<0.001); and there was a non-significant in- crease in RSES scores (26.0 vs. 26.2).

Conclusions: This pilot project demonstrated that it is possible to effec- tively engage SCY in a hard-to-reach and high-risk population, in HIV pre- vention interventions. Tailored HIV education may improve knowledge, attitudes, and perceptions around HIV, as well as contribute to positive mental wellbeing of SCY.

WEPEC221
PrEP for HIV prevention in Shiselweni, Swaziland: Early uptake and month one retention

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Background: Despite a major reduction in HIV incidence of 44% from 2011-2016 in Swaziland, specific populations remain at high risk, par- ticularly young women and sero-discordant couples. In 2015, the WHO strongly recommended that oral pre-exposure prophylaxis (PrEP) be offered to people at substantial risk of HIV. The Ministry of Health and Medecins Sans Frontieres are conducting a prospective cohort study of PrEP to determine uptake and retention among people at high risk in the rural region of Shiselweni since September 2017.

Methods: Adults (≥16 years) testing HIV negative at 10 sites were offered a risk assessment with a counsellor, comprising six risk behaviours. Those at risk and interested in PrEP were screened for eligibility by a nurse, excluding acute HIV infection (AHI), renal impairment, and hepatis- ti B. Here we report predictors of early uptake using logistic regression and one month retention in clients screened between September and December 2017.

Results: Out of 438 HIV negative people screened for risk of HIV infec- tion, 333(76%) were identified at risk, reporting a median of 2 risky be- haviours in the past six months. Of those, 170(51%) were interested in PrEP, and 121(36%) initiated PrEP. Median age was 26.7 years (IQR 21- 36), 99(28%) were female. Females initiating PrEP were younger than males (p<0.01), and all clients initiated on PrEP below 20 years were fe- male. Among those initiated, 47(39%) reported an HIV positive partner. In multivariable analysis among clients at risk, age below 20 and above 40 years (OR 2.53, 95 %CI: 1.22-5.26, p<0.001; OR 4.67, 95 %CI 1.53-14.22, p<0.007) and an HIV positive partner (aOR 4.13, 95 %CI 1.75-9.74, p<0.001) were predictive of PrEP initiation. Among 108 clients initiating between September and November 2017, 69(64%) returned for month one follow up visit, with no difference by gender (p<0.67).

Conclusions: The majority of HIV negative people screened for risk in Shiselweni are at risk of HIV infection. Interest in PrEP is moderate; however, there is demand among high risk target groups, namely young women and those reporting sero-discordant relationships. Strategies to increase PrEP demand and retention are required in order to optimize this intervention.

WEPEC222
Retention and adherence to PrEP among MSM and transgender women in Thailand's 'Princess PrEP program': The key population-Led PrEP program

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Background: Key population (KP)-led PrEP service delivery is an innova- tive and promising way to deliver PrEP in a non-judgemental and acces- sible way to people truly in need of PrEP. The Princess PrEP program in Thailand provides PrEP without cost to MSM and transgender women (TGW) in KP-led clinics by trained KP community health workers (KP- CHW).

ABSTRACT BOOK • WWW.AIDS2018.ORG
WEPEC223
High prevalence of curable STIs among young women initiating PrEP in Kenya and South Africa

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Background: Sexually transmitted infections (STIs) are common worldwide, although data on STI prevalence are often lacking for settings in Africa due to limited diagnostic resources. For women interested in initiating pre-exposure prophylaxis (PrEP) for HIV prevention, diagnosis of an STI is a potential marker for HIV risk and treatment can reduce onward STI transmission as well as HIV risk.

Methods: The Prevention Options for Women Evaluation Research (POWER) Cohort is an open label PrEP implementation project for sexually active HIV-negative women ages 16-25 in Cape Town and Johannesburg, South Africa and two clinics in Kisumu, Kenya. PrEP is delivered in accordance with national guidelines; nucleic acid amplification testing for gonorrhea and chlamydia is conducted at baseline and if positive, national standard of care treatment provided.

Results: To date, 330 women have enrolled, of whom 300 (91%) women accepted PrEP. Median age was 20.5 years. Most women (86%) were unpartnered and 17% reported having more than one current sex partner. A third of women (34%) tested positive for a curable STI (29% Chlamydia trachomatis and 11% Neisseria gonorrhoeae, with 6% having both infections). STI prevalence was high at all sites: 40% and 16% at the two clinics in Kisumu, 38% in Cape Town, and 35% in Johannesburg (Table). Younger women were significantly more likely to have an STI than older women (53% prevalence among ages 16-17 years, 39% ages 18-21, and 22% ages 22-25, p<0.01). Only 5.5% of women reported symptoms of an STI at the time of testing.

Conclusions: Young women in Kenya and South Africa participating in a PrEP implementation project had high prevalence of gonorrhea and chlamydia, a marker of high HIV risk as well as a cause of adverse reproductive health consequences. Interventions for STI prevention, diagnostic testing, and optimized treatment for young women are urgently needed.

WEPEC224
A PrEP demonstration project among female sex workers in India: Lessons for scaling up

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Background: Despite the success of HIV prevention interventions for female sex workers (FSW), reducing HIV incidence in this population remains a challenge. The efficacy of PrEP has been well-established, but the ability to scale-up PrEP among FSW in India is uncertain. We implemented a PrEP demonstration project over the past 3 years, in partnership with Ashodaya Samithi, a community-based organization of FSW in Mysore and Mandya, south India.

Methods: We examined prospectively the introduction of PrEP, together with HIV prevention services. Community mobilizers regularly followed-up and monitored progress. Community-led strategies promoted and supported adherence to the drug regimen, a daily oral single dosage of tenofovir disoproxil fumarate (TDF) 300mg + emtricitabine 200mg. Eligibility criteria included: FSW >18 years old, tested negative for HIV, pregnancy, and hepatitis B; creatinine clearance >60ml/min. Participants underwent follow-up every 3 months for 15 months to test for HIV, pregnancy, and renal function, along with physical examination, reinforcement of HIV prevention measures, and a questionnaire on socio-demographic characteristics and drug adherence. A sample of women provided blood for TDF levels.

Results: 707 FSW were screened for the study, and 65 were ineligible. Of the 652 eligible, 647 were enrolled. To date, 647 have completed 15 months follow-up and 23 are still being followed, for 99% retention. The median age was 35, 91% practiced home-based sex work, and the remainder street-based; 86% reported a regular sex partner. GI side effects were reported initially by 82 FSW, decreased over time, and did not require stopping PrEP. No other adverse events were reported. Reported condom use remained high, and only 6 episodes of STIs were identified and treated (syndromic). There were no positive RPR or HIV tests. In two separate rounds, 85 and 84 participants underwent TDF blood testing: drug levels >40ng/ml were detected among 80% and 90% respectively.

Conclusions: We documented high levels of study retention and PrEP adherence. Generating community consensus around PrEP and fostering community-driven mobilization and adherence support strategies were central to high and consistent uptake. Low STI prevalence supports self-reported high condom usage. Policy advocacy to include PrEP as an additional HIV prevention tool is planned.
Scale-up of PrEP, PEP, male circumcision

WEPEC225
PrEP implementation in New York State: Using technical assistance to support clinical scale-up

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Background: Fewer than 10% of people in the U.S. who meet criteria for HIV pre-exposure prophylaxis (PrEP) have received a prescription. In tandem with education and awareness efforts for consumers, clinical settings need to scale-up efforts on PrEP delivery. Hereby, providing PrEP comes with its own challenges ranging from staff buy-in, limited resources, and reorienting existing clinic workflows. More research is needed to understand what guidance and tools sites require to expand PrEP service provision.

Description: Seven PrEP implementation technical assistance (TA) sessions were held across New York State (NYS) over a two-year period. These sessions were initiated by leadership teams in various medical settings seeking to streamline and expand their PrEP services and facilitated by program staff and clinical content experts. A preliminary conventional content analysis of the TA sessions was performed to understand larger themes and devise next steps.

Lessons learned: Clinical sites requesting TA sessions comprised of two family planning settings, two community health clinics, two hospital centers, and a student health center. Initial themes from the content analysis showed that clinical sites required the most assistance with clinic flow, HIV prevention technologies, and electronic medical record (EMR) utilization. Clinic flow as a theme related to the understanding of how PrEP screening, education, adherence counseling, and STI testing can be split between multiple staff roles. Most sites indicated they wanted to follow a comprehensive health approach, usually used for HIV positive individuals, and sought guidance on how to leverage this model for HIV negative individuals. Sites also sought guidance about HIV testing technologies and testing best practices when initiating and following a consumer on PrEP. Lastly, sites were interested in examining how EMRs can be used to help medical providers screen candidates, discuss the necessary points of education, and provide counseling in a streamlined manner.

Conclusions/Next steps: To ensure PrEP reaches its potential, more guidance and assistance is needed. Clinical sites indicated a need for more implementation resources around best practices in clinic flows, incorporation of the latest HIV testing technologies, and utilizing EMRs to support medical providers in screening for and prescribing PrEP.

WEPEC226
PrEParing for implementation: Very low PrEP awareness in a sample of men who have sex with men and transgender women reporting condomless receptive anal intercourse in Lima, Peru

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Background: While men who have sex with men (MSM) and transgender women (TW) have been the focus of numerous combined HIV prevention strategies, these groups still account for more than 60% of new HIV infections in Peru. To improve understanding of factors influencing pre-exposure prophylaxis (PrEP) knowledge and uptake, we studied PrEP awareness and motivations/barriers to PrEP use among MSM and TW in Peru.

Methods: In a 2017 cross-sectional study of rectal STI screening and HIV prevention, MSM/TW reporting condomless receptive anal intercourse (cRAI) were tested for rectal gonorrhea (GC) and chlamydia (CT). Syphilis, and HIV. PrEP awareness was assessed by asking participants if they had heard about “PrEP”, “Pre-Exposure Prophylaxis”, or “Daily Truvada to Prevent HIV”. Poisson regression analyses (adjusted for age, education, sexual orientation, size of the participant’s gay-identified social network, and HIV testing history) estimated correlates of PrEP awareness separately for HIV-negative MSM and TW.

Results: Out of 465 MSM (median age 27 years) and TW (median age 30 years), only 24.0% (87/357) of MSM and 23.2% (25/108) of TW had heard of PrEP. While PrEP awareness among MSM was associated with prior HIV testing (aPR, 95% CI: 3.74, 1.57-8.92), no factors were associated with PrEP awareness in TW. MSM and TW with prior knowledge of PrEP reported similar barriers (fear of adverse effects (46.9%) and cost (27.8%)) and motivations to use PrEP (lapses in condom use (66.2%) and additional protection against HIV infection (40.3%)). 95.0% of MSM and 93.5% of TW surveyed stated they would be interested in learning more about and/or using PrEP in the future. MSM and TW who were not aware of PrEP had higher frequencies of syphilis (7.6% vs. 11.5%; p=0.02) and rectal GC/CT (23.6% vs. 15.2%; p=0.08) than those who were aware of PrEP.

Conclusions: Despite a history of clinical research assessing PrEP efficacy and implementation in Peru, PrEP awareness among MSM/TW at high-risk of HIV infection is very low. Innovative strategies, like incorporating PrEP education into rectal STI screening programs, are needed to increase awareness and uptake among MSM and TW who have not previously been engaged by HIV prevention services.

WEPEC227
A self-administered internet survey on socioeconomic disparities in access to and willingness to take PrEP among Latino MSM in San Antonio, TX

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Background: Latino Men who have Sex with Men (LMSM) are the second largest group affected by HIV in the US and incidence rates continue to grow for LMSM ages 25-34 in 2016. Racial disparities persist among LMSM and LMSM are less likely to consider PrEP as a viable option, which requires further research to enhance access to PrEP for LMSM.

Methods: LMSM in San Antonio, TX were recruited to complete a self-administered Internet survey. Participants were asked about their awareness and current use of PrEP. Only LMSM currently not on PrEP were asked about their willingness to take PrEP. Chi-square and multiple regression analyses were conducted to test the significant differences in PrEP-related measures between higher and lower socioeconomic status (SES) groups, measured by education (some college or below vs. bachelor’s degree or above) and household income (<$30,000 vs. $50,000). Results: Of 154 LMSM (Mean age = 25.2) who self-reported HIV negative, 52.6% had a bachelor’s degree or above and 47.4% higher-income LMSM reported significantly higher rates of PrEP awareness (92.6% vs. 32.9% and 93.6% vs. 34.2%) and PrEP use (72.8% vs. 14% and 76.5% vs. 13%). Lower-educated and lower-income LMSM currently not on PrEP had significant lower level of willingness to take PrEP daily (56.9% vs. 86.4% and 54.8% and 100%) and concerns associated with PrEP-related side effects such as “nausea, dizziness, vomit, diarrhea, or stomach pain” (55.3% vs. 59.1% and 12.3% vs. 73.7%), “liver damage” (5.6% vs. 40.6% and 5.3% vs. 47.4%), and “kidney damage” (6.0% vs. 40.9% and 8.0% vs. 42.1%). Lower-income LMSM not on PrEP reported significantly higher levels of mistrusting the government giving them PrEP (47.2% vs. 21.1%) and PrEP as an experimental drug (57.3% vs. 21.1%). Higher-educated and higher-income LMSM not on PrEP had significant higher levels of being stigmatized as sexually promiscuous for taking PrEP (86.4% vs. 61.1% and 84.2% vs. 92.7%).

WEPEC228
Exploring the use of pre-exposure prophylaxis (PrEP) for HIV prevention among high risk drug users in treatment

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Background: Despite unequivocal evidence supporting the use of pre-exposure prophylaxis (PrEP), its scale-up has been gradual overall, and nearly absent among people who use drugs (PWUD). We implemented the use of PrEP as a part of an integrated primary HIV prevention approach among PWUD who exhibited high HIV transmission risk behaviors. In the present study, we explored the experiences, attitudes, acceptability, disclosure status, risk compensation-related attitudes, and barriers to adherence among PWUD using PrEP.

Methods: Between September 2016 and July 2017, we recruited 40 HIV-uninfected, methadone-maintained people, who reported HIV-risk behaviors, and initiated on PrEP. We conducted both quantitative and in-depth semi-structured qualitative interviews that primarily focused on experiences, attitudes, acceptability, disclosure status, risk compensation-related attitudes, and barriers related to PrEP adherence.

Results: Results showed that participants were highly satisfied and perceived PrEP as valuable and acceptable (mean 77±13.9) for HIV prevention. Participants reported high adherence to PrEP with a mean adherence score of 87.6 (±18.6). A considerable proportion of the participants reported that they had received disclosure status to health care providers (45.2%) to their spouse, followed by their parents (25.8%) and children (6.5%). The most highly endorsed facilitators to PrEP adherence were use of memory aids, no out-of-pocket cost, perceived benefit, and support from social network. The barriers to adherence included side-effects, stigmatization, requirement of daily dosing, and accessibility of PrEP services. Additionally, participants expressed disagreement with the overall risk compensation-related attitudes (i.e., decreased personal concern about engaging in HIV risk behavior due to their perception that PrEP is now fully protecting them from contracting HIV) and indicated no increased engagement in risk behaviors while on PrEP.

Conclusions: The results from the current study provide preliminary evidence supporting the successful integration of PrEP within the substance abuse treatment setting, where high risk PWUD can be readily reached. We believe our findings have encouraging implications for future public health research and for health promotion interventions, practices, and policies for PWUD, particularly in real world treatment settings.

WEPEC229
Describing levels of uptake and non-uptake of voluntary medical male circumcision services during HPTN 071 (PopART) study, Zambia

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Background: HPTN 071 (PopART) is a 3-arm community-randomized trial in 21 communities. 12 in Zambia and 9 in South Africa, which will determine the impact of a combination prevention intervention on HIV incidence. Community HIV-care Providers (CHiPs) delivered the intervention door-to-door for 4 years. Offering HIV testing, TB screening, referral to care for HIV or TB, and providing other services, including information and referral for voluntary male medical circumcision (VMMC). We analyzed VMMC uptake by men who received the intervention from 8 Zambian intervention communities.

Methods: Participants eligible for circumcision were males who were not circumcised and not known to be HIV positive. VMMC status was determined by self-report and entered electronically. Those who were not known to be HIV positive and not circumcised were referred to the health facility. CHiPs followed up referred clients a month later or during any subsequent visits to establish if they had been circumcised. During follow up those found not circumcised if still HIV negative, and expressing a willingness to be circumcised, were referred again.

The data analyzed were collected from CHiPs records for the final year of the intervention (September, 2016 to September 2017).

Results: During this period, 60,274 males consented to participate in the PopART intervention, and we were able to ascertain the circumcision status of 55,722. Of these, 24,549 (44.1%) were already circumcised (17.5% traditional & 82.5% medical methods). Of those not circumcised, 4,273 (23.7%) were known HIV positive leaving 26,902 who were not known to be HIV positive and uncircumcised, and therefore eligible for VMMC referral. Of those eligible, 6,549 (24.3%) accepted referral and were referred for VMMC. Of those referred, 4,739 (72.4%) were followed up at least once after referral. Among those followed up, 1,260 (26.6%) had attended a health facility for VMMC, and of those attending the health facility 1,271 (92.9%) received VMMC. Males aged between 18-24 years were more likely to be circumcised than those 35-44 years (Table 1).

Conclusions: Door to door information delivery and referral can contribute to more males taking up VMMC, but there is still a large drop-out between referral and seeking circumcision.

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<td>(16.4%)</td>
<td>(30.9%)</td>
<td>(16.4%)</td>
<td>(20.8%)</td>
<td>(24.3%)</td>
<td>(6.7%)</td>
</tr>
<tr>
<td></td>
<td>(16.4%)</td>
<td>(22.2%)</td>
<td>(18.1%)</td>
<td>(18.2%)</td>
<td>(37.1%)</td>
<td>(28.2%)</td>
<td>(16.2%)</td>
<td>(11.2%)</td>
<td>(4.1%)</td>
</tr>
<tr>
<td>45+</td>
<td>6/29</td>
<td>3/12</td>
<td>14/81</td>
<td>19/95</td>
<td>3/120</td>
<td>15/87</td>
<td>14/131</td>
<td>2/7</td>
<td>63/1449</td>
</tr>
<tr>
<td></td>
<td>(20.7%)</td>
<td>(25.0%)</td>
<td>(17.3%)</td>
<td>(19.2%)</td>
<td>(20.0%)</td>
<td>(17.2%)</td>
<td>(10.9%)</td>
<td>(2.7%)</td>
<td>(4.4%)</td>
</tr>
<tr>
<td>All</td>
<td>80/450</td>
<td>38/215</td>
<td>124/472</td>
<td>95/508</td>
<td>327/146</td>
<td>103/434</td>
<td>215/111</td>
<td>190/718</td>
<td>1022/4500</td>
</tr>
</tbody>
</table>

(Flow diagram showing the VMMC cascade of participants during PopART interventions in Zambia for the period September, 2016 to September, 2017)
WEPEC230

Delays in PrEP initiation among at-risk patients in a large network of primary care clinics

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Background: Reducing delays in PrEP initiation is critical in high-risk populations to reduce HIV incidence. We sought to examine factors associated with timely PrEP initiation in the San Francisco Public Health Primary Care Clinics (SFPCC).

Methods: Demographic data, prescriptions, and dates of first PrEP discussion and patient-reported PrEP initiation date were abstracted from charts of SFPCC PrEP users from 3/1/13-7/31/17. We examined factors associated with shorter intervals between first chart-documented PrEP discussion and first PrEP prescription. Patient-reported PrEP initiation date was verified using a Cox proportional-hazards model, with hazard ratios (HR) > 1 indicating associations with earlier prescription/initiation.

Results: Overall, 401 PrEP-using patients had pharmacy and visit data available. Mean age was 37, 84% were male, 8% Asian, 13% African-American, 27% Latino, 17% other, 36% White. PRP starts increased every year from 67 in 2013 to 140 in 2016. Overall, 65% were prescribed PrEP with an indication of MSM, 16% sero-different relationship, 13% transgender women having sex with men, 5% high-risk heterosexual, and 1% IDU. Of initiators, 24% received panel management/patient navigation support. Patients received a prescription and initiated PrEP after first PrEP discussion after a mean of 34 days and 37 days respectively. For 30%, PrEP initiation was delayed >30 days, and 10% waited >90 days. In an adjusted Cox proportional-hazards model, only receipt of panel management/patient navigation was associated with shorter intervals between PrEP prescription and PrEP initiation (HR: 0.69; 0.49-0.97). Adjustment for patient navigation and panel management, could reduce delays in PrEP initiation and racial/ethnic disparities across all high-risk groups.

WEPEC231

Proportion of early infant male circumcisions (EIMC) performed compared to male deliveries in eight pilot sites in Iringa, Tanzania

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Background: Following attainment of 80% Voluntary Medical Male Circumcision (VMMC) coverage for HIV prevention among adolescents and adults in Iringa and Njombe regions, Jhpiego, with support from PEPFAR through USAID under the AIDSFree Project started implementing EIMC services to maintain circumcision prevalence over time. The initial EIMC pilot started in four health facilities, then expanded to eight. The facilities included five hospitals, two health centres and one dispensary, all of which provide labor and delivery services. Lessons learned from this pilot will be used to inform other regions in the country during EIMC scale-up.

Methods: We conducted a retrospective review of the client-level EIMC database and facility delivery statistics to determine the average number of EIMCs per males born in the eight pilot EIMC sites from January - December 2016.

Results: In total, 924 infants received EIMC services in the eight facilities during the review period. The average monthly number of circumcisions conducted per facility ranged from 6-17 EIMCs. Facilities with low number of male deliveries were more effective in providing EIMC services compared to sites with high number of male deliveries (See Table 1). One facility had reached >100% of male infant births. Within the EIMC pilot, 65.5% of infants circumcised were born in the same facility where they received EIMC services, 33.3% in another facility and 5% were born at home. There was no difference in the absolute number of infants circumcised in the facilities based on the geographical location or level of the facility.

Conclusions: Nearly 1/3 of at-risk patients experienced delays of >1 month in initiating PrEP, and 10% had delays of >3 months. African-Americans, who have the highest HIV incidence in San Francisco, were more likely to experience delays in PrEP initiation, but not in receipt of a prescription. Close follow-up after initial PrEP prescription, with the support of patient navigation and panel management, could reduce delays in PrEP initiation and racial/ethnic disparities across all high-risk groups.

Table 1: Proportion of EIMCs conducted by facility level, location and number of male infant deliveries in Iringa, January - December 2016

<table>
<thead>
<tr>
<th>Facility</th>
<th>Number of EIMCs</th>
<th>Male Deliveries</th>
<th>EIMC as % of Male Deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>6</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Hospital B</td>
<td>17</td>
<td>30</td>
<td>56.7</td>
</tr>
<tr>
<td>Hospital C</td>
<td>10</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>Hospital D</td>
<td>11</td>
<td>35</td>
<td>31.4</td>
</tr>
<tr>
<td>Hospital E</td>
<td>9</td>
<td>28</td>
<td>32.1</td>
</tr>
<tr>
<td>Hospital F</td>
<td>12</td>
<td>32</td>
<td>37.5</td>
</tr>
<tr>
<td>Hospital G</td>
<td>13</td>
<td>36</td>
<td>36.1</td>
</tr>
<tr>
<td>Hospital H</td>
<td>14</td>
<td>40</td>
<td>35</td>
</tr>
</tbody>
</table>

Conclusions: There is a potential to increase the proportion of infants circumcised especially in sites with a higher volume of male infant births. This shows a need to enhance demand creation efforts during antenatal care and immediate after delivery. Our analysis revealed that the number of EIMCs performed might not be affected by the geographic location or level of the facility. With the proportion born at home who were reached with EIMC services, EIMC services may represent a pathway to health services for male infants.
WEPEC232
Baseline characteristics and risk behaviors among men who have sex with men and transgender women who chose On PrEP and Off PrEP in PrEP demonstration project in Northern Thailand
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Background: With an HIV incidence >3% annually among Thai MSM and TGW, the new effective HIV prevention tool as Pre-Exposure Prophylaxis (PrEP) with daily TDF/FTC should be considered as part of comprehensive HIV prevention in people at substantial risk of HIV infection recommended by WHO. We explored baseline factors between MSM/TGW who chose On-PrEP and Off-PrEP in PrEP demonstration project in northern Thailand.

Methods: “PrEPplusPiman” is the PrEP demonstration project run at one VCT Clinic (namely “Piman”) in Chiang Mai. MSM/TGW aged ≥18 years old who came for HIV testing were informed about daily PrEP as free services for one year if they interested to participate. There were 117 participants who were screened and 105 clients enrolled into PrEPplusPiman study between December 2015 and February 2017. Demographic, sexual/behavioral data, and reason to choose On-PrEP or Off-PrEP were collected by computer-assessed self-interview at baseline. Consented HIV testing, HBS-ag, Syphilis, Creatinine Clearance and Urine Protein were performed at baseline. HIV testing will be checked every 3 months when they came back and for drug refill if they were On-PrEP.

Results: Twelve clients were excluded at screening, 1 had HIV−, 4 had HBS-ag+. All screening participants had normal kidney function test. Among 105 clients, 82(78%) chose On-PrEP and 23(22%) Off-PrEP at baseline. Compared between On-PrEP and Off-PrEP, 14.6% and 8.7% were TGW, mean age 26.7 years and 22.8 years, 7 clients and none had Syphilis positive, and 30 % (21/72) and 6.2% (1/16) estimated their own current risk of HIV infection above 40%. There were 7 On-PrEP and 3 Off-PrEP clients reported having HIV+ partners. Common reasons to choose On-PrEP were: 97% prevent HIV infection with other tools, 47% engaged in higher sexual risk and 46% inconsistent condom used. Common reasons for Off-PrEP were: 78% concerned side effects, 47% hated to take daily drug, 34% no problem with other prevention methods and 17% fear stigma as HIV+ people.

Conclusions: Our finding showed main factors and reasons to choose On-PrEP and Off-PrEP among MSM/TGW in Chiang Mai. Both providers and users need to understand these complexities and have better strategies to implement PrEP services for these population.

WEPEC233
Understanding willingness to use oral pre-exposure prophylaxis for HIV prevention among men who have sex with men in China
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Background: Oral pre-exposure prophylaxis (PrEP) is recommended as an additional prevention choice for men who have sex with men (MSM) at substantial risk of HIV. The aim of this study was to evaluate the extent, and reasons, for MSM’s willingness to use oral PrEP in Wuhan and Shanghai, China.

Methods: Between May and December 2015, a cross-sectional survey was conducted among 487 MSM recruited through snowball sampling in physical locations frequented by MSM and through social media applications. Exploratory factor analysis was used to group reasons for being willing or not willing to use PrEP. Chi-square tests were used to explore bivariate associations between groupings of reasons for being willing or unwilling to use PrEP, and key sociodemographic and sexual-behavioral characteristics of MSM.

Results: Overall, 71.3% of respondents were willing to use PrEP. The most commonly reported reasons for being willing to use PrEP were preventing HIV infection (91.6%), taking responsibility for own sexual health (72.6%) and protecting family members from harm (59.4%). The main reasons for being unwilling to use PrEP were being worried about side effects (72.9%), the necessity of taking PrEP for long periods of time (54.5%) and cost (40.4%). Individual characteristics that influenced the type of reasons given for being willing or unwilling to use PrEP included being married to a woman, having a regular sex partner, rates of condom use with regular and casual sex partners, and the number of casual sex partners.

Conclusions: The introduction of PrEP in China could benefit from promotion campaigns that emphasize its role in preventing HIV infection, in taking responsibility for own sexual health, and in protecting family members from potential harm. To reduce uptake barriers, it will be essential to provide accurate information to potential PrEP users about the mild and short-term nature of side effects, and the possibility of taking PrEP only during particular periods of life when the risk of HIV exposure might be highest.

WEPEC234
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Background: Since 2013 Kenya has undergone the three stages outlined in the World Health Organization (WHO) framework for clinical evaluation of male circumcision devices to introduce PrePex in its Voluntary Medical Male circumcision (VMMC) program for HIV prevention. We present experiences from this process.

Description: PrePex was first introduced in Kenya in 2013 during pilot research which assessed its effectiveness, safety and acceptability among 417 adult men. Its safety and operational requirements were further evaluated among 2,195 men under active adverse events (AE) surveillance in routine health care settings in 2015 and 2016. In August 2016, PrePex was endorsed for an open-ended passive roll out which continues to date.

Lessons learned: In the pilot research phase, PrePex circumcision was effective and well-accepted but associated with a higher rate of moderate-severe AEIs (5.6% vs 0.2%) and 1-2 weeks longer time to healing than conventional surgical circumcision. Under active AE surveillance, PrePex remained well accepted and with lower moderate/severe AE rate (0.3%) as providers gained experience in its use. In the ongoing passive roll out, 1,134 PrePex circumcision have been conducted and 5 AEIs (including one non-fatal tetanus) reported. In 2017, WHO reported a 30 fold higher risk of tetanus associated with PrePex compared to conventional surgical circumcision and recommended full immunization against tetanus (TT) prior to PrePex placement; this led to operational challenges underlining its further roll out.

Conclusions/Next steps: Although PrePex circumcision was initially shown to be effective, safe and well accepted in Kenya, the new requirement for documented full TT immunization before its application has revealed a gap in immunization coverage among Kenyan males. This has hampered widespread use of PrePex as few Kenyans have documentary evidence of full TT immunization and logistics for multiple clinic visits for immunization before PrePex placement are challenging. Thus, PrePex circumcision should only be rolled out in settings with high TT coverage among eligible males or where provision of protective doses of TT before each placement is feasible. Innovative Strategies are needed for efficient use of PrePex in VMMC while minimizing the risk of tetanus.
WEPEC235
Predictors of male circumcision uptake during the Botswana Combination Prevention Project (BCPP) mobilization
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1US Centers for Disease Control and Prevention, 2Botswana Combination Prevention Project, Gaborone, Botswana, 3Burnet Institute, Public Health, Melbourne, Australia.

Background: Male circumcision (MC) is a proven HIV prevention intervention in sub-Saharan Africa, but uptake has been low in some countries, including Botswana. Better characterization of men who accept versus reject MC could inform demand creation efforts, but information on men who reject MC is rarely available. The Botswana Combination Prevention Project (BCPP) collected population-level data on demographics and HIV risk factors and offered free MC, allowing comparison of those who did and did not accept MC.

Methods: BCPP, a community-randomized trial, enrolled 16-49 year old citizen residents of 30 communities randomized to receive either intensified standard-of-care services or HIV prevention interventions including mobile HIV testing and MC, between October 2013 and February 2016. During the 6-8 week MC surge in the 15 intervention communities, MC was offered in tents or a mobile clinic. All male participants with an HIV-negative test or unknown status who reported being uncircumcised were offered linkage to MC by peer escort, phone-based and in-person mobilization, appointments, reminder calls, and transport. Demographic and risk factors were compared between those who did and did not undergo MC using chi-squared testing.

Results: Of the 15,570 eligible men, 8,534 (55%) reported being uncircumcised. Of these, 5,777 (7%) underwent MC during the surge. Men who did not get MC were substantially older and more likely to be employed and older men may also improve general uptake.

Table 1: Demographic and risk factors of men undergoing or not undergoing male circumcision (MC)

<table>
<thead>
<tr>
<th>Demographic and risk factors</th>
<th>Underwent MC (n=577)</th>
<th>Did not undergo MC (n=7957)</th>
<th>Chi-sq</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in years (standard deviation)</td>
<td>25 (8)</td>
<td>29 (9)</td>
<td>N/A</td>
<td>0.001</td>
</tr>
<tr>
<td>Completed secondary school</td>
<td>473 (82%)</td>
<td>6252 (79%)</td>
<td>2.83</td>
<td>0.09</td>
</tr>
<tr>
<td>Never married</td>
<td>534 (93%)</td>
<td>6521 (83%)</td>
<td>39.68</td>
<td>0.001</td>
</tr>
<tr>
<td>Employed</td>
<td>183 (32%)</td>
<td>3231 (45%)</td>
<td>32.86</td>
<td>0.001</td>
</tr>
<tr>
<td>Reported last sexual partner HIV-positive*</td>
<td>17/354 (5%)</td>
<td>816/7256 (16%)</td>
<td>36.89</td>
<td>0.001</td>
</tr>
<tr>
<td>&gt;1 sexual partner in past 12 months</td>
<td>45 (8%)</td>
<td>469 (7%)</td>
<td>37.38</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Among those with at least one sexual partner in the past 12 months

Conclusions: Older age, ever having married, employment, and an HIV-positive partner were factors associated with not seeking MC. Male circumcision programs could improve outreach to men with HIV-positive partners due to their high risk, while also reaching out to the general population. Characterizing and addressing unique barriers to MC for employed and older men may also improve general uptake.

WEPEC236
Depression, network influences and uptake of HIV pre-exposure prophylaxis (PrEP) in men and transgender individuals screening for HIV prevention trial participation
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Background: We aimed to assess the relationship between depression and HIV pre-exposure prophylaxis (PrEP) uptake, and determine whether social network PrEP awareness increased utilization. We hypothesized that depression would decrease HIV prevention behavior, and social network influences would increase PrEP uptake and modify the hypothesized association between depression and uptake.

Methods: Cross-sectional study of men and transgender (TG) individuals pre-screening for HIV Vaccine Trials Network and HIV Prevention Trials Network clinical trial participation in Philadelphia, PA. Participants were aged >18 years, born male or identifying as TG, with a history in the preceding six months of anal intercourse with ≥2 TG partners or with any male or TG partners if intercourse was condomless. Survey measures assessed demographics, sexual practices, depression (Patient Health Questionnaire-8, cut-off >10), PrEP use, and network PrEP awareness (≥4 individuals with whom participants discussed PrEP in the prior week).

Results: Participants (n=236) were 88% cisgender males, 7% TG females, 1% TG males, and 3% other gender, and were 44% African-American and 19% Latino. Median age was 27 years (IQR 23-33). Prior PrEP awareness was reported by 92% and PrEP uptake by 33%. Depression was identified in 11%, and median PHQ-8 score was 3 (IQR 0-7). In multivariable logistic regression, there was no significant association between depression and PrEP uptake (aOR 1.71, 95% CI 0.66-4.44), and no effect modification by network PrEP awareness (aOR 0.97, 95% CI 0.71-1.33). Each additional social contact with whom participants discussed PrEP conferred a 16% greater odds of PrEP uptake (aOR 1.16, 95% CI 1.02-1.31). African-American race (aOR 2.01, 95% CI 1.04-3.88) and high HIV risk (aOR 2.51, 95% CI 1.23-5.1) were also associated with greater odds of uptake.

Conclusions: In this diverse US-based sample, there was no association between depression and PrEP uptake. The greater uptake with increasing PrEP-related network interactions, suggests that social network norms influence initiation. Network-level interventions may hold promise for increasing PrEP uptake.
WEPEC237
Perceived barriers to pre-exposure prophylaxis use among HIV-negative men who have sex with men and transgender women in Tijuana, Mexico: A latent class analysis
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University of California, San Diego. Department of Medicine, La Jolla, United States. 2University of California, San Diego. Department of Psychology, La Jolla, United States. 3US-Mexico Border Health Commission, Tijuana, Mexico.
Background: Pre-exposure prophylaxis (PrEP) is an effective intervention to prevent HIV infection among high-risk populations, including men who have sex with men (MSM) and transgender women (TW). Although not currently approved for use in Mexico, PrEP demonstration projects are underway. Understanding barriers to PrEP uptake among those at greatest risk is essential to informing future PrEP programs. We aimed to identify classes of perceived barriers to PrEP use among HIV-negative MSM and TW in Tijuana, Mexico, and identify HIV risk factors associated with class membership.
Methods: From 03/2016-09/2017, 397 participants recruited via venue-based and respondent-driven sampling completed interviewer-administered surveys assessing socio-demographics, sexual and drug use behaviors, and perceived barriers to PrEP use. Barriers were assessed across 4 domains: individual, interpersonal, structural, and product. Latent class analysis was performed to identify distinct classes with respect to perceived barriers to PrEP use. Multinomial logistic regression was used to identify HIV risk factors associated with class membership.
Results: Participants had a median age of 39 years (IQR 29-46), 97% were male, and 34% were gay-identifying. Nearly half perceived themselves as elevated risk for HIV (49%) and 72% reported condomless anal sex (past 4 months). We identified 3 distinct classes characterized by (1) a high level of perceived barriers across domains (34%), (2) a low level of perceived barriers (50%), and (3) perceived product barriers (i.e., side-effects and cost) (37%). Compared to membership in the class characterized by a low level of perceived barriers, membership in the class characterized by a high level of perceived barriers class was associated with greater levels of internalized stigma related to being MSM/TW (AOR=1.02, 95% CI: 1.00-1.04) and meeting sex partners at sex venues (AOR=6.22, 95% CI: 3.48-7.67) while membership in the class characterized by product barriers, was associated with greater levels of internalized stigma related to being MSM/TW (AOR=1.02, 95% CI: 1.00-1.04), seeing a healthcare provider (past year) (AOR=1.07, 95% CI: 1.03-1.11) and meeting sex partners at bars/ discos (AOR=1.21, 95% CI: 1.09-1.38).
Conclusions: Programs which reduce stigma related to being MSM/TW and engage MSM/TW attending high-risk venues may decrease barriers to PrEP uptake within these populations in Tijuana.

WEPEC238
Successful implementation of PrEP among LGBT youth at an urban Community Health Center
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Background: PrEP is an effective way to prevent HIV infection. It is currently approved for 18 years and older, but there is great interest in studying its efficacy in younger adolescents. Initial studies show barriers to initiation and retention (lack of parental consent, low PrEP knowledge, financial issues, lower adherence) but have concluded that it is a safe and viable alternative for this age group. Real-life experiences providing PrEP for youth will hopefully inform better practices and help reduce barriers to access.
Description: This is an overview of PrEP implementation in a multi-disciplinary, youth-focused, urban community health center based in New York City that yearly serves over 1,500, mainly LGBTQ youth age 13-24 years. We have prescribed PrEP for the last 4 years in a team-based approach consisting of clinicians, case managers, dedicated nurses, outreach coordination, and a PrEP access specialist, insurance navigators and an on-site pharmacy.
Early on, we recognized that patients accessing PrEP did not reflect the demographics of our program with an overrepresentation of white, cis-males. Subsequent data-driven quality improvement measures included creating information materials reflecting our clinic’s racial and gender diversity, enhanced HIV testing and one-on-one counseling about PrEP especially for patients with rectal STIs regardless of self-described sexual behaviors and risk-taking. Alongside these measures, ongoing advocacy efforts resulted in legislative changes allowing youth younger than 18 years to access PrEP without parental consent. From January 2014 to December 2017, we have started 242 youth on PrEP.
Table 1 describes the changes in patient population accessing PrEP over the last 4 years.

WEPEC239
Young male’s uptake and acceptability of medical male circumcision in South Africa: A mixed method, longitudinal community-based study
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Background: Young South Africans are at risk of HIV infection due to sexual risk behaviour in endemic HIV. While evidence suggests that scaled medical male circumcision (MMC) can help curb HIV infection rates in countries such as South Africa, evidence for MMC acceptability is needed. Both MMC and traditional circumcision are practised in South Africa, with certain cultural ethnicities preferring one over the other. Traditional circumcision may occur after sexual debut and foreskin removal may be incomplete. We investigated the acceptability of MMC versus traditional circumcision in Cape Town and Soweto, two culturally distinct settings in South Africa in the MACHO study.
Methods: MACHO was a mixed methods, longitudinal cohort study which investigated preferences for, attitudes, and uptake of elective MMC in 100 males (14-17 years), their guardians and other key informants in Cape Town and Soweto. Data were collected via researcher administered surveys, interviews, and focus groups and the dyads were followed up over a 24 month period.
Results: Results: 100 adolescent boys (Cape Town n=50; Soweto n=50) and their guardians were enrolled with an average of 15 months (IQR 14-16).

Table 1
Cape Town: 44 (88%) Xhosa, 1 (2%) Zulu, 3 (6%) Sotho/ Tswana, 2 (4%) Other
Soweto: 12 (26%) Xhosa, 25 (54%) Zulu, 9 (20%) Sotho/ Tswana, 0 Other

Table 1: Cultural Ethnic Composition

WEPEC241

Pre-exposure prophylaxis among men who have sex with men in the Amsterdam Cohort Studies: Use, eligibility and intention to use

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Background: In the Netherlands, HIV pre-exposure prophylaxis (PrEP) is not covered by health insurance and is not available free-of-charge except to participants of two PrEP studies. We examined time trends in use of PrEP, characteristics of PrEP users, PrEP eligibility and intention to use PrEP among HIV-negative MSM from the Amsterdam Cohort Studies (ACS).

Methods: We used data from four 6-monthly questionnaires, collected between 2015-2017. PrEP use over time was examined in logistic regression models using generalized estimating equations. Using descriptive statistics, we compared PrEP users before first initiation and non-PrEP-users. Based on national guidelines, MSM were considered eligible for PrEP if they had one of the following: condomless anal sex (CAS) with a partner with unknown/seropositive HIV status, rectal STI (chlamydia/gonorrhoea) and/or a post-exposure prophylaxis prescription in the past six months. The number of potential PrEP users was estimated based on observed eligibility and intention to use PrEP.

Results: We included 687 HIV-negative MSM. Most were born in the Netherlands (n=545, 79%) and educated to at least college degree (n=529, 77%). Median age was 40 (IQR 33-47) at wave 1. Recent PrEP use (in past 6 months) was reported by 52/687 (8%) MSM. Recent PrEP use increased over calendar time (p<0.001) to 7% in 2017. PrEP users did not differ from non-PrEP users in socio-demographics, but had less anal intercourse.

Conclusions: Taken together, our data from PrEP implementation in Germany demonstrates a large uptake of the new prevention method in individuals, who wish to compensate for HIV risk while having condomless anal intercourse.
a significantly higher median number of casual sex partners, more often reported CAS and chemsex with casual partners, and more often had an STI in the 6 months before initiation (all p<0.05). Overall, PrEP eligibility criteria were met by 32%, of whom 22% ever reported use of PrEP. The proportion with a high intention to use PrEP was higher among eligible than among non-eligible MSM (63% vs. 24%, p<0.001). Based on these findings, we estimate that between 2,903-5,370 eligible MSM in Amsterdam can be expected to use PrEP.

Conclusions: PrEP use increased over time but remained under 10%, even though 32% met the eligibility criteria, of whom 51% had a high intention to use PrEP. This suggests that a large proportion of Dutch MSM at risk could benefit from PrEP.

**WEPEC242**

From PrEP to “We are PrEPARED” - the Dutch example of preparing health care providers and MSM users for PrEP

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Background: In the Netherlands, PrEP is not yet reimbursed, awaiting advice of the Dutch Health council in 2018. At the same time, activist groups promote access to informal PrEP, and generic versions of PrEP have become available since July 2017. However, health care providers and the primary PrEP users (mainly MSM) lack knowledge on PrEP; this impedes PrEP uptake and proper use. To improve this we initiated a national working group in June 2015, developing a comprehensive approach to PrEP implementation in the Netherlands.

Description: A national working group with all relevant parties was facilitated by Soa Aids Nederland. Representatives from policy planning, research, general practitioners, STI clinics, national public health institutes, pharmacies, target group and activist groups met bi-monthly. This group mapped main barriers to the implementation of PrEP, coordinated activities addressing these barriers, collated and analyzed data to inform policy making, protocol development, knowledge development and lobby. Finally, funding was obtained to roll out a three-tiered approach to prepare all relevant stakeholders for PrEP implementation. This included:

1) Information for MSM-eligible for PrEP
2) Training programmes for health care professionals
3) Development of structures (manuals, forum, registration) within national (public) health care.

Lessons learned: Although informal and formal PrEP use increased, knowledge gaps among health care providers and MSM still need to be addressed. The coordination in the national working group made it possible to implement a comprehensive approach, to influence policy and to obtain funding, with broader and quicker impact than single actor activities.

Conclusions/Next steps: We developed a structured and coordinated national approach to roll out PrEP among health care services, supporting formal and informal PrEP use, prior to reimbursement. This approach can serve as a model for other countries facing the same challenges.

**WEPEC243**

Awareness, understanding and barriers to oral pre-exposure prophylaxis (PrEP) use among gay, bisexual and other men who have sex with men (GBMSM) in Nairobi and Johannesburg: A two-site qualitative study

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Background: South Africa and Kenya are among the first African countries to approve use of oral PrEP for those at high risk of HIV acquisition. High rates of HIV prevalence and sexual risk behaviors are reported among GBMSM in Nairobi and Johannesburg. GBMSM also face substantial challenges in accessing HIV prevention, testing and treatment. However, initial PrEP uptake has not been as high as expected. Our study examined likely acceptability and potential barriers to PrEP use in both cities.

Methods: Between June 2016 and July 2017, in-depth interviews were carried out with 30 GBMSM in Nairobi and 30 in Johannesburg, recruited in clinical and community settings and via snowballing. Interviews used standardized question route to assess prior awareness of PrEP, acceptability and perceived barriers to use. We also explored the likely acceptability of future PrEP delivery options. Transcribed data were subjected to thematic analysis using NVivo.

Results: In Johannesburg no interviewee had ever used PrEP and less than a third knew what it was, but up to three-quarters would consider future use. In Nairobi, two GBMSM had tried PrEP in a demonstration project but only a quarter knew what PrEP was. Two thirds would consider future use. In both cities among those that heard of PrEP most confused it with Post-Exposure Prophylaxis (PEP). Among GBMSM who expressed an interest in future use, the primary motivations were avoiding HIV and managing anxiety associated with sex. Willingness to consider future use was high, but most perceived PrEP as an addition to condoms not a replacement. There were widespread concerns about potential side effects and the stigma that might arise if users were perceived to have HIV or be “promiscuous”. Considerable scepticism was expressed about potential future topical formulations (rectal microbicides) but potential users expressed interest in long-term injectable formulations and intermittent dosing.

Conclusions: In both Nairobi and Johannesburg awareness and understanding of PrEP remains very limited and considerable health promotion efforts will be required to explain its utility and create demand for it. GBMSM recognize PrEP’s potential to reduce incidence and anxiety about HIV but remain concerned about potential stigmatization of users.

**WEPEC244**

PrEP uptake among middle age and older individuals in rural Kenya

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Background: Pre-exposure prophylaxis (PrEP) markedly reduces HIV acquisition and is an important tool for HIV prevention. In Africa, implementation of PrEP has largely focused on young women and adolescent girls, sex workers and men who have sex with men. Middle age and older adults may also be at high risk for HIV acquisition, yet little is known about their risk perception and willingness to start PrEP. We sought to understand HIV risk perception and uptake of PrEP among individuals aged 145 years in rural Kenya.
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Methods: Community-wide HIV testing was conducted in the SEARCH study (NCT01864603) using mobile community health campaigns (CHCs) supplemented by home-based testing. HIV-negative individuals were eligible for PrEP based on either self-referral or a HIV-acquisition risk score derived from HIV seroconversions in the region. Data on PrEP uptake and HIV risk perception were collected among PrEP eligible individuals aged ≥45 years in six rural communities in Kenya. Logistic regression was used to identify factors associated with uptake of PrEP.

Results: Individuals aged ≥45 years comprised 26% (N=4792) of 18,251 HIV-negative adults (≥15 years) in the six communities. 401 (81%) of these older individuals were classified as PrEP-eligible (≥65 by risk score, ≥35 through self-referral, and ≥15% of those eligible) initiated PrEP within two weeks of testing. Men were more likely to initiate PrEP than women (41% vs. 30%; aOR 2.89; 95%CI 1.33; 6.29); while those employed in the fishing, transportation, and entertainment industry were less likely to initiate than other occupations such as farming (23% vs. 58%; aOR 0.17; 95% CI 0.08; 0.36). Men who were head of household were more likely to initiate PrEP, while women who were head of household were less likely to initiate PrEP.

Common reasons to initiate PrEP among the older adults included multiple sexual partners of unknown HIV-serostatus (48%), known discordant relationships (22%), polygamous marriage (20%), and being inherited or a wife inheritor (3%).

Conclusions: In a rural Kenyan population with high HIV prevalence, those ≥45 years demonstrate interest in starting PrEP. However, uptake remains relatively low. New approaches to improve PrEP delivery are required to reduce HIV acquisition among older adults at high risk of infection.

WEPEC245

Community level PrEP programming addressing the challenges of facility-based follow-up for pre-exposure prophylaxis (PrEP) ART refills among PWUD, SW and MSM in Uganda: MARPI clinic experience

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Background: The Ministry of Health with support from PEPFAR are piloting pre-exposure prophylaxis among selected health sites in Uganda including those providing key populations’ friendly services. Specific attention has been to provide SW and PWUD who are at high risk of exposure to HIV given the high HIV prevalence and increased sexual and injection risks. MARPI clinic, one of the KP partners who are implementing PrEP among SW and MSM has integrated PrEP in its facility and community level services delivery.

Description: MARPI implemented PrEP starting from July 2017 to KPs (SW, PWUD and MSM) in Kampala and the surrounding districts. KPs were referred to MARPI and initiated on PrEP. During follow-up there were challenges with re-fills and follow-up. As a solution to the challenges, a community component was added; of the 648 (MSM, SW and PWUD), 78% returned for drug re-fills while 22% did not. The main reason for failed return were not contactable by telephone (41%), travelled (41%), ART side effects (5%), wrong telephone contacts (8%) and temporal stoppage (8%). Follow-up after addition of the community-based PrEP programme, 65% of the 144 who had failed to return received PrEP refills at community level but there were challenges with 45 (31%). The main challenges at community level were having travelled (44%), not at home and not contactable by phone (33%), side effects (11%), being busy (7%).

Lessons learned: Adding a community component to the MARPI facility PrEP programme reduces the challenges of failed telephone contact and decreases missed drug re-fills. The challenges of facility-level PrEP program differ from community-level PrEP. Lack of telephone contact and travelling are major challenges at the two program levels for SW, MSM and PWUD in Kampala. Side effects to ART is a challenge that is common to both.

Conclusions/Next steps: Facility PrEP programmes when integrated with community-based components reduces failed refills by reducing telephone call-based failures. More resources are needed to enhance community level services delivery to SW, MSM and PWUD as a complement to the facility-level PrEP program.

WEPEC246

A systematic review of interventions to increase adult men’s uptake of voluntary medical male circumcision for HIV prevention in East and Southern Africa

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Background: According to WHO data, 14.5 million men and boys were circumcised by the end of 2016 in East and Southern Africa, representing a dramatic increase in availability and uptake of VMMC services. Despite this level of scale up showing the feasibility of VMMC and efforts to increase demand in 14 countries of East and Southern Africa that included VMMC as an additional HIV prevention strategy, progress in increasing coverage among adult males, particularly over 25s, has been modest relative to the 90% target for 2020. We conducted a systematic review to evaluate interventions that led to an increase in VMMC uptake among adult men and should be considered for implementation by decision-makers of VMMC programmes.

Methods: We systematically searched electronic databases (EMBASE, PubMed and Global Health Library) for peer-reviewed articles for two different periods, 01 January 2005 to 22 October 2015 and 23 October 2015 to 17 January 2017. We included studies reporting the uptake of male circumcision among adult men (≥18 years). Interventions were coded as communication, structural, compensation or incentive based or mixed. We analyzed data by country and setting, type of intervention, time to seek circumcision and study design.

Results: 12 studies were included. Study methodological quality (randomized and non-randomized trials) Cochrane risk of bias was variable and most studies (n=10/12) were in low or low-middle income countries. Studies were not excluded based on the quality assessment. The reported increase in the uptake of VMMC ranged from 19% to 62%, 83% (n=10/12) used mixed interventions. 50% (n=9/18) of reported interventions arms showed a positive effect; all used a mixed intervention (structural and communication or compensation and communication). Limitations of the review included exclusion of abstracts; the authors defined interventions types of which the communication component was inconsistently reported. Due to heterogeneity we did not perform a meta-analysis.

Conclusions: Interventions to increase VMMC uptake among adult men should include a mixed approach and consider local context. Combinations of communication with home-based testing, enhanced provider capacity or fixed compensation were effective. Implementation should occur with systematic monitoring to permit adjustments and improvements.
WEPEC247
Community delivery increases PrEP program retention in SEARCH study in Uganda and Kenya

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Background: Rollout of pre-exposure prophylaxis (PrEP) in sub-Saharan Africa faces potential barriers to retention in care, including distance to clinic and stigma. Delivery of ART at home or other community sites can improve retention in HIV care; this strategy may also improve PrEP retention. The SEARCH Study (NCT02864603) is investigating a targeted, population-based approach to PrEP in rural East African communities. We conducted a multisite stratified individually-randomized controlled trial of community vs. clinic PrEP visits with medication delivery among PrEP starters in SEARCH intervention communities and assessed the effect of PrEP program retention.

Methods: From August 2016-January 2017, we randomized adult (≥18 years) participants starting PrEP in 11 communities (4 in East Uganda, 4 in Southwest Uganda, and 3 in Kenya) to PrEP visits at either clinic or community site (home or other non-clinic location). Randomization was stratified on age, sex, and community. Participants were followed for ≥36 weeks. PrEP program retention was assessed at 4, 12, 24, and 36 weeks, with a pre-specified primary outcome of 4-week retention. Participants were considered retained if seen for a follow-up visit within ±2/±4 weeks of the scheduled visit date, and not retained if they missed the visit or withdrew. In this intention-to-treat analysis, logistic regression was used to test the association between delivery site and PrEP retention, adjusted for stratification variables.

Results: Of 2146 participants in the study, 1116 (52%) were female, 540 (25%) were aged 15-24, and 911 (42%) were in East Uganda. 537 (25%) were in Southwest Uganda, and 658 (31%) were in Kenya. At week 4, 1298 (60%) were retained, 585/1078 (54%) and 713/1068 (67%) in the clinic and community arms, respectively. Retention over time varied by region, somewhat due to non-compliance with randomization in Southwest Uganda and Kenya. Community visits were associated with higher retention at weeks 4 (AOR 1.76 [1.47-2.12], 12 (AOR 2.03 [1.69-2.45]), 24 (AOR 1.73 [1.44-2.08]), and 36 (AOR 1.52 [1.26-1.84]). Effect sizes were stable across age/sex strata, but larger in East Uganda.

Conclusions: Community delivery increased retention, but the observed effect differed by region. PrEP retention was sub-optimal and further strategies to improve retention should be investigated.

WEPEC248
Message framing strategies for PrEP education with men who have sex with men in North America: Results of three randomized trials

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Methods: We recruited North American MSM using a mobile dating app (n=3078) for three factorial randomized trials of six message framing strategies, evaluating effects on PrEP acceptability. Trials randomized participants to several frames to communicate effectiveness: (1) success-based vs. failure-based vs. two-sided messages; (2) messages using numerical information vs. verbal paraphrases; and (3) messages with numerical ranges vs. point estimates for efficacy. Frames also varied information about PrEP benefits, using the following frames: (1) benefits for reducing HIV risk vs. HIV-related fear and worry; (2) loss-based and gain-based messages about PrEP benefits. Finally, one frame considered condom messaging, using mandatory, flexible, and no messages about dual condom-PrEP use. We evaluated willingness to use PrEP, attitudes about PrEP user behaviors, predicted PrEP efficacy, and anticipated PrEP stigma.

Results: Frames communicating PrEP effectiveness and dual method use with condoms generally did not affect willingness to use PrEP or attitudes regarding PrEP user behaviors. But framing PrEP’s benefits to encompass anxiety reduction as well as risk reduction significantly increased PrEP acceptability and willingness to use PrEP, and increased perceived PrEP effectiveness among men who believed that their HIV risk was low. Conclusions: Message framing strategies for communicating about PrEP’s benefits, including ancillary benefits beyond risk-reduction, can increase acceptability. Messages emphasizing PrEP’s secondary benefits (e.g. reduced HIV-related worry) may be particularly useful in outreach with MSM with low perceived risk.

WEPEC249
“For someone whose life is very busy and unpredictable, this service is like a dream.” Reaching young men of color who have sex with men through online preP services

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Background: HIV pre-exposure prophylaxis (PrEP) can limit new HIV infections when used as directed. PrEP uptake is increasing in the United States in communities with lower levels of HIV-related stigma and increased access to primary or sexual health care. Innovative delivery settings such as online access to PrEP services, may reach those who might not otherwise avail themselves to biomedical prevention technologies such as young men of color who have sex with men (YMCSM). Whether online PrEP services are acceptable to this vulnerable population is unknown.

Methods: We utilized an implementation science approach (REAIM) to evaluate online PrEP services offered by Nurx, a telehealth service initially developed to deliver oral birth control. We conducted chart re-
Achievements and lessons learned in efforts to achieve optimal site capacity in a voluntary medical male circumcision program in Mozambique

We explore the strategies and lessons learned in efforts to achieve optimal site capacity in a voluntary medical male circumcision (VMMC) program in Mozambique. Achieving optimal site capacity is crucial for scaling up VMMC services and reaching the target of offering VMMC to 2 million men by 2018. In this study, we investigated strategies employed in two VMMC sites, Manica and Tete, and the lessons learned from their successes and challenges. The results indicate that several interventions contributed to the observed productivity gains. Comprehensively addressing site productivity is essential for VMMC programs to reach their goals effectively. The findings emphasize the need for continuous evaluation and adaptation to ensure successful scale-up of VMMC services.
WEPEC252

Bringing Voluntary Male Medical Circumcision (VMMC) services to the community: VMMC mobile clinic campaigns on the islands of Lake Victoria in Tanzania

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Background: VMMC is an evidence-based, high-impact, biomedical HIV prevention method that can reduce a man’s risk of acquiring HIV from a female sex partner by 80%. Tanzania is one of 14 VMMC priority countries, where VMMC services have been scaled-up with a goal of 90% VMMC coverage among males ages 10 to 29. From 2009 to 2015, ICAP at Columbia University, in partnership with the Tanzania’s Ministry of Health and Social Welfare, successfully implemented VMMC services in non-traditionally circumcised lake areas of Kagera and Geita regions.

Description: ICAP’s package of VMMC services included contribution to national VMMC policies and M&E tools; development of a training package for health care workers; demand generation; provision of supplies and commodities; and completion of VMMC feasibility assessments. To reach fishermen in high HIV prevalence areas on 20 Lake Victoria islands, ICAP organized mobile clinic campaigns using outreach boats and tents to perform VMMC. To generate demand within these communities, ICAP supported innovative drama groups and performances, radio announcements, and sensitization meetings with key community, religious, and political leaders. In order to ensure linkage to HIV services, ICAP also supported mobile HIV care and treatment services.

Lessons learned: From 2009-2015, ICAP supported numerous mobile campaigns and the expansion of VMMC services to nine health facilities in Tanzania’s Lake region. A total of 125,046 men received VMMC through ICAP-supported services. Over 80,176 (67%) circumcisions were conducted through mobile campaigns and 1,067 (0.8%) men were diagnosed HIV-positive and referred to care. Of the 786,310 VMMCs conducted in all of Tanzania during this period, one out of seven were supported by ICAP.

Conclusions: Next steps: Innovative, client-centered strategies were critical to reach Tanzania saturation goals in the Great Lakes region. The utilization of mobile clinics can help VMMC programs ensure that they are providing services to communities not in easy reach of healthcare facilities. In particular, combining mobile clinic models with outreach boats allow remote islands to successfully participate in time-limited health campaigns, particularly with mobile populations such as fishermen. Partnerships with health, education, public- and private-sector, community, and religious leaders are key to this strategy.

WEPEC253

Is availability of clinics that prescribe PrEP associated with greater willingness to use it? Results from the national survey on HIV in the Black community (NSHBC)

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Background: From all cities in AIDSVu.org, geocoded the addresses in ArcMap 10.5, to use this intervention. gated the association between availability of PrEP clinics and willingness availability of clinics where PrEP is prescribed. In this study we investigated the association between willingness to use PrEP and PrEP clinic density adjusting for individual (age, gender, education, insurance, last doctor visit, HIV risk, and region of residence) and ZIP code-level covariates from the 2010 US Census (% living in poverty, % unemployed, % uninsured, % Black population) was constructed.

Results: 787 participants and 700 distinct ZIP codes were included in the multilevel analysis. Among participants, 45% were male. 23% were high-risk based upon self-reported behavioral characteristics, mean age was 34 years (SD=10), and 76% lived in the South. Participants, 26% were willing to use PrEP. The mean number of PrEP clinics per ZIP code was 1.73 (SD .64), density per 10k population was 0.07 (SD 0.22), and mean walking distance was 26 minutes (SD=20). The mean walking distance was longest in the South versus the Northeast (32 versus 23 minutes, Tukey-t=2.76, p<0.03). Participants living in areas with higher PrEP clinic density were significantly more willing to use PrEP (one standard deviation higher density of PrEP clinics per 10k population was associated with 20% higher willingness (Adjusted Prevalence Ratio <1.20, 95% CI=1.05, 1.37)).

Conclusions: Willingness to use PrEP is associated with the spatial availability of clinics that prescribe PrEP. This finding highlights the importance of widespread scale-up of PrEP access at healthcare facilities.

WEPEC254

Impact of a population-level PrEP implementation project on clinical capacity and HIV testing among gay and bisexual men in Melbourne, Australia

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Background: In July 2016, PrEPX, a population-level, PrEP implementation project in Melbourne, Australia, began rapidly enrolling gay and bisexual men (GBM) in clinics. Using data from the Australian Collaboration for Coordinated Enhanced Surveillance (ACCESS) we assessed changes to number of HIV tests conducted at four of the largest study recruitment sites pre- and post-study enrolment to explore the study’s impact on overall clinical capacity to offer HIV testing.

Methods: Test records were extracted from ACCESS for three general practice clinics and one peer-led community HIV testing service enrolling PrEPX participants. HIV tests conducted between June 1, 2015 and August 30, 2017 among GBM were included in this analysis. HIV testing was compared between pre- (June 1-May 2015) and post-intervention (July 2016-August 2017) periods. Segmented linear regression of monthly aggregate data assessed changes in the number of HIV tests among PrEPX participants and non-participants across pre- and post-intervention periods. We report comparative pre-intervention slope (1), change in intercept at intervention (2), and pre- to post-intervention change in slope (3).
Results: This analysis included 23,695 HIV tests among 8,431 individuals. 11,520 (48.6%) tests were included among 2,353 (27.9%) PrEPX participants. Pre-intervention, we observed an extra 15 monthly tests among PrEPX participants (x=15.1, 95%CI:13.1-17.1, p<0.001) and an extra 19 among non-study participants (x=18.6, 95%CI:13.8-24.5, p<0.001). At intervention, there was a significant increase of 219 monthly tests among PrEPX participants (x=218.7, 95%CI:145.0-292.5, p<0.001) and a marginal decrease of 48.8 monthly tests among non-participants (x=97.1, 95%CI:97.1-0.4, p=0.048). Post-intervention, the trend in monthly tests was stable among PrEPX participants (x=9.7, 95%CI:2.2-3.9, p=0.153) and decreased by 11 monthly tests among non-study participants (x=10.8, 95%CI:17.5-4.1, p=0.003). Tests per month continued to increase in non-study participants (x=1.8, 95%CI:1.3-12.3, p=0.022) post-intervention.

Conclusions: In the year pre-intervention, there was already a significant increase in monthly HIV tests conducted among GBM. Study enrolment resulted in a dramatic increase in testing associated with baseline and follow-up visits for PrEPX participants, which initially impacted on non-participants as seen by the initial decline at intervention. Encouragingly, the number of tests among non-participants increased since enrolment suggesting that clinics have adapted to increased demand.

WEPEC255
Willfulness to take daily oral HIV pre-exposure prophylaxis (PrEP) among young women and female sex workers in Kenya

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Background: Kenya launched an implementation framework for scaling-up pre-exposure prophylaxis (PrEP) for preventing HIV among individuals at continuous ongoing risk in May 2017. Little is known about the willingness to take PrEP for HIV prevention among young women (YW) and female sex workers (FSW). Our research aimed to determine the willingness to take daily oral PrEP and barriers to uptake and adherence among YW and FSW in Kenya.

Methods: This cross-sectional survey collected data on demographics, HIV risk behavior and willingness to take PrEP among 150 YW and 68 FSW. We collected qualitative data from a sub-set of these women on motivators and barriers to uptake and adherence using in-depth interviews and focus group discussions.

Results: 89.7% of FSW and 85.3% YW were willing to take daily oral PrEP to prevent HIV infection. YW involved in transactional sex were significantly more willing to take daily oral PrEP (AOR=4.7 (95% CI: 1.3 to 15.7, p=0.011). YW with high self-perceived risk of HIV were more likely to be willing to take PrEP (OR=3.54 (95% CI: 1.3 to 9.6, p=0.013). HIV risk factors such as having multiple sexual partners, sexual coercion by drunk partners, and consuming alcohol before sex were associated with higher willingness to take PrEP among YW. There was no statistically significant association between willingness to take daily oral PrEP and HIV risk factors (frequency of condom use, duration of sex work and alcohol use) among FSW. Packaging of PrEP, history of low adherence to medication, fear of side effects and HIV stigma were identified as potential barriers to daily oral PrEP adherence among both sub-populations of women.

Conclusions: Self-perception of HIV risk and engagement of risky behavior were associated with willingness to take PrEP among YW Screening for HIV risk perception and risky behavior of YW and FSW would allow targeted and focused delivery of PrEP for HIV prevention among YW and FSW. It will be important to evaluate how this high level of willingness translates to actual uptake of PrEP for HIV prevention during scale up. Stigma is a key barrier to willingness and can be addressed by sensitizing the population on PrEP.

WEPEC256
Assessing PrEP eligibility in a HIV-1 vaccine feasibility MSM cohort using MOH guidelines and a cohort-derived HIV-1 risk score in Kenya

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Background: The Ministry of Health (MOH) recommends pre-exposure prophylaxis (PrEP) for sexually active HIV-negative individuals at risk for HIV-acquisition in Kenya. However, anal intercourse is not assessed prior to PrEP initiation. We set out to determine PrEP eligibility among MSM enrolled in an HIV-1 vaccine feasibility cohort, comparing the number eligible by MOH criteria to those determined eligible by a cohort-derived HIV-1 risk score.

Conclusions: WePec256
Methods: From June–December 2017, we compared the number of MSM identified as eligible for PrEP by MOH risk criteria with those identified by a published cohort-derived HIV-1 risk score (age 18–24 years and a report of receptive anal intercourse, having male sex partners only, group sex, and any unprotected sex). We then compared performance of the two eligibility criteria to predict HIV–1 acquisition in the vaccine feasibility MSM cohort (HIV incidence of 0.1% per 100 person years) that followed men monthly for HIV testing, risk assessment, and risk reduction counselling.

Results: Of 125 MSM assessed for PrEP eligibility, 127 (72.6%) were identified by both MOH and cohort-derived HIV–1 risk score criteria. However, the cohort-derived HIV–1 risk score identified 36 (20.6%) more cohort MSM for PrEP eligibility than the MOH criteria, of whom the majority (75.0%) reported receptive anal intercourse. Five (0.8%) men were not identified as at risk for HIV–1 by either method. The area under the operator characteristic curve for prediction of eventual HIV–1 acquisition of the MOH criteria and cohort-derived HIV–1 risk score were 0.49 (95% confidence interval [CI]: 0.21–0.77) and 0.73 (95% CI: 0.59–0.91) respectively, P = 0.002.

Conclusions: Assessing PrEP eligibility in an HIV–1 vaccine feasibility cohort study of high-risk MSM using a cohort-derived HIV–1 risk score identified 21.1% more at-risk MSM than when MOH criteria were used. Consideration should be given to incorporating established risk factors for HIV–1 acquisition among MSM, especially receptive anal intercourse, into MOH guidelines, to enhance impact of PrEP programming among MSM in Kenya.

WEPEC257

MSM Prep users in Europe: Who is and is not having regular medical follow-up? Findings from the community-based research study Flash! PrEP in Europe


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Background: Pre-exposure prophylaxis (PrEP) is a biomedical HIV prevention tool recommended for key populations including men who have sex with men (MSM). Medical follow-up visits are recommended (EACS, CDC) for PrEP users every 3 months for HIV testing, side effects and adherence assessment. In the context of variable PrEP access across Europe, we identified characteristics associated with formal and informal PrEP use among EU MSM participants in the Flash! PrEP in Europe (FPIE) survey.

Methods: FPIE online survey was a community-based research study aiming to assess PrEP interest and prior/current use among respondents from 12 European countries. Data were collected from June–July 2018 while PrEP was officially available and reimbursed in France. Participants were 18+ years old and self-reported HIV-negative or unaware of their serological status. This analysis was restricted to MSM. Formal PrEP use (FPU) was defined as a PrEP follow-up visit every 3 months; lower frequencies were considered informal use (IPU). Four risk reduction profiles were identified using a prior hierarchical classification. High objective HIV risk (HOR) was based upon certain established criteria (EACS, CDC). Multinomial logistic regression was used to identify factors associated with FPU and IPU, compared with no PrEP use.

Results: Among 10,969 MSM, median age was 37 (IQR: 29; 46), 89 (8.8%) reported FPU and 195 (1.8%) reported IPU. Seventy-four percent (74.2%, n=64) of FPUs followed a continuous regimen compared to 39.8% (n=76) of IPU (p<0.001). After adjustment, similar risks factors were associated with higher chance of FPU or IPU: 10 occasional sex partners, drug use in a sexual context, recent STI diagnosis and HOR (FPU: AOR 5.04 [2.10;12.08]; IPU: AOR 1.77 [1.13;2.75]). Average perceived HIV risk was associated with lower probability of PrEP use (FPU AOR 0.6 [0.39;0.88]).

Conclusions: Among MSM respondents, informal and formal PrEP users were at HOR but had, however, lower perceived HIV risk likely due to PrEP use. Informal PrEP users represented 63.7% of PrEP users, showing the necessity to authorize and implement PrEP services that address the needs of populations most at risk of HIV infection.

WEPEC258

Users profile, regimen choices and types of exposure in HIV post-exposure prophylaxis before and after the guidelines implementation in Brazil

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Background: Post-exposure prophylaxis (PEP) is one of the tools to prevent HIV infection. PEP is available in health services in Brazil since 1999. In 2010 it was implemented for sexual exposure and in 2015 the first PEP guideline was launched. In September 2017, Dolutegravir containing (DTG-C) regimen was included as preferred regimen for PEP. The objective of this study is to identify the profile of PEP users in Brazil since 2009.

Methods: Programmatic data from PEP dispensation were analyzed for people aged 10+ from 2009-2017. Data were described using proportions to investigate associations. Social Vulnerability Index (SVI) is a combination of indicators related to urban infrastructure, human capital, portions to investigate associations. Social Vulnerability Index (SVI) is a combination of indicators related to urban infrastructure, human capital, income and work.
WEPEC259
Integrating traditional male circumcision with voluntary medical male circumcision for better HIV prevention outcomes among the Shangan in Zimbabwe

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Background: For decades, Government had banned traditional male circumcision camps in Chiredzi Districts following mounting deaths due to poor safety. In 2009, the Shangani community partnered the Ministry of Health in delivering safe voluntary medical male circumcision that satisfies both the needs of tradition and HIV prevention. The chief’s interest in the integration centred on appeasing the increasing number of people who feared the traditional approach on safety grounds; and the promise of financial support and food that comes from the medical side. The medical side’s drive has been to reach intended targets for HIV prevention, with the circumcision being done in a safe environment. Publicising the Chiredzi VMMC results would also motivate other communities to pursue VMMC for HIV prevention.

Description: To maintain cultural fidelity, chiefs drive the circumcision agenda with the medical side coming in to support. Chiefs mobilize their people and the Ministry of Health mobilizes partners for transport, allowances for health workers, equipment, HIV counseling and testing and food. Chiredzi almost always faces a drought and people struggle with providing food for their children in camp. Non-Shangani people including health workers who may participate in HIV counseling and testing are only involved at entry level, with the actual VMMC performed during camp by circumcision Shangan health workers. Partners mobilise non-Shangani people who may be willing to go through the circumcision rite, provide food and payment of mandatory token fees to the chief, which may preclude some participants from joining camp. In camp the men are also equipped with HIV prevention education, including debunking the myth that circumcision is a magic bullet against infection. Since 2009, 117,000 men have been circumcised in over 10 camps, some of which are from traditionally non-circumcising areas with no single death.

Lessons learned: The integration has allowed for win-win outcomes for tradition and HIV prevention. Dialogue on misconceptions about the real intentions of the medical side in targeting the Shangani for VMMC has helped.

Conclusions/Next steps: Following interest and success, the programme is now being taken to districts where there are traditionally circumcising communities, while also attracting men from non-circumcising families and districts.

WEPEC260
The PrEP life: Female sex workers’ perspectives on uptake and use of daily pre-exposure prophylaxis for HIV prevention in South Africa

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Background: Pre-exposure prophylaxis (PrEP) has the potential to reduce new infections among populations at highest HIV risk, so end-user perspectives in ‘real-world’ settings are critical to informing scale-up. This paper presents findings from in-depth interviews (IDIs) with FSW participants exploring the lived experiences and perceptions of taking up and using PrEP during the TAPS Demonstration Project.

Methods: Between June 2015 and July 2017, serial IDIs were conducted with randomly selected participants, in Johannesburg and Pretoria, during their 3, 6, and 9 month clinic visits to record evolution of perspectives and experiences of PrEP use over time. IDIs were conducted in English, isiZulu, or Setswana, then translated and transcribed by research assistants. Transcripts were uploaded and analysed in NVivo by the senior research team using thematic analysis which focused on elucidating the broader perspectives and positioning of PrEP within women’s lives.

Results: In total, 34 interviews with 18 women were conducted, ages 23-40. Participants perceived risks arising from their work, such as personal safety and potential for HIV infection, such as personal safety and potential for HIV infection, as prominent drivers for taking up and using PrEP. Personal responsibility for staying healthy and being able to support families was also a major motivating factor. Those who stayed on PrEP felt empowered to have control over their own, added HIV protection beyond condoms. All women reported devising their own strategies for managing use, especially when trying to maintain logistical and confidential adherence. Overall, distrust in the existence and/or efficacy of PrEP affected the motivation of women to come to the clinic and to maintain use when questioned by others outside the project.

Conclusions: As one of the first reports of PrEP use among FSWs outside clinical trial settings, this research shows that it will be important to ensure community-based, clear and widespread messaging to generate demand and support for PrEP. The larger TAPS study demonstrated certain successes and challenges in a complex population, further contextualized by this research. To achieve its potential, PrEP implementation must take into account influences on women’s lives and what motivates them to take up and use PrEP.

WEPEC261
Willfulness of Black and Latino adolescents in New York City to use daily oral HIV pre-exposure prophylaxis (PrEP)

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Background: In the United States, Black and Latino adolescents remain disproportionately affected by the HIV epidemic. In 2012, the US Federal Drug Administration approved daily oral pre-exposure prophylaxis (PrEP) for HIV prevention for people ages 18 and older. Results from clinical trials with people under age 18 have provided the safety data needed to expand oral PrEP to adolescents. However, daily drug regimens can be challenging for adolescents, and PrEP is only effective if used as prescribed. Therefore understanding adolescents’ preferences for daily oral PrEP, or other PrEP modalities, is important for guiding future research and practice.

Methods: Who’s on Board is a community-based mixed-methods study to determine strategies for implementing PrEP among Black and Latino adolescents. 200 HIV-negative or status unknown Black and Latino adolescents who attend an adolescent clinic in New York City completed an online survey assessing sexual health, willingness to use PrEP, PrEP...
preferences, and sociodemographic characteristics. Data collection is ongoing and will be complete by May 2018. Correlates of preferring daily oral PrEP to another modality will be identified using multivariable logistic regression.

**Results:** 56% of the sample identified as male. 29.4% of the sample had ever heard of PrEP, 42% of the sample said they would prefer daily oral PrEP, 17.6% prefer PrEP injections, and 14.7% prefer a PrEP implant. Reasons for preferring daily oral PrEP over other modalities included: “not liking needles”, “pills are painless”, and “pills are easy to take”. Reasons for preferring PrEP injections over other modalities included: “long-lasting” and “would not have to take a pill everyday”. Reasons for preferring PrEP implant over other modalities included: “easier to hide”, and “safer”. Adolescent males were more likely than adolescent females to select daily PrEP pills (aOR 1.21).

**Conclusions:** While the majority of the sample had heard of daily oral PrEP, interests and preferences for other PrEP modalities were present. These preferences vary by sociodemographic characteristics. Findings offer insight into PrEP preferences which may inform implementation efforts for this population.

**WEPEC262**

A community-based ethnomethodology to inform future PrEP engagement and adherence among transgender women sex workers

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**Background:** Transgender women sex workers (TSW) face a unique HIV risk context due to interpersonal stigma and oppression at interpersonal and structural levels as well as individual and interpersonal risk behaviors. A global meta-analysis of 25 studies estimated HIV prevalence among TSW at 27.3% compared to 14.7% in trans women not engaging in sex work. PrEP represents the next generation of high-impact, biomedical HIV prevention. This study examines the socio-structural context in which TSW conceptualize HIV risk and PrEP acceptability, with the intention of informing PrEP uptake and adherence intervention development.

**Methods:** The study was conducted in Baltimore City, Maryland, USA between 2017-18 and employed ethnographic and participatory research methods i.e. observations in-and, participant photo diaries (n=6), in-depth interviews (n=20) and key informant interview (n=7) with twenty TSW recruited from an existing cohort (the SAPPHIRE study). Analysis followed an inductive and deductive approach, allowing for the emergence of new themes.

**Results:** Preliminary analyses indicate multi-level factors influence the PrEP continuum from awareness, interest, access, uptake to adherence. Awareness and uptake were shaped by a sociocultural context in which PrEP is perceived as marketed to MSM and at-risk individuals, with pertaining stigmas. Though most participants reported accessing a health provider, reports of PrEP street sales within the trans-community point to complexities in healthcare access and utilization. Individual level factors shaping pill adherence include experimental dosing, rectal insertion and concerns around interactions with hormones. Highlighting previously unexplored practices around oral PrEP usage and adherence. The complex web of health priorities (e.g., hormone therapy) and structural vulnerabilities including, client violence and drug use provided important insights into barriers and facilitators to a daily PrEP pill.

**Conclusions:** Ethnographic engagement with TSW lived experiences is key to understanding the complexities of PrEP adherence, as well as barriers and facilitators to uptake. Moving forward, PrEP interventions for TSW need to consider competing priorities and how best to integrate PrEP into trans women’s lives. Utilizing existing health regimens (i.e. daily hormones) and existing prescribers, as well as social networks, including peers and community leaders, to promote PrEP uptake and adherence should be considered in future intervention development.

**WEPEC263**

Urgent need to integrate PMTCT service for HIV and hepatitis B: An interim report from a prospective cohort study in rural districts, Zambia

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**Background:** HIV, syphilis and hepatitis B virus infection in a pregnant woman poses a serious risk to her infant. While the program for HIV prevention of mother to child transmission (PMTCT) has been expanded in Zambia, the screening for hepatitis B is not conducted enough for clients coming to antenatal clinic and less information is available for current prevalence of hepatitis B especially in rural area.

We launched the prospective cohort study to evaluate operational challenge in option B+ program in rural Zambia but also focused on hepatitis B burden and care for that.

**Methods:** The prospective cohort study was launched in 11 health facilities in Chongwe district June 2016, where all the HIV positive pregnant women coming to antenatal clinic and diagnosed by HIV rapid test were registered for the study. The screening for Hepatitis B was also conducted by rapid test for HBs antigen. HIV and Hepatitis prevalence among the clients coming to antenatal clinic were estimated using data abstracted from the testing registers in antenatal clinic at each facility. Logistic regression analysis was used to evaluate independent factors associated with HIV-ab and HBs-ag carriers.

**Results:** Total 2772 pregnant women and 19.2% of their partners were screened for HIV and hepatitis B from June 2016 to May 2016 in the 11 facilities. HIV-ab and HBs-ag prevalence were 9.9% [95%CI:8.7-11.0] and 3.7%[3.0-4.4] in pregnant women and 5.4% [3.9-7.3] and 6.7%[5.4-8.8] in their partners. 4.6% of HIV positive pregnant women were co-infected with hepatitis B. Theelder (>25) pregnant women were more likely to be infected with HIV (OR:2.30, 95%CI:1.77-3.01) but there was no significant correlation between HIV and HBV status. (OR: 1.14, 95%CI: 0.60-2.20) 87.6 % of pregnant women infected with Hepatitis B were positive only for HBs-ag and not between HIV and HBV status. (OR:2.30, 95%CI: 1.77-3.01) but there was no significant correlation between HIV and HBV status. (OR: 1.14, 95%CI: 0.60-2.20) 87.6 % of pregnant women infected with Hepatitis B were positive only for HBs-ag and not covered by current ART program for HIV.

**Conclusions:** Hepatitis B burden in rural Zambia including the risk of vertical transmission can't be ignored. To save mothers and children, integrating the PMTCT programs for HIV and Hepatitis B should be enhanced. Further analysis are required to clarify the effective integrated service model as well as feasible options in resource limited settings.

**WEPEC264**

Are STI testing programmes acceptable and feasible for adolescents in South Africa?

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**Background:** Adolescents in South Africa remain at high risk of HIV and sexually transmitted infections (STIs). Despite the epidemiological and biological link between STIs and HIV transmission and acquisition, curable and often asymptomatic Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG) infections remain widely undiagnosed and untreated in the context of syndromic management. The current standard of care. We conducted a prospective study to assess the acceptability and feasibility of a rapid STI test-and-treat service for adolescents in Cape Town.

**Methods:** Adolescents attending a youth centre clinic were offered a rapid STI test-and-treat service between February and August 2017. Urine testing for CT and NG using a molecular point-of-care test (GeneXpert)
was conducted and treatment provided as appropriate. Data was collat-
ed on demographics, sexual behaviour, uptake of same-day treatment, service acceptability and prevalence of infections.

Results: We enrolled 255 participants, 209 female and 46 male. Mean age was 19.9 years for females and 19.7 years for males, with mean age at sexual debut reported as 16 and 14.9 years for females and males respectively. Seventy-eight participants (31%) consented to HIV testing, with four testing positive. Seventy-one (34%) females and 9 males (20%) tested positive for chlamydia. Thirty-six (17%) females and 8 (17%) males tested positive for gonorrhoea. 38% (96/255) had either CT/NG overall. Seventy-four (29%) opted for same day results and treatment, 179 (70%) opted to return the following day. Self-reported STI symptoms had a sensitivity of 50% and specificity of 55% for the diagnosis of CT/NG. The majority of participants (89%) reported the service as being highly acceptable.

Conclusions: Curable STIs are highly prevalent in this adolescent popu-
lation in South Africa. STI screening using near-patient testing was popu-
lar amongst adolescents, and acceptability was high. Clinical symptoms were insensitive in diagnosing infection with CT/NG, suggesting a high prevalence of undiagnosed genital tract infection in this population that may increase the risk of HIV and reproductive complications. There is an urgent need for the implementation of accurate and timely diagnostics and treatment of STIs, and for increased efforts to support adolescent HIV testing uptake in the context of sexual and reproductive health services.

WEPEC266
High HIV PrEP adherence is associated with syphilis incidence

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Background: High sexually transmitted infection (STI) incidence has been reported among HIV pre-exposure prophylaxis (PrEP) users. We aimed to assess if PrEP adherence was associated with syphilis incidence in a PrEP adherence trial.

Methods: We conducted a randomized clinical trial to assess if text-messaging could be used to increase adherence to PrEP among men who have sex with men. Syphilis testing was conducted every 12 weeks with rapid plasma reagent and confirmed with a treponemal test. A syphilis diagnosis was made by the study clinician. PrEP adherence was measured by intracellular tenofvir diphosphate (TFV-DP) using dried blood spots collected at weeks 12 and 48. “Highly adherent” was considered ≥1246 fmol/punch, consistent with 7 doses per week (near perfect dosing) and “adequate adherence” was ≥719 fmol/punch, consistent with 4 or more doses of TDF in the past week. The incidence-rate ratio (IRR) and 95% confidence intervals (CI) for syphilis among those adherent as compared with those non-adherent to PrEP by each definition was ex-

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#### Table 1. Syphilis incidence among MSM in a PrEP adherence trial by PrEP adherence level, intracellular TFV-DP, using dried blood spots from week 12 and 48

<table>
<thead>
<tr>
<th>Measure</th>
<th>Week</th>
<th>Number of incident cases</th>
<th>Number of people at risk</th>
<th>Number of person years spent at risk</th>
<th>Incidence density per 100 person years (95% CI)</th>
<th>Age adjusted incidence rate ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>Adequately adherent (&gt;719 fmol/punch)</td>
<td>25</td>
<td>315</td>
<td>417.3</td>
<td>6.0 (3.8, 8.3)</td>
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<tr>
<td></td>
<td>12</td>
<td>Not highly adherent (≥719 fmol/punch)</td>
<td>8</td>
<td>240</td>
<td>285.7</td>
<td>2.8 (0.5, 10.2)</td>
</tr>
<tr>
<td></td>
<td>48</td>
<td>Adequately adherent (&gt;719 fmol/punch)</td>
<td>18</td>
<td>141</td>
<td>195.6</td>
<td>9.2 (5.0, 13.5)</td>
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<tr>
<td></td>
<td>48</td>
<td>Not highly adherent (≥719 fmol/punch)</td>
<td>3</td>
<td>117</td>
<td>109.7</td>
<td>2.7 (0.5, 6.3)</td>
</tr>
<tr>
<td></td>
<td>48</td>
<td>Adequately adherent (&gt;719 fmol/punch)</td>
<td>23</td>
<td>264</td>
<td>371.6</td>
<td>6.2 (2.7, 8.7)</td>
</tr>
</tbody>
</table>

(Syphilis incidence among MSM in a PrEP adherence trial by PrEP adherence level, intracellular TFV-DP, using dried blood spots from week 12 and 48)

#### WEPEC267
High rate of unplanned pregnancy despite integration of family planning into HIV care

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Background: Family planning was integrated into HIV services with the aim to ensure that all pregnancies are planned and to prevent mother to child transmission of HIV. A good measure of the impact of this integra-
tion would be the rate of unplanned pregnancy among women infected with HIV who are pregnant. This paper examined the prevalence and correlates of unplanned pregnancy among HIV infected women at-
tending antenatal care service in three largest hospitals in Eastern Cape Province of South Africa.

Methods: A total of 594 women infected with HIV were recruited. Questionnaires probing whether women desire pregnancy at the time they got pregnant, and demographic characteristics were administered using an interviewer guided approach. To examine correlates of un-
planned pregnancy, chi-square statistics and binary logistic regression were employed.

Results: The analysis reveals a high rate of unplanned pregnancy (71%) among women infected with HIV. Unplanned pregnancy was significant-
antly associated younger age, single marital status, newly diagnosed at first presentation, high parity, and previous abortion. Women who reported unplanned pregnancy were more likely to be married, had lower CD4 counts. After adjusting for confounding variables (previous abortion, peri-partum and CD4 count), having one child and five to seven children (AOR=2.2: CI:1.1-3.1 age less 21 years (AOR=3.3: CI:1-1.9:8), presenting for antenatal care at more than 27 weeks (AOR=2.7: CI:1.5-5.0). not married (AOR=4.3: CI:2.7-6.8) and negative and unknown HIV status at first visit (AOR=3.9: CI:1.6-5.8) were significant predictors of unplanned pregnancy. Conclusions: Unplanned pregnancy is high among women infected with HIV despite the integration of family planning services into HIV care and PMTCT. HIV infected women with unplanned pregnancy are more likely to be young, presented late for antenatal care services, not married, negative or with unknown status at first antenatal care visit, and carry-

ing their first pregnancy or with five to seven children. High rate of un-
planned pregnancy has huge implication for ending the AIDS epidemic, especially elimination of mother to child transmission of HIV in South Africa. Integration of HIV and reproductive health services needs to in-
tensity in order to maximise the benefits of services’ integration.
WEPEC268
Increasing male partner involvement in antenatal services for elimination of mother-to-child transmission of HIV


Objective of this study was to determine if the male-partner-packages increased male partner ANC attendance. This package includes: 1) education about pregnancy and nutrition with messages for both men and women, 2) couples given priority in access to ANC services, 3) medical check-ups for male partners, and 4) male partner attendance at the examination of the pregnant partner. The objective of this study was to determine if the male-partner-packages increased male partner ANC attendance.

Methods: The male-partner-package was distributed to women who sought ANC services at Mbabal Police Health Center III from June to October 2017. Male partner attendance in this intervention group was compared with male partner attendance in this same setting, prior to the implementation, from June to October 2016. A multivariate logistic regression model was fit to male partner participation, including receipt of the male-partner-package and additional covariates. Variables were removed through a backwards stepwise approach until all indicators were significant at the 5% level.

Results: The estimated regression relationship between male partner ANC attendance and receipt of the male-partner-packages was significant. The estimated increase of partner attendance associated with the male-partner-package receipt was 24% (4.9% vs. 29.3%, p=0.000). Further, increased male partner attendance was significantly associated with the fourth and fifth ANC visits (27%), increased gestation age (18%), and woman’s HIV positive status (38%).

Conclusions: The study found evidence of association between male partner ANC attendance and receipt of the male-partner-package, along with additional covariates. These results suggest increased awareness of ANC visit attendance benefits among men may contribute to an increase in male partner ANC involvement.

WEPEC269
Innovative prevention using social media

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Background: «The Infectastic STIs» in addition to the real world, virtual worlds in the form of social media are increasingly becoming an avenue of communication and a place for discussion of messages about health. LIEBESLEBEN has created a brave and lively element in prevention work with its «The Infectastic STIs»: Chlam Chlamydie, Trippo Tripper (gonorrhoea), Feigwarze (genital warts), Hepp Hepatitis and Philis Syphilis - they all convey the LIEBESLEBEN messages with a lot of humour, emotional empathy and striking looks; their primary target group is young people besides getting more noise floor.

WEPEC270
The HIV/AIDS response succeeds when integrated in the reproductive maternal newborn child and adolescent health platform: The Kingdom of Swaziland’s Experience

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Background: The need to link HIV/AIDS and Sexual Reproductive Health (SRH) response is important due to the interconnectedness of HIV and SRH. Swaziland is implementing the Primary Health Care strategy which involves integration of a number of health services. However, to increase in male partner ANC attendance.
WEPEC271
Perspective of young people living with HIV in the Federal Capital Territory (FCT) Nigeria on their sexual reproductive health needs

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Background: Young people age 15-30 years constitute 60 percent of people living with HIV (PLHIV) in Nigeria. The HIV epidemic constitutes a public health challenge and it has been established that effective response to the epidemic also require meeting the sexual and reproductive health (SRH) needs of PLHIV. However, not much is known about the SRH needs of young PLHIV in Nigeria and whether available HIV services are meeting these needs.

Methods: The study aimed to explore the perception of young PLHIV in the Federal Capital Territory (FCT), Nigeria on their SRH needs and whether these needs are being met by available HIV services. The study guided by interpretivist epistemology used qualitative approach for data generation and through purposive sampling, 30 young PLHIV who are of ages 18-26 years were recruited from the association of young people living with HIV in the FCT and interviewed individually. Collected data was then analyzed using thematic content analysis.

Results: Five themes emerged and findings show young PLHIV in the FCT have unmet SRH need which include forming sexual relationships, fertility intentions, preventing unwanted pregnancy, managing sexually transmitted infections and abortion-related issues. Also evident is how economic burden of accessing free ART services contributes to poor treatment adherence. YPHLV are desirous of youth friendly health services that encourage their participation in program design and delivery, ensure confidentiality and integrate socio-economic support into healthcare.

Conclusions: Addressing HIV epidemic in Nigeria will require meeting the SRH needs of YPHLV which could be done through SRH/HIV service integration. However, meeting the need of YPLHIV is not limited to scaling up of interventions but also how these services are delivered in a way that is acceptable to the recipients.

WEPEC272
Integration of sexual and reproductive health services into HIV testing service: A unique delivery model for optimising the uptake of HTS among female sex workers in Nigeria

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Background: Female Sex Workers (FSWs) in Nigeria continue to be exceptionally vulnerable to acquiring HIV infection with a prevalence rate of 19.4% and 8.6% for Brothel Based and Non-Brothel Based FSWs respectively. In Cross River State, HTS has been advanced as a key prevention strategy for early diagnosis of HIV to reduce the risks of transmission and promote early treatment. However, HTS is not optimised among FSWs. This study looks at integration of sexual and reproductive health services as a means of optimising HTS uptake.

Description: Initiative for Young Women’s Health and Development (IY-HWAD) was sub granted by Heartland Alliance International Nigeria to implement the Integrated MARPs HIV Intervention Prevention Program (IMHIPP) for FSWs in Cross River, Nigeria. In May 2017, IY-HWAD began an innovative idea to integrate Sexual Reproductive Health services (Sexual reproductive health education, menstrual hygiene management, referrals for STIs syndromic management and referrals for Family planning services) into HTS outbreaks. Before this, only HIV prevention services including HTS was provided to FSWs during outbreaks in Brotheis and hotspots. A comparative analysis of data reported in the period before integration and the period after integration of SRH services was done.

Lessons learned: There was an increase in participation of FSWs in HTS outbreaks as the number of FSWs who received HTS doubled from an average of 375 monthly before SRH integration to 800 monthly after integration. Over 80% of the Female Sex Workers who came for other Sexual Reproductive Health services accessed HIV testing services and received their test result.

Conclusions/Next steps: Integrating Sexual Reproductive Health services into HIV Testing Services can lead to scale up in the number of Female Sex Workers who take up HIV Testing Services. Female Sex Workers who come for sexual reproductive health education, sanitary pads/tampons, referrals for Sexually Transmitted Infection syndromic management or referrals to access family planning services, present an opportunity for the Counselor Testers to discuss HIV Counseling and Testing as a tool to attain the first 90% of the 90:90:90 hence increasing utilization of HIV Testing Services among Female Sex Workers in Nigeria.
Developing tailored and comprehensive services for specific key and vulnerable populations

WEPEC273
Gender affirmation and healthcare empowerment: Two intervention-amenable targets to enhance viral suppression among transgender women of color living with HIV in the United States

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Background: Globally, transgender women of color are disproportionately impacted by HIV and are less likely than other groups to be virally suppressed. Transgender women of color also experience higher rates of transphobic discrimination (TD) than other transgender subgroups. The association between TD and poor health outcomes, such as unsuppressed viral load (VLU), is documented but little is known about potential targets for intervention on this association. We sought evidence for the Gender Affirmation (GA) Model of transgender health in these analyses.

Methods: A demonstration project to evaluate interventions targeting enhanced engagement and retention in HIV care recruited 858 HIV-positive transgender women of color across four US urban centers between December 2013 and August 2016. A self-administered survey measured HIV care engagement, TD (in healthcare, employment, housing), gender affirmation (GA), and transphobic discrimination (HCE). We used structural equation modeling (SEM) to test the direct association between TD (latent) and viral suppression (VS) as well as their indirect association via GA (latent) and HCE in a serial mediation model. Inferences were based on the bias-corrected bootstrap (10,000 samples).

Results: Participants’ mean age was 37 years (SD=10.8), 49% were Latina, 42% were Black, 57% had at least a grade 12 education and 36% were virally suppressed. Global fit statistics demonstrated good model fit (Hu & Bentler, 1999): CFI=0.96, RMSEA=0.08, WRMR=1.26. The SEM provided statistically significant direct pathways between TD and GA (B = -0.18, p < 0.001), GA and HCE (B = 1.09, p < 0.001), and HCE and VS (B = 1.18, p < 0.001). The significant indirect pathways were from TD to VS via GA and HCE (B = -0.04, p < 0.05, 95% CI = -0.08, -0.01) and GA to VS via HCE (B = -0.01, p < 0.05, 95% CI = 0.08, 0.46). The direct effect from TD to VS was not significantly related (B = -0.04, p = 0.58).

Conclusions: Gender affirmation and healthcare empowerment may improve rates of viral suppression among transgender women of color living with HIV. We used generalized estimating equations with an exchangeable correlation structure, with individuals clustered within couples, to test the association of testing within past three months (TEST3M) with PRH. The model controlled for couple-serostatus, sexual risk (defined as condomless anal sex with a serodiscordant/unknown serostatus partner in the previous 90 days (CAS-DISC)), sexual agreement type and relationship length. Testing within past six months (TEST6M) and twelve months (TEST12M) were also separately modeled.

Results: The sample consisted of 48% intersexual and 41% cisgender male couples. At baseline, the median relationship length was 5 years; median age was 41.7 years. CAS-DISC was reported by 14% to 16% of the HIV-negative men across visits and TEST3M by 24% to 26%. Controlling for other variables, a one standard deviation increase in PRH produced a 1.38 times increase in the odds of TEST3M (Table 1). Results were similar for outcomes TEST6M (aOR=1.39, p=0.01, 95% CI=1.25,1.55) and TEST12M (aOR=1.42, p<0.01, 95% CI=1.27,1.59) (not in table).

Conclusions: Among HIV-negative men in gay couples, we found empirical evidence that perception of being at greater risk for HIV is associated with greater odds of testing. Since perceptions are only as accurate as the knowledge they are based upon, it is imperative that gay couples are provided with the skills to accurately assess their risk for HIV and test with appropriate regularity. Prevention programs that equip couples with these skills are greatly needed.

WEPEC275
Project Shikamana: Positive effects of a phase II trial of community empowerment-based combination prevention to respond to HIV among female sex workers in Iringa, Tanzania

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Background: Community empowerment approaches have been effective in responding to HIV among female sex workers (FSW) in South Asia and Latin America. Few rigorous evaluations of these approaches have been evaluated in sub-Saharan Africa (SSA). We conducted a Phase II randomized controlled trial of a community-based combination HIV prevention model among FSW in two matched communities in Iringa, Tanzania.

Methods: A longitudinal cohort of 496 venue-based FSW (203 HIV+ and 293 HIV−) were surveyed and screened for HIV and viral load at baseline (2015-6) and 18-month follow-up (2017-8). The intervention sought to address structural constraints to optimal HIV outcomes by promoting social cohesion to address stigma, discrimination, violence and financial insecurity through community-led drop-in-center workshops and mo-
Wednesday 25 July

WEPEC276

Co-dispensation of low-barrier methadone maintenance therapy (MMT) and antiretroviral therapy (ART) linked to improved ART adherence among people living with HIV who use illicit drugs in a Canadian setting

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Background: Methadone maintenance therapy (MMT) has been shown to promote adherence to antiretroviral therapy (ART) among HIV-positive individuals who use illicit drugs. While existing integrated models have emphasized the role of primary HIV care providers and addiction specialists, empirical data outlining the relationship between integrated co-dispensation of methadone and ART and clinical outcomes is limited. To fill this gap, this study sought to examine the relationship between MMT-ART co-dispensation and achieving optimal adherence to ART among ART-experienced people living with HIV who use illicit drugs (PWUD) in Vancouver, Canada, a setting with universal no-cost healthcare access, community-based low-barrier methadone delivery and a community-wide seek, test and treat effort.

Methods: We used data from the ACCESS study, a long-running community-recruited cohort of HIV-positive PWUD linked to comprehensive HIV clinical records, including ART dispersion. Dispensing locations for methadone and ART were reported by participants and extracted from HIV clinical records, respectively. The longitudinal relationship between methadone and ART co-dispensation and the odds of ≥95% ART adherence was analyzed using multivariable generalized linear modeling. As a sensitivity analysis, we conducted a marginal structural model with inverse probability of treatment weights, a strategy used to produce estimates of causal effects from observational data.

Results: This study included data from 379 ART-exposed participants who completed ≥1 interview between June 2012 to May 2015. At baseline, 222 (58.6%) achieved ≥95% adherence at some point during the follow-up period and 96 (25%) reported MMT-ART co-dispensation. In the final multivariable model, MMT-ART co-dispensation was associated with greater odds of achieving ≥95% adherence (Adjusted Odds Ratio [AOR] = 1.70, 95% Confidence Interval [CI]: 1.25 - 2.31).

Conclusions: Phase III trial findings indicate positive effects of a tailored community empowerment-based combination prevention on incident HIV prevention and treatment outcomes among FSW in this SSA context, justifying the conduct of a Phase III trial.

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WEPEC277

Service delivery barriers to accessing HIV-related services for key populations in Southern Ghana

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Background: Structural factors contribute to disproportionate rates of HIV infection among Men who have sex with men (MSM) and female sex workers (FSW) otherwise known as key populations. However, access to HIV-related services remains a challenge in some settings. To achieve global agenda on reducing the burden of HIV by 2030, these barriers need to be addressed to increase access of KPs to healthcare. This study assessed the service delivery barrier to HIV service in Kumasi and Accra in Ghana.

Methods: We conducted a cross sectional mixed quantitative and qualitative study. Random sampling technique was used to select 80 Ghana Health Service staff engaged in HIV control services in six health facilities in Kumasi and Accra and interviewed using a structured questionnaire. In addition, eight FGD (N=38) and 50 in-depth interviews were conducted among various stakeholder including self-identifying MSM and FSW. STATA 13 an NVivo11 was used to analyse the quantitative and qualitative data respectively.

Results: Lack of confidentiality and privacy, stigmatization and poor attitude of health workers were identified as important consideration in use of health facility by KPs. About 92 (65%) of the respondents strongly agreed that their facility provided enough confidentiality. Fifty-seven (83.7%) and 61 (76.3%) of the respondents believed their health facilities did not have facilities available to specifically address the needs of FSW and MSM. Training on ways to reduce stigma to FSW and MSM was low as only 25 (31.3%) had received training in this direction. Poor service provider attitudes and poor service delivery such as long waiting times, poor logistics management (shortage of essential drugs and lack of basic equipment) and dispersed or non-available KP services deter KPs from accessing and staying consistently in HIV care.

Conclusions: Service delivery barriers for meeting the specific needs of KPs exist in health facilities in Ghana. One stop service outlets are essential for KPs related HIV services. Health facilities must improve their services to meet the needs of KPs in order to increase the utilization by KPs.

WEPEC278

Risk behavior and low HIV testing awareness among Roma (Gypsy) adolescents and young adult men who have sex with men (MSM) in Sofia, Bulgaria

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Background: Roma (Gypsies) are the largest and most marginalized ethnic minority group in Europe, and Roma communities in most of Eastern Europe are geographically segregated and characterized by pervasive poverty, widespread social health problems, educational disadvantage.

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and poor living conditions. Almost no research has examined the social circumstances, risk, and HIV testing awareness and attitudes of adolescent and young adult Roma MSM. This study employed qualitative methods to identify HIV prevention needs of young Roma MSM.

**Methods:** Participants were 27 young MSM ages 18 to 24 living in a large urban Roma settlement in Sofia, Bulgaria, purposely selected to maximize diversity in backgrounds. Participants were located by outreach staff familiar with same-sex neighborhood meeting venues and by snowball recruitment. Participants completed in-depth interviews following a topic guide that elicited information on behavior, sexual relationships, and HIV testing and treatment views. Interviews were transcribed verbatim and analyzed for emergent themes in areas of interest.

**Results:** Although all participants reported sex with other men, most self-identified as heterosexual, had female partners, or were married to females. Approximately half of participants said they had sex with other young men for pleasure, and all reported commercial sex with older men. Transactional sex contacts were made in cruising areas or online, and clients were usually older non-Roma men. Although participants were aware of AIDS, misconceptions were prevalent, most believed the disease cannot be treated, and few felt personal risk because they did not consider themselves as gay. Most participants had never been tested, and stigma was a barrier to disclosing same-sex practices even to health care providers because admissions would create shame and embarrassment.

**Conclusions:** Few HIV prevention efforts, including HIV VCT with linkage of infected persons to medical care, have been undertaken with adolescent and young adult Roma MSM, even though Roma are Europe’s largest ethnic minority population and enabling factors for high HIV transmission are present in many Roma communities. Outreach testing and care linkage programs are needed in Roma communities. Because of high stigma and infrequent gay self-identification, testing efforts should universalize the importance of testing and be tailored to Roma cultural circumstances.

**WEPEC279**

**Barriers and facilitators of adherence to HIV pre-exposure prophylaxis among young men and transgender women of color who have sex with men**

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**Background:** Young men and transgender women who have sex with men (YMSM), particularly those of color, are disproportionately infected with HIV; however, their adherence to pre-exposure prophylaxis (PrEP) in clinical trials has been suboptimal. Our primary aim was to discover barriers to and facilitators of PrEP adherence in YMSM of color.

**Methods:** This qualitative study enrolled HIV-negative YMSM of color prescribed daily oral tenofovir-emtricitabine PrEP for ≥3 months. Participants were recruited from Philadelphia-area clinics, social media, and mobile dating applications. Adherence was measured via urine tenofovir (TFV) concentration at the study visit and proportion of days covered (PDC) by pharmacy refills over the prior three months. Protective short-term adherence was urine TFV concentration >1000 ng/ml per prior study. Protective sustained adherence was PDC≥75% four doses/week. Participants completed individual, semi-structured interviews regarding barriers and facilitators to PrEP adherence. De-identified transcripts were double-coded and analyzed using grounded theory technique to identify key themes.

**Results:** Participants (n=25) were 60% African-American, 8% Asian and 28% multiracial, and 8% were Latino/a. Median age was 22 years (range 18-24), and 12% were transgender women. Eighteen (72%) participants had adequate short-term and n=17 (68%) had adequate sustained adherence. Nearly all participants (96%) endorsed at least one barrier to adherence. Reported barriers included perceived and enacted stigma; feared and attributed side effects; low perceived vulnerability to HIV; health systems barriers such as insurance and pharmacy access; and competing life stressors such as school, family and employment-related responsibilities. Facilitators of adherence included social support from partners, friends and healthcare providers; a personal commitment to wellness; heightened perception of HIV risk; health systems factors including supportive clinic environments and low or no-cost PrEP, and reminder systems such as mhealth applications, cell phone alarms, and pill cases.

**Conclusions:** Participants highlighted a number of themes to target in future PrEP adherence research such as stigma reduction, enhancing social support, and promoting life skills to improve adherence. Next steps should include robust quantitative studies to further explore which components of these themes are most salient, prevalent and modifiable, in order to develop interventions with maximum impact on the population.

**WEPEC280**

**Who are the male sexual partners of adolescent girls and young women? Comparative analysis of population data in three settings prior to DREAMS roll-out**

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**Background:** The DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women) Partnership aims to reduce HIV incidence among adolescent girls and young women (AGYW, 15-24y) with a core package of evidence-based interventions. Some interventions, including voluntary HIV counselling and testing and circumcision, are targeted at the male sexual partners of AGYW. A priority of DREAMS is to characterise male partners of AGYW for effective targeting.

**Methods:** Using population-based data from three DREAMS impact evaluation settings in Gem, rural Kenya (2014/15), Nairobi, urban slums Kenya (2020), and uMhlangahale, rural South Africa (2015), we describe the demographic characteristics and sexual behaviour of male partners reported by AGYW, and the characteristics of males who report sexual activity with AGYW.

**Results:** In all three settings, >90% of male partners in the past year reported by AGYW were aged <35 years. In uMhlangahale and Nairobi, median ages of spousal and non-spousal partners reported by AGYW were 29 and 23 years, and 21 and 20 years, respectively. In all settings, most males reporting an AGYW partner had never been married (65%-95%) and many were in school (32%-44%). Most male partners of AGYW reported only 1 AGYW partner in the past year; but in Gem and Nairobi 25%-29% reported ≥2 AGYW (or older female) partners. Concurrent partners were reported by 16% of male partners in Gem and 2-6% of partners in uMhlangahale (data not available for Nairobi). Two in three male partners of AGYW in Gem reported testing for HIV in the past 6 months and less than half of male partners in uMhlangahale reported testing for HIV in the past year. Almost all (96%) partners in Nairobi were circumcised medically, compared to 45% in Gem and 43% in uMhlangahale.

**Conclusions:** With almost all AGYW’s sexual partners aged 15-34 years, this is an appropriate target group for DREAMS interventions. Encouraging men in this age group to adopt safer sexual behaviours, and uptake prevention and treatment services is crucial in the effort to reduce HIV among both AGYW and young men. Interventions in schools and work places may be an efficient way to target some male partners.
WEPEC281
Identifying more HIV positive males through Homebased index case HIV testing as compared to facility based HIV testing: Case of an FHI 360-Zimbabwe Project

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Background: The recently released Zimbabwe Population Based HIV Impact Assessment, reported 72.9% of people living with HIV aged 15 to 64 years know their HIV status in Zimbabwe (75.1% females and 68.2% males). Testing remains the greatest challenge for Zimbabwe to attain the 90-90-90 UNAIDS targets especially in terms of reaching males. FHI360 Zimbabwe implements a five-year USAID funded mechanism with the main activity being homebased index case HIV testing and counseling (HIHTC). FHI360 collaborates with facility based partners to get the index cases. Reported here are the findings of a targeted assessment on the gender distribution of newly diagnosed HIV positive clients from two testing modalities.

Methods: A retrospective assessment of HIV testing registers for clients who were tested positive between September 2016 - December 2016 in Manicaland province and December 2016 to March 2017 in Midlands province of Zimbabwe, at 13 purposively selected health facilities in 6 Districts was done. Facility registers were reviewed to determine the sex, age and testing modality of newly diagnosed HIV positive clients. Data analysis was conducted using descriptive statistics in Microsoft Excel and STATA. A chi-square test was used to test the difference in the proportion of men reached by each modality at 5% significance level.

Results: Overall, a total of 2 297 were newly diagnosed HIV positive clients over a four-month assessment period through facility and HIHTC. Age disaggregation showed that 101(4.2%) were children 0-14 years of age, 2 183 (95%) were adults 15 years and above and the age for 13 (1%) individuals was not recorded. More than half of the newly diagnosed clients were females, 57% (n=1 326), 42% (n=955) were male and 1% (n=16) the gender was not recorded. A further analysis of the data show that HIHTC model diagnosed a significantly greater proportion of men (47%) compared to health facility based testing model (39%); (p=0.003). Table 1. Conclusions: Facility testing contributes more than half of the new diagnosis; however, HIHTC identified a greater proportion of the males. Strengthening collaboration between homebased index case HIV testing and facility based testing improves the reach to men with HIV testing services.

<table>
<thead>
<tr>
<th>Place of testing/Testing Modality</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>% Males Diagnosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Facility</td>
<td>900</td>
<td>578</td>
<td>1,491</td>
<td>39%</td>
</tr>
<tr>
<td>Home-based Index Case Testing</td>
<td>426</td>
<td>377</td>
<td>806</td>
<td>47%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,326</td>
<td>955</td>
<td>2,297</td>
<td>42%</td>
</tr>
</tbody>
</table>

(Table 1: Gender Distribution of the newly diagnosed HIV positive clients by IV testing model)

WEPEC282
Comparing behavioural and health seeking outcomes among young and older female sex workers using the polling booth survey 2017, Kenya

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Background: The Kenya Key Population Programme conducts annual outcome surveys using a Poling Booth Survey (PBS) methodology. The 2017 PBS included a sample of young key populations (YKP) to generate evidence on their risk and vulnerability and advocate for prioritization of YKP in the HIV response.

Methods: PBS is a group interview method, where individuals give their responses through a ballot box. Individual responses are anonymous and unlinked which improves reporting on sensitive and personal behaviors. Participants were selected using probability sampling and organized into small homogenous groups of 10–12 people. YKP sample was included in 2017 for the first time in three cities, Nairobi, Mombasa and Kisumu.

This abstract analyses data from of 1403 adult female sex workers (AFSW) and 280 young female sex workers (YFSW) who participated in the PBS 2017 from these 3 cities.

Results: Significant differences were noted between YFSW and AFSW in inconsistency of condom use with sex clients, with condom non-use at least once in last month (26% vs 16%, p<0.002), condom non - use due to unavailability (35% vs 25%, p<0.002), condom non-use as the sexual partner did not want (35% vs 22%, p<0.0001), condom non-use due to alcohol consumption (25% vs 13%, p< ??77), injected heroin in the last 3 months (25% vs 13%, p< 0.04), enrolment in PrEP (29% vs 13%, p<0.001), experienced of coercion in sex in last 6 months (42% vs 18%, p< 0.02) and visit to DIC in last 3 months (60% vs78%, p< 0.0001) 18% of YFSW reported being HIV positive compared to 25% of AFSW (p< 0.008). Only 37% of YFSW were enrolled in ART compared to 61% of AFSW (p< 0.002). No significant differences were noted in the behavioural outcomes of the AFSW and the YFSW in aspects such as HIV testing, STIs diagnosis and treatment and peer educator contact.

Conclusions: The PBS results point to the need for tailored programmatic efforts for YFSW. The findings should be used to prioritise YFSW in the national KP programme and define the appropriate service package and approach to interventions for YFSW.

WEPEC283
Adapting a multi-level intervention to promote HIV care and wellbeing for transgender women sex workers in the Dominican Republic

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Background: Transgender women are disproportionately affected by HIV across the globe. To address the multi-level factors that affect trans-gender women’s experiences with HIV care, there is a need for holistic, stigma-free services. We adapted the Abriendo Puertas (AP) multi-level intervention for transgender sex workers living with HIV in Santo Domingo, Dominican Republic, including a 6-session individual counseling program, peer navigation to provide emotional support, accompaniment and advocacy, and community mobilization to address structural factors such as poverty and to generate more solidarity.

Conclusions: The findings should be used to prioritise YFSW in the national KP programme and define the appropriate service package and approach to interventions for YFSW.
WEPEC285

Efficacy of community intervention in generating demand for ANC and PMTCT services in rural areas of Bayelsa State, Nigeria

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Background: Poor uptake of ANC and PMTCT services at health facility level in rural areas of Nigeria remains a major challenge (National PMTCT Scale-Up Plan). To achieve elimination of paediatric HIV infection, interventions should work closely with communities to increase demand and utilization of ANC/PMTCT services among women of reproductive age. This abstract reviews efficacy of community interventions in increasing demand for ANC and PMTCT services in rural communities of Bayelsa State, Nigeria.

Description: Chevron Corporation funded Pact Nigeria to implement community based “PROMOT II” project in Bayelsa State, Nigeria. The current phase of “PROMOT II” project is being implemented in 20 target communities in 3 LGAs of Bayelsa State. To increase attendance on PMTCT services and influence positive health-seeking behavior, an integrated approach of peer-led women groups to carry out health promotion activities was employed in 20 target communities by the project. Targeting women of reproductive age, particularly pregnant women, Community Health Extension Workers paired up with women groups to support HIV and PMTCT education activities including accompanying pregnant women to nearby health facilities to access ANC/PMTCT services. Community level HIV Testing Services were introduced to complement temporary cessation of healthcare service provision at health centers due to health workers’ strike action.

Lessons learned: Over 19 months of Project implementation, a total of 11,528 women were reached with HIV/ANC/PMTCT messages. 3,106 women received counselling and testing for HIV at community outreach events, of which 1,736 (55.9%) were pregnant women. 29 (1.7%) of pregnant women tested HIV positive and have been linked to comprehensive care and treatment services. Number of pregnant women who received HIV counselling and testing for PMTCT at health facilities rose from 1,180 to 2,159 (an 86% increase), while percentage of pregnant women who initiated ANC and completed four ANC visits increased by 25% (from 40% to 50%) across 27 health facilities in 20 target communities.

Conclusions/Next steps: Outcome of this project has reinforced the effectiveness of community based PMTCT interventions in generating demand for increased uptake of ANC and PMTCT services in rural settings. Capacity of women’s groups should be strengthened to continue supporting sustainable community-based outreach interventions that generate demand for PMTCT services.
WEPEC286
Transforming systems of care to address the needs of MSM of color in HIV prevention, care and treatment

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Background: Men who have sex with men (MSM) of color continue to be disproportionately impacted by HIV. If HIV diagnoses rates persist, 1 in 2 black MSM and 1 in 4 Latino MSM in the United States will be diagnosed with HIV during their lifetime. HIV is fueled by intertwined social determinants of health (SDH), often not addressed systematically in traditional care settings. The nexus of stigma, homophobia, and racism further marginalize MSM of colors’ engagement, retention, and adherence to HIV prevention, care, behavioral health and social services.

Description: A transformational, first-of-its-kind, competency-based curriculum consisting of 28 hours of interactive content was developed and implemented with multidisciplinary partners to enhance collaboration, understanding, and mitigation of SDH for this marginalized population. MSM of Color Leadership Team informed all aspects of program development. The curriculum moves beyond clinical health care by routinizing behavioral health service delivery into practice. Health Departments (HD) partner aims to examine the acceptability for using practice tools, and expand networks of care. Engaging nontraditional providers allows for expanded programs and accountable systems of care to work collaboratively addressing the underlying SDH. Program also provides a robust offering of technical assistance to HD.

Lessons learned: It is critical to openly discuss the impact that racism, homophobia and other cultural factors have on individuals and community health to address health disparities. Services must be adapted to be accessible and welcoming for MSM of color. Collaborative learning is the most effective method to address stigma and improve cultural competency. To holistically address the needs of the community, programs must increase involvement of MSM of color in the design, development, implementation and evaluation of services.

Conclusions/Next steps: Culturally responsive education and training programs are necessary for systems transformation. Provider networks should address the needs of and reflect the MSM of color community. It cannot be business as usual if the desire is system change with demonstrated, sustainable population health impacts. Health Department partnerships have embraced the education and training and are diffusing content to the MSM of color community.

WEPEC287
Attitudes towards PrEP among drug-involved men under community supervision with their female partners in New York City

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Background: Drug-involved men under community supervision are at elevated risk for HIV acquisition. There is an urgent call to action to develop, test and implement novel HIV prevention interventions that reduce HIV transmission. The study aims to examine the acceptability for using preventative behavioral approaches and PrEP among drug-involved men under community supervision and their main female sexual partners in New York City.

Methods: Utilizing 12-month data of a couple-based HIV study for drug-involved men under community supervision and their main sexual partners. 460 participants met inclusion criteria of the study aged 18 or older, in relationship for 3 or more months, reported unprotected sex in the past 90 days, reports drug use or enrolled in a drug treatment program in the past 12 months and were randomized. 390 participants completed the 12-month follow-up measures. We collected data on PrEP pertinent question(s): (1) likelihood to use PrEP as a form of HIV prevention; (2) willingness to use PrEP if made available for daily use; (2) readiness and willingness to disclose use of daily PrEP to their main partner, and (3) using condoms alongside daily PrEP. Responses were rated as “very unlikely,” “unlikely,” “somewhat likely” and “very likely”.

Results: Of the sample, 51% identified as male (N=196) and 49% identified as female (N=194). The average age was 35 (SD1298). The majority identified as Black/African American (72.4%). Almost sixty percent (59.1%) were single or never married. 68% were unemployed and 40.4% earned less than $500 per month. Nearly one-fourth (25.6%, n=102) of the participants were very likely to use PrEP as an HIV prevention method; at least one-third of the participants reported being very willing to disclose using PrEP to their main sexual partner and were similarly highly likely to use PrEP as a daily medication (38.3% and 38.8%; n=154, 153 respectively).

Conclusions: Findings suggest that PrEP may be an acceptable and useful form of HIV prevention among drug-involved men under community supervision with their sexual partners. However, there is an urgent need for more PrEP studies to better understand the barriers and attitudes to PrEP and integrated HIV prevention and treatment among this vulnerable population.
WEPEC28g

Chemsex and PrEP: Do individuals engaging in “chemsex” have the intention to take PrEP? Results from the community-based survey “Flash! PrEP in Europe”

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Background: Psychoactive drug use in sexualised contexts ("chemsex") is associated with heightened risk for HIV infection, especially among men who have sex with men (MSM). Pre-exposure prophylaxis (PrEP) may be an important HIV prevention method for individuals engaging in chemsex (MSM). However, little is known about the intention to use PrEP among IC in the context of variable PrEP access in Europe. We identified background and methods: In July 2016 aiming to assess knowledge and intention to take PrEP among MSM in the Netherlands, we launched a survey for MSM IC participating in the ICPRP project (2014-2016). The project was designed to attract and retain clients. The core services included client registration for adolescents. The project found very low HIV prevalence in the project target group (10-18). This is in line with HIV surveillance and other available data. Chain referral outreach techniques based on Peer Driven Communication with peers, free access to Internet and refreshments. The offered combination of services was based on participatory assessment and included a number of harm reduction services complemented by additional services designed to attract and retain clients. The core services included client case definition, HIV counselling and testing, distribution of condoms and sterile injecting instruments, counselling on sexual and injecting risks including risk of transition to injecting, and referrals to youth friendly services. Complementary services included a range of recreational activities designed with participation of clients.

Conclusions/Next steps: The project is being scaled up to reach all children with four or more risk factors and unknown HIV status; then those with four+ risk factors and self-reported negative status, and then with three+ risk factors, and so on. The project is continuing to assess the tool’s effectiveness; the next step includes scale-up for use with other OVC partners in Uganda.

WEPEC291

Harm reduction for youth in Ukraine: Pioneer intervention results

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Background: In 2015 Alliance for Public Health with support from EJAF launched innovative harm reduction interventions targeting adolescents who use drugs (AUDs) in 6 Ukrainian cities. The project aimed to engage 6000 AUDs and their sexual partners thus proving feasibility of harm reduction for adolescents.

Description: Services were designed and delivered by non-governmental harm reduction organisations in 2015-2017. The offered combination of services was based on participatory assessment and included a number of harm reduction services complemented by additional services designed to attract and retain clients. The core services included client case definition. HIV counselling and testing, distribution of condoms and sterile injecting instruments, counselling on sexual and injecting risks including risk of transition to injecting, and referrals to youth friendly services. Complementary services included a range of recreational activities designed with participation of clients.

The project has extended tailored harm reduction services to 9,400 AUD and their sexual partners. Out of 4,593 clients who accessed services in 2017, 25% were female and 75% male. 96% were aged 14 to 19, 43% were injecting users and 3,442 - non-injecting users. 8 HIV cases were detected (5 men aged 18-19 and 3 women aged 19-20).

Lessons learned: The project found very low HIV prevalence in the project target group (10-18). This is in line with HIV surveillance and other available data. Chain referral outreach techniques based on Peer Driven Intervention model were more effective than traditional outreach activities. Complementary were crucial in attracting and retaining clients. The most popular complementary services included safe space for relaxed communication with peers, free access to Internet and refreshments. Engagement of 30 AUDs as assistant social workers strengthened outreach and attracted new clients.

Conclusions/Next steps: The project demonstrated feasibility of tailored harm reduction services for adolescents and overcame the long-standing scepticism of both service providers and AUDs. The model can be recommended in countries with high prevalence of drug use, neglected adolescents and underaged transactional sex. Expansion of the target group to include young people who use drugs aged 19-24 with particular focus on young women is required for the interventions to increase contribution to HIV detection.

WEPEC290

Community-based HIV screening tool identifies children at high risk of testing positive to HIV

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Background: Since 2015, the Bantwana Initiative of World Education, Inc. (WEI/B) has implemented the USAID-funded Better Outcomes Project which prevents and responds to HIV while promoting the resiliency of children at high risk of testing positive to HIV. To identify children vulnerable to HIV, to be administered by community resource partners. The tool assesses six risk factors: poor health, recurring skin problems, hospital admission, loss of a parent, a chronically ill family member, and school performance. WEI/B applied this tool to 62,681 children age 0-17; the assessment found that children with more risk factors had higher HIV prevalence. The HIV prevalence among all children screened was 2.1%, but was 13.8% among children with any four risk factors, and increased to 25.4% and 39% for children with five and six risk factors respectively. WEI/B prioritized HIV testing and counseling for children with unknown HIV status and four+ risk factors, linking them to treatment and care.

Lessons learned: A community-based HIV screening tool is a cost-effective approach for identifying HIV+ children and linking them into care. OVC programs have traditionally tested large cohorts with low rates of positivity. WEI/B can now test a smaller cohort with increased accuracy of referrals for clinical services. Further, the tool enables community resource persons, who are best positioned to reach the most vulnerable children, to make targeted referrals for HIV testing, care and treatment with confidence. This increased accuracy in turn strengthens the collaboration between clinic and community.

Conclusions/Next steps: The tool is being scaled up to reach all children with four or more risk factors and unknown HIV status; then those with four+ risk factors and self-reported negative status, and then those with three+ risk factors, and so on. The project is continuing to assess the tool’s effectiveness; the next step includes scale-up for use with other OVC partners in Uganda.
WEPEC292

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Background: East African cross-border sites are visited by mobile and vulnerable populations, such as female sex workers, men who have sex with men, truck drivers, fisherfolk, and young women who may not benefit from treatment and prevention interventions at their home residence. The goal of this analysis was to use data on cross-border populations in East Africa to explore whether mobile and vulnerable populations were receiving fewer prevention services.

Methods: The USAID- and PEPFAR-funded MEASURE Evaluation project, led by the University of North Carolina at Chapel Hill, collected cross-sectional data using the Priorities for Local AIDS Control Efforts (PLACE) sampling method at 14 cross-border locations near or along the land and lake borders of Kenya, Rwanda, Tanzania, and Uganda from August 2016-January 2017. This bio-behavioral survey captured information from 11,428 individuals at 833 venues (e.g., bars, hotels, guest houses) across all sites. Data were weighted using survey sampling weights and analyzed using methods to account for the complex sampling design.

Results: Across all venues, informants reported offering an average of 2 HIV prevention activities in the six months preceding the survey. The average number of prevention services offered at each venue varied by country, with the highest in Uganda (2.46 [95% CI: 2.14, 2.79]) and lowest in Rwanda (0.95 [95% CI: 2.14, 2.79]). Only 4.2% [95% CI: 3.2, 5.2] of respondents reported it was easy to access sexual lubricants. Over 40% of venues with sex onsite (48.3% of all sites) or FSW living at the spot (179% of all sites) did not have condoms available. Among respondents reporting vaginal and anal sex, reported use of condom at last sexual encounter were 38.1 [95% CI: 36.3, 39.9] and 62.9 [95% CI: 56.5, 69.2], respectively.

Conclusions: Prevention activities appear to be appropriately targeted towards venues with high prevalence behaviors at the spot (e.g., sex work, sex onsite, or alcohol use). However, gaps remain in access to condoms and sexual lubricants and use of condoms, and there are several opportunities to improve access at sites visited by mobile and vulnerable populations at high risk for HIV.

WEPEC293
Impact of a community empowerment-based combination HIV prevention model (Project Shikamana) on the HIV continuum of care among female sex workers in Iringa, Tanzania

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Background: Addressing all steps of the HIV care continuum, particularly among key populations, is critical to reduce the burden of the HIV epidemic in countries with high prevalence and ongoing transmission. A community empowerment-based combination HIV prevention model was implemented among female sex workers (FSW) in Iringa, Tanzania and evaluated in a phase II community randomized trial.

Methods: A cohort of 203 HIV-infected and 293 HIV-uninfected FSW were recruited in two communities randomized into intervention (Ilula) and control (Mafinga) arms. Of HIV-infected women, 171 participated in both baseline (2015-6) and 18-months surveys (2017-8) and provided blood samples for HIV and viral load testing. The community-based, multi-level intervention targeted structural barriers (e.g. stigma and discrimination) to HIV testing and linkage and retention in care via both venue-based and drop-in center services and workshops, support from peer navigators, SMS adherence reminders and sensitivity trainings for clinical providers and police. Robust Poisson and logistic models were used to assess changes over time and the effects on care continuum outcomes.

Results: Among the 171 FSW who were HIV-infected at baseline, only 57 (33.3%) reported being ever aware of their HIV serostatus and 41 (24.0%) reported being ever linked to care although 74 (43.3%) had laboratory confirmed ART in their blood and 33.3% had viral load < 400 copies/mL. In both communities, there were significant improvement over time along the steps of the care continuum, but women in the intervention community had higher rates of engagement in care and treatment compared to the control community (See graph) including: ever or currently in care (RR=1.44, 95%CI: 1.15-1.81 and RR=1.51, 95%CI: 1.18-1.91, respectively), ART ever or current (RR=1.22, 95%CI: 1.02-1.46 and RR=1.28, 95%CI: 1.05-1.55, respectively), and ART adherence among current users (RR=1.21, 95%CI: 1.00-1.46). However, differences in viral suppression across communities were not statistically significant (RR=1.07, 95%CI: 0.78-1.46).

Conclusions: The community-based model showed a promising impact on all steps of the HIV care continuum among FSW in Iringa, Tanzania. However, improvements did not fully translate into significant changes in viral suppression. Future efforts need to focus more on ART adherence and include assessments of possible HIV resistance to current ART regimens.
WEPEC294
Knowledge and Intention to use PrEP among the male-to-female population in Ecuador: Results from a community-based survey (2016)
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Background: Male-to-Female (MTF) population is particularly affected by HIV in Ecuador, accounting for 32.8% of infections. Participation of Guayaquil in the Ipex study (2009-2011), which showed PrEP efficacy among MSM and MTF, did not lead to PrEP rollout in Ecuador. Information regarding intention to use PrEP among key populations may provide a basis for health policy allowing national access. This study assessed the intention to use PrEP among MTF respondents to a community-based survey in Ecuador.

Methods: A face-to-face survey, conducted by Kimirina in coordination with the Ecuadorian Health Minister, was answered by 335 MTF and 379 MSM in places frequented by key populations in Quito and Guayaquil. Information regarding demographics, sexual behavior, knowledge and intention to use PrEP, and preferred place for PrEP delivery were collected. This analysis was restricted to MTF respondents.

Results: Among 335 MTF, 92.2% (n=309) self-identified as trans women and 98.8% (n=331) as homosexuals. Median age was 277 IQR 235; 32.9; and 39.6% (n=132) reported a good financial situation. Regarding sexual activity, 94.3% (n=361) had occasional partners and 33.6% (n=113) reported unsystematic condom use during anal sex with occasional partners. Transactional sex in the last 12 months was reported by 66.4% (n=212), however one third (36.1%, n=121) were self-declared sex workers. One third (33.4%, n=112) agreed they would likely become HIV-positive in the next 12 months. Prior PrEP knowledge was declared by 9.6% (n=32) of whom 16.5% in-91% already have used PrEP. Regardless of prior knowledge, 93.1% (n=312) declared the intention to take PrEP when available. Public health units (n=200, 59.7%) were the preferred places for PrEP delivery.

Conclusions: Despite experience with PrEP, PrEP is an unknown precaution tool among MTF. Nevertheless, there is a large proportion of MTF at high HIV risk, who have the intention to take PrEP if available (mainly in a medical setting). The Ecuadorian public health system and civil society should use these results to provide an adapted response to the HIV.

WEPEC296
Access and privacy as barriers to PrEP uptake among young men who have sex with men in two mid-sized U.S. cities
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Background: PrEP uptake among young men who have sex with men (YMSM) remains low in the U.S. despite disproportionate risk. Understanding barriers to and perceptions of PrEP among non-users is key to engaging at-risk YMSM into PrEP care. We conducted a study that aimed to elicit YMSM’s perceptions of PrEP in their own words, with an eye towards determining optimal means of PrEP delivery among this population.

Methods: YMSM aged 15-30 reporting sex with another man in the last 6 months who had never taken PrEP were recruited in 2 Upstate NY cities. We conducted 2 hour in-depth, semi-structured qualitative interviews. The interview addressed life and sexual histories, PrEP knowledge, and elements of PrEP that would motivate or detract from uptake, including ranking of PrEP characteristics (e.g., cost, access) that participants considered most important. Using both grounded theory and inductive approaches, two researchers independently coded the interviews to identify prominent themes and outlier attitudes.

Results: Of 16 participants, average age was 21 (range 18-26); 6 (37.5%) were black and 5 (31.3%) were Hispanic. Six-month male partners ranged from 1-20 (med. 3.5; mean 4.3). Access, cost and effectiveness were most highly ranked PrEP attributes, and concerns surrounding access were most frequently cited by participants. Four of 7 participants on parental health insurance reported disclosure via insurance as a barrier to PrEP, including 2 who had forgone PrEP due to this factor. YMSM who believed that their health insurance would not cover PrEP tended to report consideration of PrEP as futile, assuming they would not have access. Results: Among a small sample of at-risk YMSM in Upstate NY, in-depth interviews revealed concerns about access and parental knowledge of PrEP as key barriers to uptake. These results will be used to inform the development of a discrete-choice experiment (DCE) which will specifically address the role of access in the context of decisions surrounding PrEP use. DCEs elicit preferences for specific attributes of a good or service, can evaluate trade-offs in decision making, and may be well-suited to determining PrEP preferences. An adaptive choice based conjoint or two step DCE will be constructed based on these findings.
WEPEC297
Food consumption, food security and coping strategies among PLHIV

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Background: With Kenya classified as a UNAIDS fast track country, the HIV response is working towards achieving the global 90-90-90 targets. There remains a paucity of information on the impact of drought-related shocks on HIV response in arid and semi-arid lands which experience cyclical droughts leading to food insecurity and malnutrition both for the general population, but more so for PLHIV and TB clients. During crisis, limited data is available regarding the present status of nutrition as well as food security among PLHIV. Assessment sought to establish the effects of drought on food consumption, food security and coping strategies among PLHIV and to explore the complex and interacting mechanisms that enhance or impede HIV response in ASAL areas in Kenya.

Methods: A mixed methods research approach was carried out in Kilifi, Kitui and Turkana counties using a composite score of drought severity, poverty index, HIV prevalence and malnutrition. 3 comprehensive care clinics (CCCs) were selected as the entry point. 1272 children aged 2 to 14 years, adult men and women were sampled. Household Dietary Diversity Score was assessed using one 24-hour recall period. Food insecurity was assessed using the Household Food Security Access Scale. Coping strategies to food insecurity were assessed using the Coping Strategy Index. Descriptive and multivariate analysis was conducted using SPSS v 24.

Results: Mean HDDS and dietary diversity score for Women were both 3.8, and below the minimum recommended threshold. 87% of female participants had low to medium dietary diversity. Prevalence of severe food insecurity was 69.4%, 78.6% of children 2-14 years were from severely food insecure households. 69.2% of adults reported low coping strategies to food insecurity; likelihood of being overweight increased with increasing food insecurity (OR 3.11; CI 1.22-9.22; p=0.019) and low household dietary diversity (OR 2.54; 95% CI 1.49-4.72; p<0.001). The odds of being overweight were higher in men, substance users, consumers of untreated water and those with high viral load.

Conclusions: PLHIV are exposed to many food security and coping shocks. Family food and livelihoods support in PLHIV households should be planned for and costed as part of HIV programming during drought in ASAL areas.

WEPEC298
“PrEP tourism” in Bangkok and sexual risk behavior of MSM: A three- and six-month follow up study

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Background: The formal availability of Pre-Exposure Prophylaxis (PrEP) in many countries is limited. An important option for men who have sex with men (MSM) to obtain PrEP is abroad, at MSM travel destinations where PrEP is easily available and affordable, such as Thailand. With PrEP sourced in Bangkok, our aim was to assess PrEP use and sexual risk-taking behavior among such MSM. Since some of the clients access PrEP for the first time, we investigated PrEP use and sexual behavior during a three- (T2) and six-month (T3) follow up compared to baseline.

Methods: MSM clients (n=128) of the Silom Pulse Clinic completed a survey on-site about PrEP use and sexual behavior in February-April 2017 (T1). Surveys at T2 (n=65) and T3 (n=48) were completed online. Mean age was 38 years (range: 22-70). The sample was internationally diverse: 97 participants (77.0%) did not live in Thailand and four (3.2%) were born in Thailand.

Results: At T1, 91 participants (72.2%) reported using PrEP informally. At T2, one participant stopped using PrEP, while 11 started using PrEP. At T2, 87.7% (T3: 88.1%) followed a daily regimen. Most reported regular HIV (87.7%) and renal function testing (60.4%). At T1, 56.5% used condoms often or always, while at T2, 67.9% (T3: 71.6%) reported lower condom use since starting PrEP. Between T1 and T2, 8 participants (12.3%) were diagnosed with an STI. At T1, recreational drugs were used by 43 participants (34.1%) during sex. At T2, since starting PrEP use, 82.5% felt less anxious when having sex, and the same proportion reported increased quality of sex life. This remained stable between T2 and T3 (repeated measures F<1).

Conclusions: Despite not having access to formal PrEP care in their home country, the vast majority of participants managed to follow a daily regimen and to generally improve their medical check-ups and reported increased quality of sex life. Despite their relative distance to local health care provision, this specific group of “PrEP tourists” is well aware of how to use PrEP correctly. A limitation is that high dropout between T2-T3 could have led to an overestimation of daily PrEP regimens.

WEPEC299
Male wellness center: An HIV/STI detection and treatment service model for the MSM community

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Background: Men who have sex with men (MSM) have elevated risk for contracting HIV and other sexually transmitted infections (STI). Thus, access to testing and treatment services is vital. MSM often face stigma, discrimination and a general lack of understanding by healthcare providers, which, coupled with inaccurate information sources and gaps in accessible quality healthcare, results in delayed or outright denial of testing and treatment.

Description: The AIDS Healthcare Foundation (AHF)-supported Male Wellness Center was launched in Beijing in December 2016. It links the MSM group into existing hospital services providing integrated counseling, testing, referral and HIV/STI treatment services. Qualified health care providers and counselors from the MSM community work closely to deliver services in a private, confidential, and discrimination-free setting. Necessary follow-up visits and 24-hour access to specialized professionals for questions and unforeseen difficulties are also available. Instant HIV and syphilis tests are provided free of charge. And HIV positive clients have access to additional counseling, education and referral to free antiretroviral therapy (ART). STI treatment, of which syphilis is free of charge, is provided at wellness center itself.

Lessons learned: From December 1, 2016 to December 31, 2017, 3,513 clients received diagnostic and counseling services. Young, sexually-active MSM showed a greater demand for sexual health services, making up almost three-fourths of those attended: 1,092 (31%) aged 15-24 and 1,539 (43%) aged 25-49. Of the total, 92 (3%) were newly found HIV positive and all were enrolled into ART. 371 (11%) new and recurrent syphilis cases were diagnosed and treated. Genital warts and urinary tract infections were diagnosed and treated in 241 (7%) and 95 (3%) clients respectively. Notably, 2,207 (63%) clients accessed and received testing and counseling services twice or more.

Conclusions/Next steps: The Male Wellness Center project effectively addressed current and potential health risks for MSM, as evidenced by rates of first and recurrent utilization of the services provided. The model should be expanded and replicated, along with promoting services targeting similarly-aged youth through internet and mobile-phone communication methods.
WEPEC300
Family-based HIV risk and protective factors for Latino men who have sex with men in San Juan, PR

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Background: Puerto Rico (PR) is the fifth largest territory throughout the US to have the greatest number of Latinos living with HIV and HIV infection rates for 2016 continue to grow for Latino men who have sex with men (LMSM) ages 25-34. HIV related research among sexual minorities of color has focused on deficiencies and limited research has taken a culturally informed approach regarding identity development and interpersonal family relationships. This study aims to determine if family influences behaviors related to HIV risk and protective factors for LMSM.

Methods: LMSM ages 21 through 30 in San Juan, PR completed semi-structured interviews exploring the influence interpersonal family relationships have on condom use. HIV testing, health seeking behaviors, substance use, and sexual partners. A focus was placed on family as a unit as well as the interpersonal relationships of participants with immediate (e.g., parent, caregiver, sibling) and extended family members (e.g., aunt, uncle, cousin, grandparent). Fictive kin, unrelated by birth or marriage, was also explored to understand how LMSM applied family roles to important members within their social network. NVivo was used to conduct a thematic analysis focused on identifying prominent themes based on codes associated with family. All data was analyzed in its original language and direct quotes were translated from Spanish to English.

Results: Fifteen participants (Mean age = 26.3) completed in-depth interviews. Four in Spanish and 11 in English. Participants reported being HIV negative (80%), gay (93%), household income ≤ $19,999 (67%), and some college education or greater (80%). A thematic map illustrates an innovative framework (Figure 1) to conceptualize the influence interpersonal family relationships have on wellbeing for Latino MSM based on the emergent themes: 1) Immediate versus Extended Family; 2) Mother Knows Best; 3) Fractured Paternal Relationships; 4) Siblings Influence; and 5) Fictive Kin - Creating My Own Family. Findings suggest that the mother plays an integral role in enhancing HIV protective factors for LMSM ages 21-30.

Conclusions: This study highlights the importance for developing family-based interventions that reinforce cultural beliefs and values through a strengths-based approach to enhancing HIV protective behaviors for LMSM.

WEPEC301
Serostatus non-disclosure to sexual partners among high-risk drug users living with HIV: Examining the roles of HIV-related stigma and risk behavior

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Background: HIV serostatus disclosure among people living with HIV (PLWH) is an important component of preventing HIV transmission to sexual partners. Due to various social, structural, and behavioral challenges, however, many HIV-infected people who use drugs (PWUD) do not disclose their HIV status to all sexual partners. In this analysis, we therefore examined non-disclosure practices and correlates of non-disclosure among high-risk HIV-infected PWUD.

Methods: HIV-infected, methadone-maintained people who reported HIV-risk behaviors were enrolled (n=113). Participants completed an audio-computer assisted self-interview (ACASI) assessing socio-demographic characteristics, HIV disclosure, risk behaviors, health status, ART adherence, HIV stigma, and other characteristics. Multivariable logistic regression was used to identify significant correlates of non-disclosure.

Results: Over 23% of the respondents had sex with someone with whom they had not disclosed their HIV status. HIV risk behaviors were highly prevalent among non-disclosing participants: sharing of injection equipment (70.5%) and inconsistent condom use (93.5%). Non-disclosure of HIV status was significantly associated with not being virally suppressed (aOR=0.189, p=0.041), high HIV-related stigma (aOR=2.366, p=0.032), and having multiple sex partners (aOR=5.868, p=0.040). Furthermore, a significant interaction between HIV-related stigma and living with family/friends suggests that those living with family/friends were more likely to report not disclosing their HIV status when faced with a higher degree of perceived stigma.

Conclusions: Our findings support the need for future interventions to better address the impact of perceived stigma and HIV disclosure as it relates to risk behaviors among PWUD.

WEPEC302
Contextualizing condoms: Location, partner type, and substance use as contexts for sexual risk behavior with transactional and non-transactional partners of men who have sex with men in Peru

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Background: Men who have sex with men (MSM) in Peru consistently report low frequencies of condom use. To improve understanding of the evolving context of condomless intercourse in same-sex male partnerships, we studied associations between partner type, substance use, and condomless receptive anal intercourse (cRAI) in common MSM sex venues.

Methods: In a 2017 cross-sectional study of rectal STI screening and HIV prevention, MSM reporting recent cRAI completed a survey of demographic characteristics and sexual risk behavior with their three most recent partners. Generalized estimating equations, stratified between transactional sex (TS) and non-TS partners, estimated correlations of cRAI with venue of last sexual contact, participant alcohol use prior to sex, and negotiation of condom use before or during sex.

Results: Among 4128 sexual encounters of 450 MSM (median age 27 years), 160 were transactional (12%) and 1268 were non-transactional (88.8%). The most commonly reported venue for TS and non-TS en-
counters was a hotel (51.5% of TS & 32.6% of non-TS). Sexual encounters with transactional partners at sauna venues included alcohol (75.0%) and drug use (79.0%) before sex, and none of these encounters involved condom use negotiations before or during sex. Transactional sex encounters in public venues frequently included discussions about condom use (71.4%), but were also associated with CRAI (APR: 95% CI: 1.94, 1.11-3.65), likely due to negotiations for higher compensation with condomless sex. In all encounters with transactional partners, CRAI was associated with alcohol use (1.35, 1.03-1.77). Among non-transactional partners, CRAI was associated with encounters that occurred at the participant’s home (1.25, 1.05-1.49) and in the context of alcohol use (1.19, 1.09-1.31). Alcohol use before sex occurred most commonly at hotels (31.7%), while drug use occurred most often at public sex venues (23.5%). Encounters with non-transactional partners rarely included discussions of condom use and HIV serostatus before or during sex (< 16% of all encounters), regardless of venue.

Conclusions: We observed different patterns and implications of substance use, condom negotiation, and CRAI with transactional and non-transactional partners of diverse sex venues. Additional studies are needed to explore how venue, substance use, and partner type differentially structure HIV/STI risk contexts.

WEPEC303

Community condom preferences in Zambia from the HPTN 071 (PopART) trial

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Background: Condom use is a very effective HIV/STI prevention strategy, yet usage remains low. In Sub-Saharan Africa, standard condoms are available at health facilities, but uptake is low and community members perceive their quality to be inferior compared to branded condoms. HPTN071(PopART) is a 3-arm community-randomized trial of a combination HIV prevention package in 21 communities in Zambia and South Africa. The intervention includes condom distribution delivered door-to-door by community health workers. Our objective was to understand condom preferences of participants in 8 intervention communities in Zambia.

Methods: Standard government-provided male (Giulin Zizhu Latex Co Ltd) and female (fc2) condoms were provided to communities from December 2013 - September 2017. Alternative branded condoms (Moods®) and lubricants (Optilube®) were provided from June 2015 - September 2017. Electronic data on numbers of condoms purchased and received during household visits, and condom preferences were collected from 8 intervention communities in Zambia from July 2016 - August 2017, and analysed using STATA 13.1. Semi-structured interviews were conducted to find participants’ preferred type of condom, and reason for the preference.

Results: Overall, 292,552 people consented to participate in the main PopART intervention, 97.8% had data recorded. Excluding those <15 years, 166,873 participants remained: 37.5% male, 62.5% female (Figure 1). Of the males, 7% requested and received lubricant, 6.7% female condoms (branded and government).

1.09-1.31). Alcohol use before sex occurred most commonly at hotels (1.25, 1.05-1.49) and in the context of alcohol use (1.19, 1.09-1.31). Alcohol use before sex occurred most commonly at hotels (31.7%), while drug use occurred most often at public sex venues (13.5%). Encounters with non-transactional partners rarely included discussions of condom use and HIV serostatus before or during sex (< 16% of all encounters), regardless of venue.

Conclusions: We observed different patterns and implications of substance use, condom negotiation, and CRAI with transactional and non-transactional partners of diverse sex venues. Additional studies are needed to explore how venue, substance use, and partner type differentially structure HIV/STI risk contexts.

WEPEC304

Acceptability and availability of co-packed condom and lubricant among key populations in Nigeria

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Background: Consistent use of condoms remains effective in preventing HIV transmission amongst key populations (KPs) while the use of water-based lubricants reduces the chances of condom failure. In Nigeria, reduced access to appropriate lubricants has been linked to use of oil-based products with increased condom failure. To increase use of appropriate lubricants, the Society for Family Health introduced a Co-packed Condom and Lubricant (CCL) under the Global Fund (GF) grant, which was made available to all key populations (KPs). After six months of its introduction, the program assessed the performance of the CCL for availability, use and desirability.

Methods: The study adopted mixed-method approach of quantitative and qualitative data collection. The quantitative method involved the use of interviewer-administered structured questionnaire to KPs while the focus-group discussions with KPs who had been exposed and used to CCL. The study population included all KPs from focal states of the GF program.

Results: The respondents (2351) included 787 men who have sex with men (MSM), 789 female sex workers (FSW) and 775 People who inject drugs (PWID). About 87% of respondents were aware of CCL; 77% of these were still using the CCL, and 52% of respondents reported constant use of CCL. The commonest (26%) reason given for using CCL was the fact that CCL is better than using condoms alone. However, about 35% stated that other condoms were more readily available than the CCL. The advantages of CCL include that dual-use had sex more pleasurable and CCL were convenient to use. However, FSWs want a lesser volume of lubricants while the MSM preferred increased amount and both preferred an increase in the number of condoms per pack.
Access to harm reduction interventions

**WEPEC306**

Harm reduction program intervention and behavioral factors correlation with anti-hepatitis C positivity among people who inject drugs in Georgia

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Background: New female condoms (FCs) are in development that have innovative designs to introduce the FC into the vagina. One of these new designs is the “Wondaleaf” female condom, which has an adhesive shield replacing the outer ring/frame of a typical FC. As the shield covers both internal and external genitalia, it aims to provide better protection against unintended pregnancies and sexually transmitted infections. The primary objective of this research was to compare the functional performance of two FC types- the Wondaleaf FC and FC2, where the FC2 served as the control device.

Methods: This was a two-period, cross-over randomized controlled trial to determine the functional performance, safety and acceptability of Wondaleaf FC and FC2. This study enrolled 55 women in Durban, South Africa in 2017. Primary analyses centered on total clinical failure and total female condom failure. Rates of clinical breakage, total breakage, slippage, misdirection, and invagination were also calculated.

Results: Fifty-three of the 55 women enrolled (96%) completed both study follow-up visits. Participants were of a mean age of 28 years with 10 years or more of schooling. All participants had ever used male condoms, and 45.4% had ever used FCs. Total clinical failure was 5.3% for the Wondaleaf FC and 7.5% for FC2. A small number of women had difficulties applying the Wondaleaf shield however once fitted, the shield of the Wondaleaf FC remained adherent in all uses. In three cases some of the shield material was pushed into the vagina, however this did not present an exposure risk. Acceptability was generally higher for the Wondaleaf compared to the FC2. Two-thirds of women (62.8%) stated a preference for Wondaleaf over FC2.

Conclusions: This new design performed well compared to FC2 with lower condom clinical failure and higher acceptability and preference. The design is more complex than a typical FC and requires good instructions for users to fit the adhesive shield.

**WEPEC307**

Impact of health behavior campaigns on HIV-risk behaviors in Swaziland

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Background: Several mass media health behavior campaigns (HBCs) were conducted in Swaziland between 2010-2015 to avert new HIV infections. We describe the association between HBCs and specific behaviors among a prospectively followed, nationally representative, HIV-negative cohort from the 2011 Swaziland HIV Incidence Measurement Survey (SHIMS).

Methods: Survey staff conducted household-based HIV testing and collected information from adults, 18-49 y., about risk behaviors and exposure to HBCs in the previous 6 months. HIV-negative participants repeated the questionnaire and HIV testing 6 months later. Survey data were weighted for sampling design and multivariable logistic regression analysis assessed associations between HBC exposure and risk behaviors among those reporting sexual activity at both baseline and follow-up. Assessed behaviors were ever HIV testing (at baseline); number of sexual partners; condom use; and male circumcision (MCM) or having a circumcised primary partner.

Results: Among 18,172 adults, 12,368 tested HIV-negative at baseline of these,11,232 (91%) completed a 6-month follow-up visit and 121 incident infections were observed. Among women, there was a baseline association between reporting ever HIV testing and exposure to HIV testing HBC messages (adjusted OR aOR = 3.84, 95% CI [1.18-12.55]) and reporting fewer (i.e., 1 versus 2, or 2 versus 3+) sexual partners and exposure to partner reduction HBC messages aOR = 3.02, 95% CI [1.38-6.62]). Among men, there was a baseline association between reporting fewer partners and exposure to partner reduction messages aOR = 3.38, 95% CI [1.49-7.82]. In the longitudinal assessment, men who reported baseline exposure to partner reduction HBCs were more likely to report fewer sexual partners 6 months later aOR = 1.95, 95% CI [1.26-3.00]. No significant association was found for men or women between exposure to HBCs about condoms and condom use, nor about MCM and the MC outcome (Table). Exposure to HBCs did not predict incident HIV infections.

Conclusions: These findings suggest a minimal impact of mass media HBCs on promoting low-risk behaviors among adults in Swaziland, the country with the highest global national HIV prevalence. Although both men and women appeared to respond positively to partner reduction HBC messages, avert risk behaviors at a population level appears to require additional interventions.
WEPEC308
Factors associated with never accessing North America’s first and largest supervised injection facility among people who inject drugs in Vancouver, Canada

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Background: Supervised injection facilities (SIFs) have increasingly been established in various settings worldwide. Previous studies have demonstrated the role of SIFs in reducing potential for HIV infection and other harms stemming from injection drug use. However, little is known about potential barriers to utilization of this form of health service. We therefore sought to characterize factors associated with never using Insite, North America’s first and largest SIF, among people who inject drugs (PWID) in Vancouver, Canada.

Methods: Data from two ongoing prospective cohort studies of PWID were collected between June 2006 and December 2012. Multivariable logistic regression was used to identify factors associated with reporting having never used the SIF at baseline and in all subsequent study follow-up visits.

Results: Of 1514 PWID included in the study, 496 (32.8%) were women, 920 (60.8%) were White and the median age was 46 years (interquartile range [IQR] = 39-52). The median follow up duration was 46 months (IQR = 18-71). A total of 267 (17.7%) participants reported having never used the SIF at baseline and in all subsequent study follow-up visits. In multivariable analyses, requiring manual assistance with injections (adjusted odds ratio [aOR] = 1.81; 95% CI: 1.41-2.34), unstable housing (aOR = 1.28; 95% CI: 1.02-1.61), HIV seropositivity (aOR = 1.52; 95% CI: 1.13-2.05) and residence in the neighbourhood of the SIF (aOR = 0.37; 95% CI: 0.25-0.55) were negatively associated with never using the SIF. Variables independently and positively associated with never using the SIF included unstable housing (aOR = 0.36; 95% CI: 0.24-0.53), participation in methadone maintenance therapy (aOR = 0.58; 95% CI: 0.38-0.89), residence in the neighbourhood of the SIF (aOR = 0.67; 95% CI: 0.45-0.99) and public injection (aOR = 0.67; 95% CI: 0.42-0.89).

Conclusions: Most PWID reported having ever used the SIF. However, PWID who required manual assistance with injections or used non-injection crystal methamphetamine were more likely to report having never used this service. These findings point to the need to consider amending SIF operational regulations that may create barriers to SIF service engagement for these subpopulations of PWID.

WEPEC309
No wall in Myanmar: Needle and syringe automatic taking machines (NSATM) are breaking down barriers in HIV prevention for people who inject drugs in remote rural villages

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Background: Myanmar is confronted with a dual epidemic of drugs and HIV. HIV prevalence is 28.5% (IBBS 2014) among PWID driven by sharing injection equipment. Needle Syringe Programs (NSP) have proven to reduce HIV incidence and are the vital part of HIV prevention, but are also most sensitive and misunderstood among the community and need strong local advocates. Frequent crack-downs by law enforcement and anti-drug faith-based vigilante forces more PWID ‘underground’ and exacerbates access difficulties for the traditional way of NSP through outreach. Furthermore, drug use is mainly a rural phenomenon in Myanmar with a wide geographical area to cover. To address some of these issues and increase the access to clean needles and syringes (N/S), AHRN initiated community-based Needle and Syringe Automatic Taking Machine (NSATM) whereby owners of participating shops are also nurtured as community advocates.

Description: AHRN started to implement the free distribution of clean needles and syringes through NSATMs through grocery-shops, snack shops etc in its project sites in Kachin Shan and Sagaing Regions in the...
last quarter of 2015, PWID can access clean injection equipment in the NSATM shops from early morning till night time. In most cases 7 days/week and in some shops even for 24 hours. Participating owners are provided with training, official recognition as HIV prevention service and incentives. Outreach, needle patrolling by peers and NSATM shops are collecting used N/S.

Lessons learned: From 20 NSATM shops in 2016, the number rose to 34 in 2017. The number of N/S distributed through NSATM increased from 1.2 to 2.25 million, a quarter of AHRN total N/S yearly turnover. The return rate remains low, albeit improving. The shop owners, as influential persons in their neighbourhood, are facilitating the advocacy process.

Conclusions/Next steps: NSATM in the community works, is good advocacy, changes positively the perception of NSP and is instrumental in enhancing access to sterile equipment. Moreover, focus group discussions with clients, indicates that easier access decreases sharing of injecting equipment significant. As next steps, AHRN will further expand its NSATM activities and is conducting an in-depth survey how to address low return rate.

Novel research designs for epidemiology and surveillance

WEPEC310 Correcting mortality for loss to follow-up in African ART programmes: Comparison of methods

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Background: Loss to follow-up (LTFU) makes mortality estimation in HIV-positive patients on ART challenging. Mortality among patients LTFU is typically higher than among those in care, biasing program-level estimates of mortality downwards if LTFU is ignored. Existing methods to address this problem can be classified as «ad-hoc» methods (if LTFU-outcomes are unknown) or «ascertainment» methods (if some LTFU-outcomes are ascertained). Ascertainment of LTFU-outcomes through tracing of patients or record linkage is not always feasible: «ad-hoc» methods are the only choice in many settings. We compared an «ad-hoc» method with an «ascertainment» method, and examined the influence of the proportion of outcomes ascertained.

Methods: The «ascertainment» method (Schomaker et al, Stat Med 2010) uses a pattern-mixture model, assuming a k-fold increase in the hazard of death after being lost. We calculated 3 different estimates of k based on findings from literature. We used simulated data (500 runs) and empirical data from patients starting ART 2001-2010 in Lilongwe, Malawi.

Results: Our simulated datasets included 1000 patients, 29% were LTFU and 21% of outcomes were ascertained. AHRN data included 100 000 patients on ART 2010-2015, 14% were LTFU and 9% of outcomes were ascertained. We calculated k-values based on findings from literature. We used simulated data (500 runs) and empirical data from patients starting ART 2001-2010 in Lilongwe, Malawi. For the simulated data we studied differences between true and predicted median survival times via root-mean-squared-deviation (RMSD). For empirical data we compared predicted 1-, 2-, and 3-year mortalities. In addition, we assessed the performance of the naive approach (ignoring LTFU) and the impact of the proportion of outcome ascertainment.

Conclusions: Ad-hoc methods will give more reliable results than naive estimates. Methods based on ascertainment of LTFU-outcomes will, however, be more accurate, even for low proportions of ascertained outcomes.

WEPEC311 Mapping and size estimation of hidden key populations in low-income setting

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Background: Most of the low-income countries experiencing concentrated HIV epidemic lack information about key populations (KP), including people who inject drugs (PWID), men who have sex with men (MSM), transgender (TG) and female sex workers (FSW) because they are hidden and marginalised in society and remain undocumented. There are many approaches to size estimation. Among them, mapping or census is particularly useful when local estimates are needed for planning and monitoring of programmes.

Methods: The mapping exercise among MSM, TG, FSW and PWID was carried out in 44 districts of Nepal between July and November 2016. Then mapping exercise was done collecting relevant information directly from hotspots where the key population members congregate. Key informant interviews were carried out among KP members as well as non-key population key informants who were familiar with the local situation in and around the hotspots. The key informants associated with each hotspot were interviewed to obtain the estimated number of KP who visit that hotspot on a weekly basis and to learn about the frequency of their visit to hotspots and patterns of mobility to other hotspots in the same district. The data collection was carried out. Adjustment factors (mobility adjustment, frequency adjustment and invisibility adjustment) were sequentially applied.

The data analysis procedures were based on stratification and extrapolation, to estimate the number of KP in mapped and unmapped districts and the entire country.

Results: The national estimate of FSW is minimum 43,829 and maximum 54,207. The national estimates of MSM/TG are minimum 88,009 and maximum 122,150 of which minimum 18,704 and maximum 24,216 are TG, and minimum 53,373 and maximum 67,292 are MSM. The national estimate of PWID is minimum 27,248 and maximum 34,487. Among them, minimum 24,572 and maximum 30,061 are men, and minimum 2,676 and maximum 3,926 are women.

Lessons learned: "Ad-hoc" methods will give more reliable results than naive estimates. Methods based on ascertainment of LTFU-outcomes will, however, be more accurate, even for low proportions of ascertained outcomes.

Table. Method comparison

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<th>Method</th>
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<td>Ad-hoc</td>
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* The lower the better.
* Error ART-estimation.
* Simulated data (k1, k2, k3) = (988, 11,16, 12,29); Malawi data (k1, k2, k3) = (12,20, 14,07, 15,90).

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WEPEC312
Maternal HIV does not affect children’s resiliency from birth to 5 years: Moving to a rural setting is protective

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Background: “Resiliency” is often assessed in high-income countries using cross-sectional samples based solely on children’s behavior. Using a multidimensional definition over time, this study follows a population of South African children over the first five years of life to determine the impact of Mothers Living with HIV (MLH) and a home visiting intervention on resiliency.

Methods: Almost all pregnant women (98%; N=1238; n=354 MLH) in 24 matched neighborhoods in Cape Town townships were recruited and randomized by matched neighborhood clusters to: (1) standard care; or (2) paraprofessional home-visiting.

Six assessments were conducted during pregnancy, at 2 weeks, 6, 18, 36, and 60 months post-birth with 83%-94% follow-up rates. Over time, 36% of households migrated to rural settings. At each assessment, resilient children were: within 2 SD on each WHO growth measure; within 1 SD on each measure of cognitive functioning; and not deviant on the Achenbach Child Behavior Checklist scales. Sociodemographic, maternal stressors, child protective factors, neighborhood, and intervention condition were examined as predictors of child resiliency over time using t-test for continuous variables and chi-square for categorical variables.

Results: Seventeen percent of children were resilient over time, similar across children of MLH (19%) and non-MLH (16%) and to their predictors similar to their peers without HIV. Moving to the Eastern Cape and being raised by one’s mother are protective. Examining children’s resiliency over time based on measures from multiple domains is an important methodological advance, especially in lower and middle income countries.

WEPEC313
Estimating the population size of female sex workers in Kampala, Uganda, using three-source capture-recapture

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Background: Understanding the HIV epidemic among female sex workers (FSW) is dependent on reliable population size estimates; however, no gold standard size estimation method for ‘hidden’ populations exists. Two-source capture recapture is a commonly used method, but is subject to stringent assumptions. This method utilizes a capture stage where individuals are sampled, tagged and then resampled. We piloted three-source capture-recapture (3S-CRC), which relaxes the assumption of independence of captures, to estimate the number of FSW in Kampala, Uganda.

Methods: In October 2017, FSW were sampled during three captures and “tagged” by offering them a bracelet for capture 1, and a mirror for capture 2. No items were distributed for the third capture. FSW were defined as women, 15 years or older, and selling sex to men. All captures were completed one week apart to minimize the impact of migration in and out of Kampala. FSW sampled during captures 2 and 3 were asked if they had received the distributed object(s). The proportions of FSW receiving a bracelet, mirror, or both were calculated. Total FSW estimates were produced by fitting different log-linear models to 2* contingency tables. Statistical analyses were conducted using the package CaptRec in R version 3.4.3 which fits multiple models at the same time.

Results: We sampled 962, 965, and 1417 FSW in captures 1, 2, and 3, respectively. There were 316 recaptures between captures 1 and 2, 214 recaptures between captures 2 and 3, and 235 recaptures between captures 1 and 3. There were 109 FSW captured in all three rounds. Estimates of FSW vary based on model selection shown in Table 1. The base model (M.), which did not account for time of capture or heterogeneity among FSW, was 5,282 (9000, 5500). Chao, Poisson, and Derroch model estimates were 5093(564,623), 921,27(783,1041), and 15298 (1448, 20760), respectively.

Conclusions: The most conservative estimate is the M., Chao which provides a lower bound for the FSW population in Kampala. Adding additional captures could improve model stability. We employed 3S-CRC to estimate FSW size in Kampala and provided critical denominator data for planning HIV prevention, care, and treatment programs.
Conclusions: These expressive numbers of underreported HIV/AIDS cases are people who are constantly in health facilities without being notified in the HIV/AIDS systems, and consequently, without starting their HIV/AIDS care. These findings are being used by the National Tuberculosis Programme and the DIAHV to discuss and delineate joint actions and recommendations to tackle both diseases.

WEPECE315
On estimating the number of people with known HIV positive status for the UNAIDS 90-90-90 targets

Background: In 2014, the Joint United Nations Program on HIV and AIDS (UNAIDS) and partners set the ‘90-90-90’ targets by 2020. While UNAIDS SPECTRUM Software estimates the number of people living with HIV/AIDS (PLHIV), many countries including sub-Saharan countries are facing the challenge of estimating the 1st 90. Many methods have been proposed for this purpose, some of them using cumulative number of people tested HIV+; with difficulties to account for duplication as a major setback. Our objective was to propose an alternative modelling procedure, and to discuss its appropriateness to account for duplication, especially in the absence of a unique identifier code.

Methods: Starting from a base year, the number of HIV+ tests per year was obtained by summing all positive tests for each entry point. The cumulative crude number of positive tests for a year was obtained by summing up positive tests of current and preceding years. In addition to adjusted parameters such as the false positive rate; the probability of death and the permanent emigration of a tested HIV+; we proposed two additional parameters: the probability for an HIV+ person being re-tested positive and the average number of HIV+ tests. The uncertainty of the adjusted estimate was assessed using the plausibility bounds under Poisson distribution. Sensitivity analyses were performed and a representative national survey carried out to estimate model parameters.

Results: Sensitivity analysis showed that the average number of HIV+ tests was the most important parameter that accounted for duplication. In Cameroon, SPECTRUM in 2016 estimated 560 000 PLHIV. From the ‘90-90-90’ targets, 90% (504 000) PLHIV had to know their status. Applying this model from 1987 to 2016, we estimated that the first 90 was 75.5% (380 540/504 000) i.e. 380 540 (95% CI: 379 100-381 517) PLHIV knew their status, thus a gap of 123 460 (95% CI: 122 773-124 150) PLHIV.

Conclusions: Our analysis proved that the model appropriately accounted for duplication and can be applied to countries facing similar challenges. In addition to determining the gap, efforts should be made to understand its associated factors and to implement correct measures to create HIV testing demand.

WEPEC316
Development of a nationally representative HIV patient survey: Experiences from the Positive Voices survey in the United Kingdom
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Background: As the paradigm of HIV service models increasingly shifts toward patient-centred care, the continual collection of the patient-reported outcome and experience data required to inform and evaluate these services poses a unique challenge to those responsible for routine HIV surveillance. We present the methods of a new national HIV patient survey designed to be routinely implemented as part of routine national surveillance, yielding good response rates while requiring minimal resources to run.

Description: The concept of using surveillance records as a national sampling frame was tested and proven effective through statistical sampling tests. The survey method and questionnaire was developed through iterative, participatory methods under the guidance of an Advisory Group including patient representatives, clinicians, academicians, commissioners and civil society. A phase of formative research of qualitative interviews with HIV patients and HIV clinic staff was used to identify the most feasible and acceptable methods to deliver the survey. Following this, in 2014 a pilot study was run in 90 clinics, whereby a random sample of patients attending for HIV care were recruited in clinic to complete a questionnaire. Findings from the pilot informed the national scale-up of the survey in January - September 2017, which achieved a sample of 4,416 (95% response rate) included the following key methods: - Unconditional £5 high street voucher - Choice of online or paper response formats - Research approvals which gave access to flexible workforce, particularly useful for large clinics - 6 month recruitment period - Email and post options.

Lessons learned: With sufficient investment of time, funding and synergistic working with multiple stakeholders, a good response rate is achievable for clinic-based recruitment of HIV patients to achieve generalisable national estimates of key patient health and outcome data using national surveillance records as a sampling frame. Low denominator, unconditional monetary vouchers are cost-effective to boost response rates particularly in traditionally underrepresented groups.

Conclusions/Next steps: The survey data will be cleaned, weighted and top-line findings reported in Spring 2018. Funding has been secured for a community led analysis which will explore in-depth issues relevant to people living with HIV through a series of workshops, culminating in a Community Report.
Novel research designs for HIV prevention in the era of PrEP/PEP

WEPEC317

The use and likelihood of using, PrEP among men who have sex with men (MSM) in Europe and Central Asia: Findings from a large Hornet®/ECDC survey

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Background: Currently, seven European countries provide HIV pre-exposure prophylaxis (PrEP) through public health services, although there are numerous reports of off-licence use. The objectives of this study were to examine current use of PrEP and likelihood of future use, and indicators of potential PrEP candidacy in an opportunistic sample of European MSM.

Methods: The European Centre for Disease Prevention and Control and Hornet Gay Social Network sent out a questionnaire in eight languages to users of the Hornet application between 17 June and 16 August 2017. Descriptive statistics present proportions and Chi-square analysis to determine factors associated with PrEP use.

Results: Of the 12,053 responses received from 55 countries in Europe and Central Asia, 10.7% had diagnosed HIV. Among HIV negative/untested men, 10.1% (n=1,071) were currently taking PrEP, or had done so within the previous three months. Current or recent PrEP users were significantly more likely to have taken post-exposure prophylaxis (PEP) (OR=15.66, 95% CI 13.17, 18.62) or received an STI diagnosis (OR=4.58, 95% CI 3.82, 5.44) in the previous 12 months, or engaged in chemsex within the previous 3 months (OR=7.27, 95% CI 5.49, 8.82) than those who had not. Most commonly, men obtained PrEP from a physician (34.0%), the internet (30.3%) or friends (12.1%); 33.8% had not disclosed PrEP use to their doctor. Men reporting happiness with their sex life were more likely to have taken PrEP (OR=1.77, 95% CI 1.63, 1.93). Nearly a quarter (22.0%) of those not on PrEP said they were likely to use it in the next six months, particularly if they had taken PEP or been diagnosed with an STI in the last 12 months, or engaged in chemsex in the last 3 months.


WEPEC318

Is prevalence of early HIV-infection at baseline correlated with HIV incidence: An analysis of 10 PrEP trials


Background: Due to the high efficacy of PrEP with TDF/FTC in high risk individuals, the assessment of new preventive interventions is challenging since a control arm without PrEP would be unethical. Therefore, it would be critical to have a good estimate of HIV incidence in the population. We wished to assess in an exploratory analysis using data from previous PrEP trials, whether the prevalence of early HIV infection at baseline would correlate with HIV incidence in the control arm. The goal would be to establish a surrogate of the “natural” HIV infection risk in a population enrolled in a prevention trial.

Methods: We reviewed data from 10 PrEP trials conducted among high risk MSM, young women, heterosexual men and IDUs in high and low income countries. We used HIV incidence in each trial estimated in the placebo or the deferred arm. The prevalence of early HIV infection at baseline was measured by the percentage of subjects with both a negative rapid point of care antibody HIV test and a positive plasma HIV-RNA. Data from each trial were plotted to assess the Spearman correlation coefficient (r); the regression slope was used to estimate the mean duration of early HIV infection, according to the relationship: Prevalence early infection * Incidence Rate = Duration.

Results: Data from the following placebo-controlled (Caprisa 004, Iprex, Partners PrEP, TDF-2, FACTS, Fem-PrEP, VOICE, B. IPERGAY) and immediate vs deferred (PROUD) PrEP trials were used (Figure 1). Correlation between HIV incidence without PrEP and the prevalence of early HIV-infection at baseline yielded an r coefficient of 0.79 (p=0.01). Mean duration of early HIV infection was estimated at 34 days (95% CI: 21-47).

Conclusions: This exploratory analysis, a strong quantitative relationship was found between the prevalence of early HIV-infection at baseline and HIV incidence without PrEP during follow-up. In addition, this analysis provided a good estimate of the duration of early HIV-infection. These results could be valuable for future prevention trials to evaluate natural HIV incidence and to better interpret the efficacy of the intervention tested.

Capacity building for epidemiological and prevention research

WEPEC319

Religion a structural platform for HIV intervention in Abia State Nigeria

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Background: With an estimated 3.4 million people living with HIV/AIDS, Nigeria ranks second in terms of HIV/AIDS disease burden in Africa. Although Nigeria’s epidemic is generalised, it experiences concentrated epidemics among key populations. Religious leaders are key gatekeepers in the HIV programming in Nigeria. Most Nigerians are very religious and believe greatly in the pronouncements of their religious leaders. They are either Muslims or Christians and only few Nigerians are neutral about their religions. Zinnoke Initiative for women and children therefore saw religion as a structural platform for HIV interventions in Abia State.
Description: Zinnok advocates to religious leaders in the state to include brief messages on HIV during their sermons. HIV testing services are also carried out during big festivities and positive clients are linked to HIV services sites within the state. Abia state is a predominately Christian state but there are some Muslims as well. Zinnok advocates are carried out to both Muslims and Christian bodies. Zinnok get permission from these religious bodies to have talks on HIV, prevention, treatment and care. Mothers are also educated out PMTCT services and are encouraged to register for anti-natal care. Issues about stigma and discrimination are also discussed during these programme. It also serves as an opportunity to reach the religious leaders with effective HIV awareness messages on HIV prevention, treatment and care. The religious leaders are now able to make informed decisions and guide their members rightly. They also know about the available HIV service centers. They have served as effective stakeholders in Zinnok HIV programming with the state.

Conclusions / Next steps: The religious leaders help in ensuring messages on HIV reaches their families, with their pivotal role they can reach beyond the family. Organisations should see them as partners in achieving the 90-90-90 target. There should therefore be opportunities to intentionally carry them along in order to reduce new infections & ensure more people are on treatment.

Community involvement and good participatory practice in epidemiological and prevention research

WEPEC320

Increasing antenatal care utilization among pregnant women through community mobilization in high HIV burden Local Government Areas in Benue State, Nigeria

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Background: Antenatal care represents a vital component of efforts to prevent mother to child transmission of HIV (PMTCT). Unfortunately, only 61% of pregnant women in Nigeria have a first Antenatal Care (ANC) visit and PMTCT coverage is only 30%. Low uptake of ANC negatively impacts on coverage of PMTCT services accessed in the antenatal setting. In response to this challenge, the Centre for Integrated Health Programs (CIHP), Nigeria with funds from CDC implemented a community program aimed at getting HIV positive pregnant women into the PMTCT program through ANC registration.

Description: The program took place in March and April, 2017 in four Local Government Areas of Benue state, Nigeria. A hot spot analysis was done using program data, and 24 communities were identified to have a high prevalence of 41% and above. Targeted community mobilization was carried out with participation of 51 health facilities which served these communities. Community volunteers were selected using a set criterion and worked with Local government focal persons and health workers to mobilize pregnant women. Pregnant women were informed of the program and attached incentives. Community structures were used to facilitate mobilization with announcements made through town criers and churches. Women interested in participating were directed to participating health facilities where they were registered for ANC.

Lessons learned: At the end of the four week activity, ANC registration in the 51 facilities increased by 46.9% from 2,203 in the four weeks preceding the intervention to 4,133. A total of 267 (6.4%) pregnant women who booked for ANC through the program were found to be HIV positive. Out of the HIV positive pregnant women, 186 (69.6%) were found to be previously known to be HIV positive and accessing antiretroviral therapy (ART). However, they were not accessing antenatal care and by extension, full package of PMTCT services prior to the program.

Conclusions / Next steps: Pregnant women with known HIV positive status accounted for over 50% of identified positive pregnant women not utilizing antenatal services in this setting. Targeted mobilization at community and ART clinics could improve their utilization of antenatal and PMTCT services.

WEPEC321

Perspectives on social media and technology use for HIV research among young adults in the pediatric HIV/AIDS cohort study

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Background: There has been little research regarding the preferences and willingness to use social media and other digital technologies in HIV-related research among young adults who have perinatally-acquired HIV infection (PHIV) or who were perinatally-HIV-exposed but uninfected (PHEU).

We investigated these preferences among PHIV and PHEU young adults at clinical sites participating in the Pediatric HIV/AIDS Cohort Study (PHACS) Adolescent Master Protocol (AMP).

Methods: Between 2013 and 2014, we conducted 6 focus group discussions and 6 in-depth interviews (IDIs) with PHIV young adults (n=37) and 7 IDIs with PHEU young adults at 8 clinical sites across the US. Participants were queried about their perceptions and experiences regarding social media and digital technologies, and the role they play in their demographic HIV study, and completed a brief self-administered survey about their demographic characteristics and technology use. Thematic analysis of coded transcripts was conducted using Atlasti, a qualitative data analysis software.

Results: Study participants (ages 18 - 24, 65% female, 63% Black, 38% Hispanic) reported frequent use of various social media and digital technologies in their personal lives. This use depended on a variety of factors, including norms within their social networks, access to technology and the Internet, concerns about online privacy and confidentiality, and HIV stigma.

Some participants also reported reluctance to use digital technologies for communicating about HIV research (Table 1), citing concerns of inadvertent disclosure due to device sharing and/or faulty privacy settings on social media platforms. Participant motivation to continue in HIV research was partly based on longstanding, close relationships with their pediatric providers; participants were divided in whether their trust in individual providers would increase willingness to use social media and digital technologies, providing important context for considering effective retention strategies.

Conclusions: Although personal use of social media and digital technologies among our study population was high, the willingness to use these medias within the context of HIV research varied widely, and this was due primarily to fear of experiencing HIV stigma via inadvertent disclosure of
their status. A flexible approach offering tailored options for communication and privacy among young adults participating in HIV research is essential when considering retention strategies.

WEPEC322
Recruiting and retaining high-risk Black/African-American men who have sex with men (MSM) and transgender women (TW) for HIV testing studies in New York City

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Background: New HIV cases disproportionately affect Black or African-American gay, bisexual, and other men who have sex with men (MSM) and Transgender Women (TW) in New York City (NYC). In 2016, 71% of new HIV diagnoses among men were MSM; 40% were Black or African-American. Increasing consistent HIV testing is crucial to HIV prevention, but the knowledge base is not well-developed.

Description: Project ACHIEVE of the New York Blood Center recently conducted two studies (“TRUST” and “All About Me”) designed to test interventions to increase HIV testing and/or consistent testing among young, Black/African-American, at-risk MSM and TW. TRUST required participants to HIV test with a friend. We describe here methods used to recruit successfully the samples (N=613) and retain >85% of the samples over 6- to 12-month follow-up periods.

Lessons learned: The greatest facilitators of recruitment included: consistent presence of key study team members; making strong, personal connections in the House/Ball and Kiki communities face-to-face and on-line (Facebook) and via ball category sponsorship; transforming the clinic site into a safe and resource-rich space where material and support materials were met; adapting study procedures, if enrollments decrease: holding a number of “open houses” at the site and local gay spaces where enthusiasm for research was generated; engaging a simple and remunerated referral system; reimbursing staggered enrollment steps; and offering a range of reimbursement options (cash, gift card, etc.). Barriers to recruitment included difficulty finding “trusted” friends and overly-complicated eligibility criteria and enrollment procedures for TRUST. Retention requires intense staff time and effort. Major barriers include unstable housing; frequent change in contact information. Facilitators include using social media to stay in close contact. In both recruitment and retention, it was crucial that staff reflected the focal community, which built trust and credibility.

Conclusions/Next steps: Recruiting and retaining at-risk samples is challenging and context-specific. The TRUST and All About Me teams met enrollment and, to date, retention targets by being flexible, sensitive and creative. Most important is treating all participants as individuals and with respect, kindness and patience. Consistency in staff contributes to success, as does constant analysis and adjustment of methods used.

WEPEC323
A large-scale study on the sexual health of young people aged 12 to 25 in the Netherlands: The added value of a participatory action research approach

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Background: Participatory action research (PAR) is a powerful strategy to advance both science and practice by conducting the whole research process in partnership with stakeholders. Participation of stakeholders creates shared ownership of knowledge and commitment towards action based on the results. Sex under the age of 25 is a large-scale study on the sexual health of youngsters aged 12 to 25 in the Netherlands based on the principles of PAR.

Description: More than hundred stakeholders from research, practice and policy of sexual health promotion were included throughout the entire research process: from sexologists to youth experts. Stakeholders were involved by means of interviews, surveys, mailings and a work conference. Based on their input the questionnaire was adapted whereby stakeholders needs for specific insights into youngsters sexual health were fulfilled. Moreover, fifteen of the twenty-five Municipal Health Services (MHS) invested in expanding the research within their own region for local representative data. The collaboration with the MHS have led to a total number of 20,500 youngsters participating in Sex under the age of 25. In collaboration with stakeholders the most important outcomes were identified and following actions within their field of sexual health promotion were formulated. These actions were integrated in a national widely supported action plan to improve the sexual health of youngsters.

Lessons learned: The participation of multiple stakeholders made it possible to capture more aspects of sexual health promotion and broadened the perspective of the researchers. The collaboration with the MHS have led to a large scope of results: not only serving the national level but creating local insights as well. Results which enables the regions to adjust sexual health promotion to local needs.

Conclusions/Next steps: In contrast to many other studies is, by use of the PAR-approach, a bridge created between science and practice. Enabling professionals to target their action, by including their needs for specific insights, leads to a more tailored strategy of sexual health promotion for youngsters in the Netherlands. The unique participating role of the MHS created the possibility to further increase the effectiveness of these actions based on local data and by local agents.

WEPEC324
What women want: Branding a new HIV prevention vaginal ring using a user-centric design approach

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Background: As an increasing number of HIV prevention medicines are developed, the challenge lies not only in their supply, but ensuring uptake. Uptake is often influenced by the branding of medical products, however, end-users are not always consulted. The International Partnership for Microbicides is submitting the Dapivirine Vaginal Ring (DVR) for regulatory approval. To ensure that the branding is culturally appropriate, acceptable and appealing, we tested potential names and packaging designs with end-users.

Methods: We undertook focus group discussions (FGDs) in high HIV burden countries for both the naming (Malawi, South Africa, Uganda and Zimbabwe) and packaging studies (South Africa and Uganda).
FGDs were conducted in rural and urban areas with women aged 18-45 years. In total, 507 end-users were consulted. Eight names and six packaging designs were tested by participants ranking their top preferences and participating in an open discussion. Results were analysed thematically.

Results: There were names that were found to be culturally inappropriate, had negative connotations or could be misinterpreted for another product and were thus disliked by participants across all countries. Names that were liked across the countries were those that referred to the drug or the ring. A difference in packaging preferences was noted between countries. In South Africa, groups attached importance to the colour and size of the logo, and preferred the bright and bold packaging, whereas participants in Uganda preferred the less colourful, subtle, conservative packaging. The Ugandan participants also stated the importance of a design that would be recognisable and accessible to those with less formal education. In both countries, participants emphasised the need for a smaller box that would fit into their purse.

Conclusions: Branding preferences vary between countries due to cultural norms, social context and language differences. Prior to introducing new medical products, consultations with end-users are crucial for up-to-date testing of brand names and packaging designs. Branding must be assessed in the local cultural context to ensure that it resonates with cultural norms, social context and language differences.

Harnessing big data for epidemiological research/digital epidemiology

**WEPEC325**

Supervised machine learning to predict HIV outcomes using electronic health record and insurance claims data.

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Background: The HIV care continuum in the US is still short of achieving the UNAIDS target. Learning predictors for HIV outcomes may facilitate interventions that improve patient care. We aimed to learn predictors for viral suppression, retention, linkage to care and antiretroviral therapy (ART) adherence and discuss the application of machine learning methods to predict HIV patient outcomes and opportunities for HIV care improvement derived from HIV outcome predictors.

Methods: We selected HIV patient cohorts from a set of electronic health records (EHR) data and administrative claims data from Optum’s de-identified Integrated Claims-EHR dataset (2007-2016). We measured patient viral suppression, retention, linkage to care and adherence through outcome measures ranging from 2062 to 22649 patients (Table 1). Outcome measures were determined from prescription refills, diagnostic codes, lab results, and patient encounters. We extracted demographic, medical (comorbidity, medications, provider specialty) and encounter features from patient data. We used natural language processing methods to learn clinical text features, which include phrases recorded in provider written patient notes.

To further explore data derived from clinical text, we built a word embedding that visualizes co-occurrence patterns of clinical text (Figure 1). We applied supervised machine learning methods via penalized logistic regression to predict outcome measures.

Results: Our best model predicts HIV suppression with a 0.84 AUC (Table 1). We compared model AUC values generated using bootstrapped samples from a held out test set. Models perform best with the complete ensemble of demographic, medical, and encounter features. The most significant features in predicting outcomes are the clinical text features derived with natural language processing of the EHR data. Examples of highly predictive clinical terms for HIV suppression include “migraine,” “n/v,” “negative anxiety,” and “vomiting.”

Conclusions: This study achieved moderately accurate prediction for HIV outcomes by applying natural language processing and machine learning to EHR and claims data. We suggest that reliable prediction for HIV outcomes may be held in the unstructured patient notes, and can be derived from natural language processing and machine learning. We also demonstrate the validity of using these real world data for secondary use.

**WEPEC326**

A two-stage approach to quantify time with suppressed viral load in resource-constrained settings.

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Background: Sustained viral suppression is a goal of HIV care and treatment programs. However, in resource-constrained settings, collection of viral load measurements may be logistically challenging and prohibitively expensive. Accordingly, viral load testing is often limited to patients displaying signs of treatment failure, rather than extended to all patients as part of a routine monitoring strategy, and standard methods to estimate measures related to viral suppression may be misleadingly low.

**Table 1. Model Results**

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<th>Models</th>
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<th>AUC</th>
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<th>Patient Count</th>
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</table>

**Figure 1. Viral Load Suppression Clinical Text Embedding**

Utilising clinical data systems for epidemiological and behavioural research

**WEPEC326**

A two-stage approach to quantify time with suppressed viral load in resource-constrained settings.

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Methods: We present a two-stage design to estimate the average time patients in HIV care and treatment programs spend with a suppressed viral load in the Dominican Republic, where viral load is sometimes available through a national HIV patient monitoring system. The proposed approach uses statistical weighting to combine data available through routinely collected clinical records (stage 1) with data from a validation substudy (stage 2) that measured viral loads on a sample of patients. Under the USAID/PEPFAR-supported, FHItogo-led LINKAGES Project, we applied this approach to compare the time suppressed between key populations and others in clinical care in the Dominican Republic.

Results: The target population included 12,113 patients who entered HIV care and treatment in the Dominican Republic between 1 June 2013 and 25 January 2017. The validation study included additional viral load information for 1,055 of these patients. Over the months after entry into care, patients spent an average of 23 months on treatment. Using the routinely collected viral load data only, we estimated that 65% of this time (15 months) was spent with a suppressed viral load (<200 copies/mL). Using the proposed two-stage approach, we estimated that 84% of the time on treatment was spent virally suppressed (19 months). On average, female sex workers spent 1.1 (95% CI: -1.4, 3.7) fewer months suppressed than other women, and men who have sex with men spent 1.7 (95% CI: -0.7, 4.2) fewer months suppressed than other men.

Conclusions: In resource constrained settings, routinely collected viral load data are typically not missing at random. The proposed approach offers a principled and cost efficient means to account for missing viral load data when estimating viral suppression in these settings.

Conceptualizing social and structural factors and their impacts

**WEPEd327**

**Sexual objectification as a predictor of willingness to engage in sex with HIV-positive partners**

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**Background:** Existing literature suggests that high levels of HIV-related stigma may serve as a protective factor against HIV transmission by lowering a person’s risk tolerance when they encounter potential sexual partners who are HIV positive. In the age of post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) in the United States, HIV stigma levels seem to be lowering while engagement in risky sexual behaviors seem to be on the rise (Hess, Crenaj, Rose, Purcell, & Paz-Bailey, 2017). Experiences of being sexually objectified have been implicated in the rise of risky sexual behavior (Watson & Dispenza, 2014). Yet, there is limited research on objectification theory as it applies to men who have sex with men (MSM) and HIV. The present study examines the role of inter-personal sexual objectification on willingness to engage in sex when controlling for HIV-related stigma.

**Methods:** Data were collected via M-Turk using online survey software. The sample included 294 MSM aged 18 and older from across the United States. Participants completed the AIDS-Related Stigma Scale (ARSS), the Interpersonal Sexual Objectification Scale (ISO), and questions about sexual behavioral intentions with a potential sexual partner with HIV. A modified version of the City Stress Inventory, a measure of perceived neighborhood disorder and violence, police violence, and harm reduction impact was assessed through two questions about intent to carry safer injection materials or condoms due to fear of police violence. We conducted bivariate analyses to assess the relationship between a modified version of the City Stress Inventory, a measure of perceived neighborhood disorder and violence, police violence, and harm reduction practices.

**Results:** Two thirds (68%) of the men and 40% of the women reported lifetime experiences of police harassment, and 50% of men and 20% of women report experiencing physical abuse by a police officer. Men reported consistently higher levels of police violence as well as city stress than women. Higher levels of neighborhood stress were correlated with higher rates of witnessed and experienced police violence. There is a statistically significant relationship between city stress and fear of carrying paraphernalia (0.000), and a border significant relationship between city stress and fear of carrying condoms (p = 0.08). Police violence and neighborhood stress impact the health and well-being of Black communities. Both witnessing and experiencing police violence in the past six months were significantly related to reducing injection and condom related harm reduction behaviors among Black men and women. Further work on police violence in relation to - and as a form of - neighborhood stress is critical to understand its impacts on harm reduction and public health.

**WEPEd328**

**Geographies of risk: Police violence and neighborhood stress among Black men and women in the San Francisco Bay Area**

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**Background:** Police violence and HIV are health crises that disproportionately affect Black men and women in the United States. Little is known about the impacts of environmental stress on these health problems. This study investigates if and how police violence operates as a neighborhood level stressor that impacts the physical health and well-being of Black men and women, including uptake of harm reduction behaviors.

**Methods:** Quantitative data were collected between October 2015 and February 2017 as part of an HIV prevention study with a mixed HIV status sample of bisexual Black men and Black women in the San Francisco Bay Area (N=231). We developed a Police Perceptions measure to assess experiences of harassment and physical violence by police officers, perceptions of law enforcement, and decision making in daily life. Harm reduction impact was assessed through two questions about intent to carry safer injection materials or condoms due to fear of police violence. We conducted bivariate analyses to assess the relationship between a modified version of the City Stress Inventory, a measure of perceived neighborhood disorder and violence, police violence, and harm reduction practices.

**Results:** Two thirds (68%) of the men and 40% of the women reported lifetime experiences of police harassment, and 50% of men and 20% of women report experiencing physical abuse by a police officer. Men reported consistently higher levels of police violence as well as city stress than women. Higher levels of neighborhood stress were correlated with higher rates of witnessed and experienced police violence. There is a statistically significant relationship between city stress and fear of carrying paraphernalia (0.000), and a border significant relationship between city stress and fear of carrying condoms (p = 0.08). Police violence and neighborhood stress impact the health and well-being of Black communities. Both witnessing and experiencing police violence in the past six months were significantly related to reducing injection and condom related harm reduction behaviors among Black men and women. Further work on police violence in relation to - and as a form of - neighborhood stress is critical to understand its impacts on harm reduction and public health.

**WEPEd329**

**Identifying social vulnerability profiles and their association with risk behaviors and HIV status among MSM in Mexico City**


**Background:** Men who have sex with men (MSM) are disproportionately affected by the HIV epidemic in Mexico, with a prevalence of 17% compared to 0.15% in the general population. Of MSM living with HIV, 68% are unaware of their status and responsible for 78% of new infections in this population. Social vulnerability is one of the main factors that prevents MSM from accessing HIV testing and counseling (HTC) services. This study aims to identify the association between social vulnerability profiles and engaging in risk behaviors, getting tested, and acquiring HIV among Mexican MSM.
Methods: From August 2016 to February 2017, 988 MSM were recruited in Mexico City through three community-based recruitment strategies. They completed an electronic, tablet-based survey and were invited to get tested for HIV. We used latent class analysis to identify social vulnerability profiles of MSM based on a combination of socioeconomic status, social support, and self-acceptance of sexual identity. Then, we used a multivariable model to analyze the effect of belonging to each profile on risk behaviors, time since most recent HIV test, and HIV sero-status, while adjusting for the posterior probabilities of belonging to the other profiles.

Results: We identified three profiles of social vulnerability among our sample, with a high level of inter-class differentiation (entropy=0.82). The “Self-stigmatizers” had low acceptance of their sexual orientation and were less likely to get tested for HIV (AOR=1.52, p<0.01). The “Not vulnerable” had higher education, stronger social networks, and higher self-acceptance of their sexual orientation.

Conclusions: Social vulnerability is known to be a major impediment to seeking HTC services among MSM. Our results suggest that there are heterogeneous types of social vulnerability among the MSM community in Mexico City, and that each profile is associated with specific risk behaviors. Future HTC programs should address these distinct manifestations of social vulnerability in the community in order to more effectively reduce stigma, risky sexual behaviors, and, ultimately, HIV prevalence.

**WEPED330**

Paths from food insecurity to HIV treatment outcomes in a cohort of women in the us


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Background: Food insecurity (FI) contributes to HIV-related morbidity and mortality, but no longitudinal research has formally tested the mechanisms through which FI negatively impacts HIV-related health, particularly among women. This study tested the hypothesis that FI leads to poor HIV clinical outcomes through nutritional, mental health, and behavioral paths following our previously published conceptual model.

Methods: We analyzed longitudinal data from the Women’s Interagency HIV Study, a multisite prospective cohort study of women with HIV and demographically similar HIV-negative women. Data on 8,225 observations from 1,803 HIV-positive women on antiretroviral therapy (ART) were collected biannually from 2013-2015. FI was measured with the US Household Food Security Survey Module. Outcomes included: 1) viral non-suppression; 2) CD4 cell counts (cells/mm³); and 3) physical health status (SF-36 scale). We tested the nutritional (BMI) or fruit /vegetable intake; mental health (depressive symptoms by CES-D), and behavioral (self-reported ART adherence) paths for all outcomes controlling for covariates using path analysis. We calculated the indirect effects by taking the products of the regression coefficients from adjusted mediation models that included the strongest mediator from each path, after first confirming the assumption of no interaction between FI and the mediators.

Results: Very low food security was associated with unsuppressed viral load, lower CD4 cell counts, and worse physical health (p<0.05 for all) (Table 1). For viral non-suppression, the nutritional and behavioral paths accounted for 21% and 31.8% of the total effect of FI, respectively, with no significant mediation by mental health. For CD4 cell count, the mental health and behavioral paths accounted for 15.2% and 16.4% of the total effect, respectively, with no effect from the nutritional path. For physical health status, the only significant mediator was depression, accounting for 59.8% of the total effect.

Conclusions: FI influences HIV clinical outcomes via different paths depending on the outcome. ART adherence was the strongest mediator of viral non-suppression, while both adherence and depression mediated the path from FI to CD4 count. Nutritional factors played a small role. These results suggest that FI interventions should target FI and its behavioral and mental health mechanisms as a means to improve HIV clinical outcomes.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Effect</th>
<th>Total % Effect</th>
<th>Total % Total Effect</th>
<th>Total % Total Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viral non-suppression, Adjusted OR (95% CI)</td>
<td>1.66*** (1.27 - 2.18)</td>
<td>-21.7* (8.37)</td>
<td>-0.51*** (0.04)</td>
<td></td>
</tr>
<tr>
<td>CD4 Cell Count (cells/mm³)</td>
<td>0.008 31.8</td>
<td>-2.76 15.2</td>
<td>-0.195 59.8</td>
<td></td>
</tr>
<tr>
<td>Physical Health Status (β (SE))</td>
<td>0.122 31.8</td>
<td>-2.97 16.4</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

(Table 1: Associations between food insecurity (FI) and HIV clinical health outcomes and test of mediating paths from FI to HIV clinical outcomes)
WEPED331
Increasing severity of food insecurity is longitudinally associated with smoking among women with and at risk for HIV in the United States

1) Concurrent, past, and persistent food insecurity is associated with current cigarette smoking, and that 2) HIV seropositivity would modify this association.

Methods: Food security (FS), measured using the US Household FS Survey Module, was collected bimannually from 2013-2015 among participants in the Women’s Interagency HIV Study, a multicohort study of US women with HIV and demographically similar women without HIV. Current smoking status was assessed by self-report (non-smoker vs. smoker) at each visit. Longitudinal logistic multiple regressions with random effects were used to model the association between 1) concurrent and 2) persistent (concurrent and past) FS status and smoking status, adjusting for potential confounders.

The odds ratio for persistent FS was calculated by exponentiating the sum of the regression coefficients at the current and past (i.e. one previous visit).

### Results:

#### Table 1: Longitudinal associations between concurrent and past food security status (FS) and current smoking

<table>
<thead>
<tr>
<th>Concurrent FS (High ref)</th>
<th>Adjusted Odds Ratio</th>
<th>Concurrent+lag (1,2) Adjusted Odds Ratio</th>
<th>Concurrent+lag (1,2) 95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal FS</td>
<td>1.74**</td>
<td>2.38***</td>
<td>(1.46 - 3.88)</td>
</tr>
<tr>
<td>Low FS</td>
<td>2.33***</td>
<td>2.72**</td>
<td>(1.31 - 5.94)</td>
</tr>
<tr>
<td>Very Low FS</td>
<td>2.41***</td>
<td>2.58**</td>
<td>(1.31 - 5.15)</td>
</tr>
<tr>
<td>Past/Lagged FS (High ref)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Marginal FS</td>
<td>–</td>
<td>2.43***</td>
<td>(1.52 - 3.88)</td>
</tr>
<tr>
<td>Low FS</td>
<td>–</td>
<td>1.66</td>
<td>(0.96 - 2.88)</td>
</tr>
<tr>
<td>Very Low FS</td>
<td>–</td>
<td>2.68**</td>
<td>(1.39 - 5.17)</td>
</tr>
</tbody>
</table>

** *** p<0.001, ** p<0.01, * p<0.05; (1) Models also adjusted for HIV status, age, race, income, employment, marital status, education, and child dependents. (2) Persistent FS = \( \text{Marginal FS \times Low FS} \). Estimates and p-values were obtained through post-estimation commands for linear combinations in Stata.

The odds ratio for persistent FS was calculated by exponentiating the sum of the regression coefficients at the current and past (i.e. one previous visit).
**WEPED333**

Social determinants of health and self-rated health status: A comparison between women with HIV and women without HIV from the general population in Canada

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**Background:** Women with HIV continue to face socio-structural barriers to consistently engage at every step of the HIV care cascade. These barriers have potential to negatively impact the health and well-being of women with HIV and undermine attempts to promote HIV care programs. We compared social-structural determinants of health and self-assessed health status between women with HIV and expected general population values.

**Methods:** We estimated multiple measures of social-structural determinants of health and self-rated health status using the 2013–2015 cross-sectional data from the Canadian HIV Women’s Sexual and Reproductive Health (CHIWOS) that enrolled 1,422 women with HIV aged ≥ 16. The prevalence of these determinants were then compared with expected estimates from 26,831 assumed HIV-negative women of the general population from the 2013-2014 Canadian Community Health Survey (CCHS), standardized to the age/ethnic/racial group distribution of the CHIWOS sample. Standardization proportion differences (SPD) and 95% confidence intervals CI were reported.

**Results:** A higher proportion of women with HIV compared with estimates expected based on the age/ethnic/racial-standardized assumed HIV-negative women reported annual personal income < $20,000 (70.3% vs. 28.1%; SPD 42.2% [95% CI 39.4, 45.1]), indicating that 42.2% of women with HIV experienced this low income. In excess of what would be expected of Canadian women of similar ages and ethnic/racial background.

Additionally, a higher proportion of women with HIV reported severe food insecurity (54.1% vs. 42.2%; SPD 11.9% [95% CI 10.1, 13.6]), poor perceived social support (30.3% 29.1%; SPD 2.2% [95% CI 22.2, 32.3]), and frequent racial (46.4% vs. 9.6%; SPD 36.8% [95% CI 31.9, 41.8]) and gender (53.2% vs. 8.4%; SPD 44.8% [95% CI 42.6, 51.0]) discrimination. Finally, women with HIV reported a higher proportion of poor/fair health status than the general population of women (28.8% vs. 12.6%; SPD 16.2% [95% CI 14.4, 17.6]).

**Conclusions:** Women with HIV experience greater social-structural inequities than in excess of what would be expected. These findings have implications for the development of targeted social service delivery interventions and programming to address basic needs of women with HIV and reduce the magnitude of inequity they frequently experience in their everyday life.

**WEPED334**

HIV intervention in dangerous times: Examining the impact of the counter-narcotics campaigns in the Philippines-implications for human rights, harm reduction, and blood-borne virus control

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**Background:** Starting 2007, the Integrated HIV Behaviour and Serologic Survey of the Health Department of the Philippines started to include numbers for intravenous drug use. The rise in numbers was consistent until the last survey in 2016. This brought attempts to create harm reduction and other HIV intervention programs in areas with high concentration. However, in 2016, Philippine Pres. Rodrigo Duterte introduced war against drugs as a central policy. This war became a threat to identified drug users in the country.

**Methods:** This medical anthropological study involved a review of the present policies that serve as the circumstances surrounding HIV intervention in the lens of drug use. Done in 2017 to 2018, with interview participants from Metro Manila, the study’s methodology is ethnographic in nature, allowing key informant interviewees and group discusants to illustrate their narratives and nuances in depth and within focus through a thematic analysis. Interviewees include persons who use drugs, HIV interventionists, public official who engages in the execution of a localized war on drugs, and non-government and community-based organizations.

**Results:** All of the interviewed persons who engage in intravenous drug use inject methamphetamine as their primary choice. Their drug initiation is cannabis. All, however, do not consider cannabis as a drug used for sexual activity. The recurring theme as reason for drug use is ‘stress’. This is further examined to include stresses from unjust work conditions, from a dysfunctional family, from cyclical poverty, from an abusive relationship, from gender-based stigma and discrimination, from an HIV status, and from other social exclusions. These stresses are brought about by systemic political situations perpetuated by flawed policies of the country. All of the interviewed persons who use drugs agree that the war against drugs does not stop drug use. It only makes healthcare intervention inaccessible to them.

**Conclusions:** The war against drugs is not stopping drug use. It only pushes persons who use drugs into hiding, making healthcare interventions, including those HIV-related, disconnected and inaccessible. This also leads distrust among the community, and towards their supposed healthcare providers. The war is a barrier and is an obstacle towards achieving zero-stigma and zero-discrimination.

**WEPED335**

Multilevel exposures and mediators of the relationship between schooling and risk of incident HSV-2 infection in young women enrolled in HPTN 068

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**Background:** Our prior research from South Africa found that partner selection mediates the relationships between school attendance and incident HIV and HSV-2 infection, but little is known about other pathways. This study explores whether certain individual-, household-, and community-level factors account for the protective effect of schooling on incident Herpes Simplex Virus Type 2 (HSV-2) infection in young women.

**Methods:** We use longitudinal data from a randomized controlled trial of young women in rural South Africa (HPTN 068) collected during the main trial. We used discrete time survival models to estimate the three-year hazard ratio for the effect of distinct measures of schooling on incident HSV-2 infection, overall and through different pathways. Exposures of schooling included low attendance in school (≤ 80% of school days), household SES (quantiles of assets), parental education and community years of education. The natural indirect effect and natural direct effect were estimated as measures of mediation. Potential mediators included HIV knowledge, hope for the future, sex in the last 12 months.
unprotected sex in the last 3 months and age-disparate relationship (>5 years). Additionally, we explored interactions between the individual-, household-, and community-level exposures of schooling.

**Results:** Low attendance in school (≤80% of school days) was associated with incident HSV-2 infection (HR 3.4; 95% CI: 1.93, 5.87) while other household and community exposures of schooling were not. We did not find interactions between any of the multi-level exposures of schooling. The mediators age-disparate relationship, hope for the future and sex in the past 12 months were associated with HSV-2 infection but HIV knowledge and unprotected sex were not. Indirect effects were significant for sex in the last 12 months and age-disparate relationship.

**Conclusions:** Low attendance in school was associated with a higher hazard of incident HSV-2 infection and partnership level factors were the most important mediators. The relationship between school attendance and HSV-2 was mediated primarily by having an age-disparate relationship, and sex in the past 12 months. Given the protective effect of individual school attendance, focus should be on interventions to keep girls in school and influence behaviors related to exposure to risky partners.

**WEPED336**

**Rural men who have sex with men (MSM) in the United States: Structural stigma and HIV risk**

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**Background:** The nature of the HIV epidemic in the United States has changed with a shift toward rural areas, where sexual minority populations are dispersed and health care resources are limited. Concurrent socioeconomic factors, geography, and cultural context are coalescing for sexual minorities living in rural communities resulting in individuals at risk for HIV infection. Rural communities are typically more culturally conservative, and therefore may be less welcoming to openly lesbian, gay, bisexual, and transgender individuals. Moreover, the socioeconomic conditions of rural communities mean that most individuals born into these rural communities are unable to move to areas where they would be accepted.

**Methods:** We recruited 40 gay and bisexual men, ages 22 to 66, residing in rural Oklahoma for in-depth qualitative sexual health interviews. Through this inductive approach, we explored experiences with individual- and community-level stigma, patterns of sexual health-seeking behaviors, and determinants of sexual risk.

**Results:** Participants indicated a lack of desire to discuss their sexual behavior or sexual orientation with peers, family, or medical providers due to rejection concerns. Participants discussed how these factors shaped their attitudes towards HIV/AIDS, status disclosure with sexual partners, and their uptake of HIV/STI screening. Participants described a stigmatizing social environment and less access to quality, LGBT-sensitive medical care within rural communities, and perceived these as substantial barriers to enhancing individual- and community-level sexual health. Finally, structural issues, including lack of comprehensive sexual health education, institutional practices, and state policies within Oklahoma were noted.

**Conclusions:** Greater attention is needed to build a more comprehensive understanding of the sexual health of marginalized populations living in rural areas of the United States in order to advance the HIV care continuum. Addressing stigma situated across ecological levels in an effort to improve sexual health remains necessary. The combination of both individual- and environmental/policy-level interventions provide the greatest opportunity to achieve substantial changes in health behaviors and health outcomes. Without this, social determinants may continue to negatively influence health outcomes among this population which remains underserved and under resourced.

**WEPED337**

**Female sex work venue characteristics and HIV risk behaviors in two Mexico-US border cities: A latent class analysis**

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**Background:** Research increasingly recognizes the role that the social and built environment play in shaping health. For female sex workers (FSW), the context in which women work is an important predictor of HIV/STI risk behaviors and exposure to violence. This study employs Latent Class Analysis (LCA) to identify profiles of risk associated with FSW venues in Tijuana and Ciudad Juarez, Mexico.

**Methods:** Data came from a longitudinal cohort of 603 FSW (Tijuana=301), Ciudad Juarez=302) selected through modified time-location sampling within venues. LCA identified patterns of venue characteristics (e.g. torn-down buildings, presence of alcohol or drugs, policing) and multinomial logistic regression was used to identify sociodemographic, behavioral and health indicators associated with belonging to a particular venue class, separately for the two cities (controlling for age and education).

**Results:** The mean age of the sample was 34. Three classes of FSW venues were identified, corresponding to levels of violence (e.g. violence against FSW, street violence), drug activity (e.g. drug use/sales, presence of carteles), and police activity (e.g. police as clients, FSW arrest, police patrols). Low disorder (39%), medium disorder (34%), and high disorder (28%). In multivariable regression, relative to lower disorder environments, working in high disorder venues was associated with an increased odds of experiencing abuse by a client (Adjusted Odds Ratio (aOR)=4.29, 95% Confidence Interval (CI)=1.47-12.58). Injecting heroin in the past 30 days (aOR=9.77, CI=2.09-45.59), having clients under the influence of drugs (aOR=3.06, CI=1.37-6.83) and using drugs with clients (aOR=1.16, CI=0.58-2.34) in Ciudad Juarez. In Tijuana, working in high disorder venues was associated with an increased odds of having US clients (aOR=5.04, CI=1.52, 16.68); having drunk clients (aOR=9.82, CI=2.77-34.79), drinking alcohol (aOR=5.22, CI=1.4-19.45), experiencing physical sexual abuse by a client (aOR=4.81, CI=1.35-17.18), and arrest (aOR=4.35, CI=1.24-14.69).

**Conclusions:** In two border cities, FSW venues were characterized by different levels of disorder in the social and built environment. Working in venues with higher levels of disorder, as indicated by more violence, drug activity, and police activity, was associated with factors driving HIV/STI risk, suggesting a need for interventions that reshape the HIV risk environment by addressing FSW working conditions.

**WEPED338**

**Pathways from multiple syndemic conditions to HIV vulnerabilities and protective factors among transgender, gay, lesbian and bisexual persons in Jamaica**

C.H. Logie1, Y. Wang1, N. Marcus1, K. Levermore2, N. Jones1, T. Ellis2

1University of Toronto, Toronto, Canada, 2Jamaica AIDS Support for Life, Kingston, Jamaica

**Background:** Transgender, gay, lesbian, and bisexual (TGLB) persons in Jamaica experience pervasive stigma, structurally reinforced by the criminalization of same sex practices and a lack of human rights protections. Syndemics describe the co-occurrence, and potential interaction, of multiple psychosocial and structural factors that may elevate HIV vulnerabilities. We examined pathways from multiple syndemic conditions...
to HIV vulnerabilities, and explored social support and resilience as mediators in this relationship, with TGLB persons in Jamaica.

Methods: This community-based study involved a cross-sectional survey with a peer-driven sample of gay and bisexual men (n=599), lesbian and bisexual women (n=205), and transgender women (n=137). In Kingston, Ocho Rios, and Montego Bay, Jamaica. We examined syndemic conditions (depressive symptoms, binge drinking, adulthood experiences of violence, childhood sexual abuse), HIV vulnerabilities (condom self-efficacy, lifetime sexual partners, perceived HIV risk), and protective factors (social support, resilience). We conducted structural equation modelling using maximum likelihood estimation methods to test the direct effects of the number of syndemics on HIV vulnerabilities, and the indirect effects via social support and resilience, adjusting for sociodemographics.

Results: The mean age of participants (n=910) was 26 years (SD=4.42). Most (86.66%, n=786) reported depressive symptoms in the past two weeks. Approximately one-fifth (22.61%, n=205) reported binge drinking in the past three months. One-third (32.45%, n=294) reported childhood sexual abuse and one-fifth (20.77%, n=188) adulthood violence. Most (92.2%) reported at least one syndemic condition; nearly half (47.7%) endorsed two or more. The direct paths from the number of syndemics to lifetime sexual partners (ß=0.155, p<0.001) and perceived HIV risk (ß=0.176, p<0.001) were significant, accounting for the mediation effects of social support and resilience. Social support and resilience mediated the association between the number of syndemics and condom self-efficacy; social support accounted for 28.24% of the total effect of syndemics on condom self-efficacy, and resilience accounted for 57.65% of the total effect.

Conclusions: This research highlights the salience of a syndemics approach to understanding HIV vulnerabilities among TGLB persons in Jamaica. Findings can inform multi-level interventions that address psychosocial (depression, substance use), structural (violence), and protective (resilience, social support) factors, to advance the HIV prevention cascade in Jamaica.

WEPE D339

Yes’ to recreational drugs but ‘no’ to life-saving medications - unpacking paradoxical attitudes about treatments to improve medication adherence: Key findings

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Background: Despite the well-known life-preserving benefits of anti-retroviral therapy (ART), some people living with HIV in Australia are declining treatment while still being prepared to use potentially dangerous recreational drugs (RDI). Our research sought to unpack and understand this paradox and to gain insights into the core beliefs regarding HIV, ART, complementary and alternative medicines (CAM) and RD that interplay in people’s health management decisions. This knowledge will enable models of care to be developed that recognize and address specific needs, optimise outcomes, and ultimately progress Australia towards eradicating HIV from the domestic landscape.

Methods: In-depth interviews were conducted with adults living with HIV in the Queensland and surrounding regions of Australia between March 2016 and December 2017. Interviews explored knowledge and beliefs about HIV, ART, CAM and RD. Data were audio recorded, transcribed and analysed using a ‘grounded theory’ approach. Ethical approval: HREC / 15 / QGC / 256.

Results: Forty people aged between 24 and 76 years were recruited to the study. At the time of interview, they had been diagnosed with HIV between 1 month and 31 years. Sixteen reported regular RD use, 16 used CAM regularly, and all 40 reported ART use. Participants’ narratives revealed inaccurate knowledge (e.g. transmission of HIV can occur via mosquito bites and sharing razors), along with stigmatising and prejudicial beliefs that, for some, became self-directed post-diagnosis. The pros and cons of RD, as such relief from reality, and perceived safety of CAM, were often contrasted by concerns regarding ART toxicity, and financial, emotional and physical burdens believed to be imposed by therapy. The perceived burden of RD appears to be a strong motivator for declining, while positive views towards CAM and RD appear to justify use particularly to combat increasing negative states of mind.

Conclusions: Decisions regarding managing HIV are complex and appear to be influenced by participants’ knowledge and beliefs about HIV, ART, CAM, RD and the environment which they live. Optimal models of care for people with HIV must address gaps in knowledge, address stigmatising beliefs and take into account personal circumstances, alongside reservations and desires for managing life with HIV.

WEPE D340

“The sky is the limit; I am going there”: Exploring hope among young women receiving a conditional cash transfer in rural South Africa

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Background: Young women in South Africa face elevated risk of HIV infection compared with male peers. This is exacerbated by structural factors, including poverty, that shape HIV risk behaviours. Conditional cash transfers (CCT) may provide economic strengthening to young women and mitigate their risk for HIV; however, there is limited understanding of the pathways through which this occurs. Hope, which is related to environmental stressors like poverty, motivates future-oriented behaviour and is therefore critical in HIV prevention. This analysis explored hope as a potential pathway through which CCT influences young women’s behaviours and HIV risk.

Methods: A qualitative study was embedded in a randomized CCT trial in rural South Africa (HPTN 068). The study enrolled young women aged 13-20 and cash was conditional on school attendance. In-depth interviews were conducted with women every six months. We analysed 53 interview transcripts from participants (n=12) who received CCT and were interviewed three or more times. We used longitudinal qualitative analysis methods to understand how women in the study conceptualized hope over time and how CCT influenced their hope.

Results: This analysis found that CCT instilled in young women a belief that a better life, defined as being educated, independent, and supportive to family, was attainable. Women from financially and emotionally supportive baseline contexts expressed this especially strongly. In addition, CCT influenced women’s hope in the present by alleviating daily financial stressors and promoting “good behaviour”, including HIV testing, condom use, partner reduction, and, through trial requirements, school attendance. They expressed that, as their hope for a better life increased, their desire to behave well in preparation for that life also increased.

Conclusions: CCT influences hope among young women in rural South Africa by alleviating routine stressors, promoting plans for higher education, and increasing confidence. By increasing women’s hope for a better life, CCT also reduces their desire to engage in HIV risk behaviours.
However, these influences are highly reliant on baseline family and financial contexts. This analysis supports the need for additional mixed methods research to better understand hope as a possible mechanism by which CCT influences young women in this and other contexts.

**WEPED341**

Stigma toward anal sexuality is associated with decreased engagement in HIV services and safer sex practices among MSM in the United States: A mixed-methods study using structural equation modeling

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Background: HIV incidence remains disproportionately high among men who have sex with men (MSM), and their engagement in efficacious biomedical and behavioral interventions remains low. Social factors, including stigma toward sexual behavior, likely hinder engagement in HIV interventions. After quantifying a specific social factor, stigma toward anal sexuality, we tested its effects on both sexual concerns and engagement in HIV interventions among MSM in the U.S. We hypothesized that elevated stigma would be associated with lower engagement, mediated by elevated concerns.

Methods: We developed two new quantitative measures, an Anal Sex Stigma Scale (ASS-S) and a measure of concern, the Anal Sex Questions Index (ASQx), from qualitative interviews about cisgender MSM perspectives on anal sexuality (N = 35). We refined these measures in a national online sample (N = 268), then conducted structural equation modeling to test a conceptual model of their effects in another national online sample of sexually active MSM (N = 1263), aged 18 to 72 years (47% men of color, 14% living with HIV, 28% prescribed PrEP, and 36% reporting no consistent prevention strategy during recent penile-anal intercourse).

Results: The final model accounted for 75% of the variance in engagement, had good fit (X^2/df = 2.7, RMSEA = .037, CFI = .99, TFI = .99), and found evidence for effects of all factors (p < .005). We did not find evidence of mediation by ASQx, but did find evidence that ASS-S is associated with less engagement (β = -.28, p < .001), wholly mediated by men’s comfort talking about sexual orientation and anal sex practices with health workers (β = -.41, p < .001), controlling for socioeconomic status and social support specific to anal sex.

Conclusions: The ways MSM cope with stigma and concerns specific to anal sex may not be readily known or easy to disclose within healthcare settings, and their reluctance to discuss anal sexuality with health workers may impede engagement in HIV services and safer sex. Interventions that bolster men’s comfort discussing anal sexuality may insulate some men against the concealment effects of anal sex stigma, and thereby improve engagement in HIV interventions.

<table>
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<th>Model Variables</th>
<th>Stigma (ASS-S)</th>
<th>Concerns (ASS-R)</th>
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<th>Social Support</th>
<th>Socioeconomic Status</th>
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</table>

(Composed of multiple coefficients of engagement in HIV services and safer sex predicted by anal sex stigma (ASS-S), with concerns about anal sexuality (ASS-R), mediated by comfort talking about sexual orientation and specific anal sex practices with a health worker, and controlling for informational and emotional social support specific to anal sexuality (ASS-R adapted), and socioeconomic status (age, income, education, medical coverage, and Black/African-American identification).

*p = .005, **p = .001. Model fit indices: X^2 (932) = 2342.69, p < .001, X^2/df = 2.7, RMSEA = .037, NFI = .935, CFI = .939, probability of RMSEA ≤ .05 = .95, CFI = .99, TFI = .99, WRMR = 1.63.

([Figure. Structural equation model of the Anal Health Stigma Model])

**WEPED342**

Applying syndemic theory to understand HIV-related discrimination and sexual risk behavior among people living with HIV (PLHIV) in Hong Kong

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Background: In the context of HIV-related stigma and discrimination, people living with HIV (PLHIV) might be vulnerable to a “syndemic” of co-occurring psychosocial challenges (i.e., co-occurrence of depression, anxiety, social isolation, and self-stigma) that can affect sexual behavior. The present study examined how HIV-related discrimination contributes to co-occurring psychosocial syndemic problems and results in sexual risk behavior among PLHIV in Hong Kong.

Methods: Two-hundred and ninety-one PLHIV were recruited to complete a self-report questionnaire on their experiences of HIV-related discrimination, psychosocial problems (including depression, anxiety, social isolation, and self-stigma), and condom use patterns during the past three months.

Results: More than one-quarter of the sample (27.1%, N = 79) experienced two or more psychosocial syndemic problems, and 74.1% (N = 80) of the participants who had sex with steady partners reported inconsistent condom use over the past three months. Results of Poisson regression indicated that HIV-related discrimination was positively predictive of the number of psychosocial problems reported by the PLHIV, as well as with inconsistent condom use. In a logistic regression analysis controlling for demographics, HIV-related discrimination and psychosocial syndemics were significantly associated with increased odds of inconsistent condom use with steady partners. Findings from structural equation models further showed that psychosocial syndemics mediated the negative effect of HIV-related discrimination on condom use consistency with steady partners.

Conclusions: PLHIV in Hong Kong suffered from the syndemic effects of stigma, social isolation, and poor mental health, which rendered them vulnerable to condomless sex. In order to curb the rapidly increasing incidence of HIV, multi-level strategies should be adopted to concurrently address structural inequities and psychosocial syndemics faced by PLHIV.
WEPED343
Action for access! Community-lead study finds stigma and discrimination hinder access to sexual health services among men and transgender women who have sex with men in Vietnam and Kenya
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Background: Men and transgender women who have sex with men (MTWSM) carry a disproportionately high HIV burden. Compared to general population prevalence of 0.4% in Vietnam and 5.4 in Kenya, among MSM, HIV prevalence is 8.2% in Vietnam and 18% in Kenya. Data are lacking for transgender women in Kenya, but in Vietnam, existing studies suggest transgender women HIV prevalence is 18%. Despite an urgent need for sexual health services (SHS), few studies have examined the structural factors that impact access to SHS among MTWSM in Vietnam and Kenya. Action for Access! is a community-lead study that explores the relationships between social-structural factors and access to SHS among MTWSM in Vietnam and Kenya.

Methods: Qualitative individual in-depth interviews were conducted between September 2017 and February 2018. 75 Interviews (Table 1) were recorded, transcribed and Vietnamese and Swahili interviews were translated into English. The research team developed a coding lexicon and coded interviews after reaching 80% inter-rater reliability. For this study, stigma and discrimination (S&D)-coded and SHS-coded quotes were used to analyze patterns of association between them.

Results: Access to SHS was deficient for MTWSM in both countries. S&D further complicated accessing SHS that did exist. All MTWSM reported pervasive experiences of sexual-S&D (Table 2.1) and transgender women related transgender-S&D as well. Narratives reveal that, coupled with punitive laws or practices, this highly stigmatizing environment contributed to an internalized fear of being “found out” resulting in their hesitation to seek SHS. For example, MTWSM described how S&D on the part of health providers often resulted in abandoning access to SHS in favor of, for example:
1) self-care based on internet information or advice from friends or phar-macists.
2) waiting until there is a crisis to seek professional care, or
3) suffering through the indignities of the health care systems because “it is all that is available”.

The principal respite noted was accessing SHS from community-lead organizations.

Conclusions: Stigma and discrimination significantly impair MTWSM's access to SHS that are critical for addressing HIV health disparities in Vietnam and Kenya. Strengthening community-lead SHS is recommended.

WEPED344
How are adverse childhood experiences (ACEs) associated with early sexual debut? A contextual analysis of sexual debut among Black women in Baltimore, MD, USA
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Background: Emerging research suggests that adverse childhood experiences (ACEs) may contribute to HIV risk behaviors, including early sexual debut – a key indicator of HIV infection among women in Sub-Saharan Africa. The effect of ACEs on early sexual debut is not well understood, especially among women in the U.S. This study examines the association between ACEs (individual and cumulative ACE score) and early sexual debut, identifying contextual characteristics at early sexual debut that explain this association.

Methods: Black women (n=140) were recruited from public STD clinics in Baltimore, MD. ACASI surveys collected retrospective data on ACEs and sexual debut. ACEs measured abuse and household dysfunction experienced up to 18 years. Age at earliest initiation of vaginal or anal sex was categorized as very early sexual debut (age 11-12), early sexual debut (age 13-14), or not early sexual debut (age ≥15). Multinomial logistic and linear regression models were conducted to examine associations, and contextual variables were entered individually to examine their mediating effects.

Results: Forty-one percent of our sample experienced early sexual debut (11%-very early sexual debut, 30%-early sexual debut); these women reported more ACEs (mean=3.46;std.dev.=0.71) than women without early sexual debut (mean=1.43;std.dev.=0.19). Women with very early sexual debut reported significantly more emotional, physical, and sexual abuse; witnessing maternal abuse; and household substance misuse, than women without early sexual debut. In terms of ACEs, women who experienced very early sexual debut reported significantly more emotional abuse (relative risk ratio=RRR=6.52;95%CI:1.67,23.09), physical abuse (RRR=11.82;95%CI:10.45,124), sexual abuse (RRR=6.00;95%CI:1.69,21.26), witnessing maternal abuse (RRR=6.31;95%CI:1.89,21.08), and household substance misuse (RRR=4.20;95%CI:1.81,9.77), than women without early sexual debut. Total ACE score was significantly associated with very early sexual debut (RRR=1.53;95%CI:1.20,1.95), but not early sexual debut (RRR=1.09;95%CI:0.91,1.33). This association was partially mediated by contextual characteristics, such as sexual debut being forced or pressured (RRR=3.52;95%CI:1.41,8.98), with a male partner 13 years older (RRR=6.75;95%CI:1.97,23.09), and with condom use (RRR=0.31;95%CI:0.10,0.99). Contextual characteristics exhibited a greater effect size for women who experienced very early sexual debut than early sexual debut.

Conclusions: This study highlights the importance of addressing ACEs in the context of early sexual debut and HIV/STI prevention among women in the U.S.

WEPED345
Maintaining frontline HIV prevention programs in the era of pre-exposure prophylaxis
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Background: Pre-exposure prophylaxis (PrEP) has proved promising for medical HIV prevention; however, only 10% of PrEP users in the United States are Black/African-American despite experiencing HIV disparities. PrEP uptake has resulted in shifts eliminating behavior modification approaches without noted consideration of the implications on grassroots leaders at the frontlines of prevention. As a result, Black men who-have-sex-with-men (MSM) and cisgender women often engaged in prevention...
and care through community-based advocacy have been disproportionately excluded from PrEP trials and under-prioritized for prescriptions. The objective of this project was to increase the research capacity of HIV community-based leaders and support their assessment of the acceptability of PrEP in addition to behavior modification as a comprehensive approach to HIV prevention.

Description: This project was conducted January-September 2017 within a community setting and involved the collaboration of an interdisciplinary community-university team.

Three phases were included:

- Phase I—assisting community leaders to develop a survey to evaluate HIV and PrEP knowledge, attitudes, and beliefs.
- Phase II—training community leaders as researchers and developing policy-based manuals for community-engagement sessions, and;
- Phase III—engaging in data collection and analysis.

Lessons learned: Survey respondents included 156 participants ages 18-60 years. The majority of participants had knowledge of PrEP (n = 107, 68.6%), knew where to access PrEP (n = 97, 62.2%), and felt risks for acquiring HIV would decrease if PrEP was taken as prescribed (n = 90, 59.7%). The overwhelming majority felt PrEP had side effects (n = 113, 72.4%) and were not interested in receiving additional information to access PrEP (n = 70, 50.6%).

Conclusions/Next steps: This project enabled community leaders to maintain a presence in medical HIV prevention research. Survey participants reflected positive beliefs about HIV testing but preferred traditional HIV prevention strategies. An opportunity for community leaders to connect vulnerable populations with the benefits of medical HIV prevention models may increase the likelihood of its acceptability in addition to traditional behavioral change models. Implications suggest HIV community leaders maintain a critical role in HIV prevention education for vulnerable populations.

**WEPEDE346**

Challenging criminalisation globally: New directions for un-policing identity, morality, sexuality and bodily autonomy

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Background: Across the globe and perhaps more disproportionately in the Global South, courts, parliaments and law enforcement agencies have become avid proponents of using the coercive power of the law to police, control and punish a variety of behaviours which they considered as contributing to ‘moral decay’. The activities that come under this rubric include consensual sexual relations between persons of the opposite sex, extra-marital sex, sodomy, abortion, possession or publication of materials considered obscene, pornography, drug use, among others. This criminalisation and moral policing oppresses individuals, societies and reduces space for civil society, as well as hampering the possibility of achieving 90-90-90 and the SDGs.

Description: This project seeks to use create a critical mass globally amongst various stakeholders to ensure that criminalisation is challenged. It asks: what new stakeholders can we bring into this movement? How is criminalisation a cross-cutting issue that can create global solidarity just as HIV and AIDS did? What role is business playing in this movement? How can the media, technology and data experts be effective allies? How can we re-think these issues, such as parallel justice systems?

The project (amongst other activities) is hosting 40 leaders in the field of HIV, media, business, sexuality, human rights, key populations and other sectors to get them to debate, re-think and innovate to challenge criminalisation globally. The meeting will also map the work being done by over 40 individuals and organisations around the globe.

Lessons learned: Pending the April 2018 CCG Dialogue: This global discourse will encourage all stakeholders to engage innovatively with the underlying causes of expanding criminalisation, and especially in the name of public security; and to investigate new and previously untapped partners; and to rethink and undo existing as well as pending punitive, retributive ‘solutions’, including with the input of “unusual suspects.”

Conclusions/Next steps: The findings and output of this CCG Re-think and mapping meeting forms part of an important step in changing the way activists call for criminalisation, and creating space for civil society, uniting across movements for a larger, longer term goal. The findings should be shared to inform others, and bring them along.

**WEPEDE347**

Healthcare supply-related HIV transmission factors in HIV-positive patients participating in the Cameroonian antiretroviral treatment program (ANRS-12288 EVOLCam survey)

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Background: Increasing demand for antiretroviral treatment (ART) and reduced international financial support compromise the quality of HIV services in developing countries. We investigate the effects of health-care supply-related factors on HIV transmission risk (HTR) in patients participating in Cameroon’s ART program.

Methods: A cross-sectional survey was conducted among HIV-positive adults attending 19 HIV services in Cameroon (EVOLCam ANRS 12288). Socio-behavioural, psychosocial, medical and facility-related data were collected. A cluster analysis helped identify HIV-service profiles (HSP) using 22 characteristics, in five domains: (1) General features (2) Number of caregivers, (3) Number of ART-treated patients and services available, (4) Organisation, (5) Technical capacities. HTR was assessed among sexually active patients. HTR was defined as reporting condomless sexual intercourse in the previous 12 months with HIV-negative partners and having a detectable viral load or non-adherence to ART. The effect of HSP on HTR after adjustment for individual factors was investigated using a multi-level logistic regression model.

Results: Four HSP were identified. All services in HSP1 (n=4) were district level with a high number of patients. Three provided basic services and specific ART management. HSP2 (n=5) included the largest and best equipped HIV services located at the central level. Three of these had limited CD4 count measurement capabilities due to reagent stock-outs. Facilities in HIV services in HSP3 (n=5) were mainly district level with a lower number of patients. Five reported ART stock-outs. HSP4 (n=9) were all district level, with the lowest capacity in terms of clinical staff. Two reported ART stock-outs. Among the 1328 sexually active patients studied (women 67%, median age 39 years Interquartile Range = 33-45), 24% were at risk of HIV transmission, with large variability according to the specific HIV service profile (min-max: 9%-47%). After adjustment for individual level (gender, educational level) and clinical characteristics (CD4 cell count), patients in HSP4 were at greater risk than those in HSP1 (adjusted Odd Ratio (aOR):1.96, 95% Confidence Interval (CI) 1.01-3.80). The effect of HSP on ART after adjustment for individual factors was investigated using a multi-level logistic regression model.

Conclusions: Healthcare supply constraints may affect HIV transmission risk. Strengthening human resources and ART supply chain management is necessary to reach the third target of the 90-90-90 objective.
WE PED348
Preventing community gatekeepers to promote the sexual health wellbeing of young people in Uganda

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Background: Reproductive Health Uganda is implementing the “Get Up Speak out for Youth Rights” program, which envisages a world where young people realize their SRHR in a society that is positive towards their sexuality. It is implemented in 4 districts in Eastern Uganda; an area with worst rates of teenage pregnancy in the country. In March 2017, with support of KIT Institute, a baseline survey for GUSO program was conducted. The survey gave attention to program outcome areas; utilization of SRHR information and education, youth friendly SRHR services, supportive socio-cultural and political environment. Some of the survey findings highlighted in this abstract evaluated the role of community gatekeepers in shaping young people’s sexual health.

Methods: The Survey used quantitative and qualitative approaches; 1,704 young people (15-24 years) and 15 FSW were sampled from Iganga, one of four intervention districts; 1,500 youth were subjected to a structured questionnaire. Qualitative methods employed included FGDs with 50 young people, 50 Semi-structured interviews and 104 Key informant Interviews. Data was analysed using STATA/SPSS and NVivo.

Results: 70% of the respondents felt able to express their feelings about relationships and sexuality. They claimed to have adults within their locality with whom they can discuss their feelings and worries. The adults identified were parents, relatives, teachers and religious leaders who can jointly be termed as gatekeepers. Still, these gatekeepers leave a lot to be desired in regards to information on young people’s sexuality. According to youth, some adults are unapproachable and share information using metaphors making messages unclear. Eventually, youth turn to peers for knowledge and support which compromises the quality of the information shared and received. Additionally, the space for young people to make their own decisions is sometimes not respected.

Conclusions: The community gatekeepers of youth have a great role to play in shaping their positive sexual health outcomes through guiding them to make informed reproductive health choices. There is need therefore for programming to target establishing effective youth-adult partnerships as well as building SRHR competency (including basic knowledge, values transformation and communication skills) of gatekeepers to work together to address the key challenges Youth face.

WE PED350
Manufacturing consent: How “public health” constructed an association between HIV/AIDS stigma and gay men in China

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Background: Chinese public health agencies, as well as political authorities, are playing a dominant role in its HIV/AIDS policies and programs. One of the major concerns for those policies and programs is removing the stigma among people living with HIV. However, the HIV/AIDS stigma associated with gay men, is not addressed. This study aims to explore why the stigmatizing association between HIV/AIDS and gay men persist. This study in particular explores the manufacturing of consent, structural stigma and internalized stigma to understand why gay men are thought to have HIV/AIDS.

Methods: This qualitative research encompassed 1-year fieldwork in Shanghai, China. Qualitative data was collected through participant observation, which yielded extensive notes (~60,000 words) of observations, and 25 in-depth interviews. Interviews were transcribed verbatim, coded and thematically analysed using NVivo. Interviewees were randomly recruited during participant observations and some were referred by gay informants. Interview protocols were inclusive of people working in the HIV/AIDS sector, gay men and other men who have sex with men who are seeking an HIV test, and gay men living with HIV/AIDS.

Results: The study found that the association of HIV/AIDS stigma with gay men is the result of actions by public health experts (e.g., clinic doctors, policy makers, academic scholars), reflecting their noting that being gay was equivalent to a high risk of HIV. In addition, it was noted that NGOs working on HIV/AIDS in the gay community indirectly engaged in such stigma production because of their resource-dependence on the public health sector. Also, political authorities often assumed that being a gay man would no doubt also mean they would have HIV/AIDS, which some gay men themselves assumed as well.

Conclusions: In the context of sociocultural and political concern regarding HIV/AIDS and structural stigma regarding homosexuality, the public health response played an important role in associating HIV/AIDS with gay men. Some gay men also assumed that they were at risk of HIV/AIDS as a result of their identity. This manufactured consent building on internalized stigma indicates that any attempts to remove the assumed relationship between gay men and HIV/AIDS is a challenge in China.
WEPEO351
High prevalence of social and structural syndemic conditions associated with poor psychological quality of life among a global sample of gay, bisexual and other men who have sex with men

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Background: Multiple co-occurring social and structural conditions, including sexual and physical violence and discrimination, disproportionally impact gay, bisexual and other men who have sex with men (GBMSM). Most syndemics research has focused exclusively on psychosocial conditions associated with HIV sexual risk behaviors. This study examined the role of social and structural conditions - including socio-economic status, housing instability, sexual and physical violence and discrimination - on overall psychological quality of life among a global sample of GBMSM.

Methods: We analyzed data from a global sample of 2,417 GBMSM collected between 2014 and 2015 from the MSMGF (the Global Forum on MSM & HIV) third Global Men’s Health and Rights Study (GMRHS) survey. Participants were recruited through online convenience sampling (e.g. via organizational networks, email listservs and websites). Data were analyzed using SPSS. A linear regression was conducted using count of syndemic conditions (inability to meet basic needs, insecure housing, homophobic discrimination, and sexual and physical violence) as the independent variable to assess the additive effect of the syndemic conditions on Psychological Quality of Life as measured by the World Health Organization. Analyses were also repeated with control variables.

Results: Among 2,417 men, prevalence of syndemic conditions was substantial with 1,594 (66%) of respondents experiencing at least one syndemic factor. In multivariable syndemic analyses, participants with one factor (b=-22, p<.001), two factors (b=-33, p<.001), or three or more factors (b=-62, p<.001) each reported significantly lower levels of Psychological Quality of Life than those with zero syndemic factors. These effects persisted after the introduction of controls.

Conclusions: This study provides initial evidence that intertwined social and structural syndemic conditions are positively associated with poor psychological quality of life among a global sample of GBMSM. Future longitudinal research should further assess the impact of these conditions on overall quality of life and assure the inclusion of other marginalized communities, including transgender men and women. Comprehensive structural interventions that simultaneously address co-occurring social and structural syndemic conditions should be developed and tested.

WEPEO352
Structural racism matters: An exploratory study on the gendered-racialized experiences and HIV vulnerabilities of heterosexual young Black men

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Background: Black communities in Canada are disproportionately affected by HIV. Black people accounted for over 10% of all HIV-related deaths in Ontario, even though they make up only 3% of Ontario’s population. Existing literature on HIV vulnerabilities tends to focus on individual risky behaviour, without acknowledging how structural conditions, such as racism, gendered expectations and socioeconomic status, contribute to HIV vulnerabilities. This paper reports on the sub-study of a larger study, weSpeak, which examines the social determinants of HIV and collective resilience of self-identified heterosexual Black men in Ontario. Canada. This sub-study focused on the gendered and racialized experiences of heterosexual young Black men (HYBM) in Toronto, their HIV vulnerabilities, and conditions that promote their collective resilience.

Methods: We used purposive sampling to recruit self-identified HYBM. Outreach and recruitment strategies included e-flyers, information sessions and community referrals. Fifteen HYBM, between the ages of 16 to 25, took part in focus groups and individual interviews. Data were analyzed using a narrative approach and guided by analytical lenses of Critical Race Theory and intersectionality.

Results: The study results showed that HIV vulnerabilities and social vulnerabilities are intertwined. Dominant racist stereotypes of Black ‘hyper-sexuality’ and ‘hyper-masculinity’ function in multiple ways to increase HYBM’s vulnerabilities to HIV: (a) imposing psychological pressure for some HYBM to enact these stereotypes, (b) creating obstacles for open dialogue about sex and sexuality between HYBM and their sexual partners, and (c) producing distrust that impedes the negotiation of safer sex practices between HYBM and their sexual partners. Participants identified social support, mentorship, access to equitable opportunities and having a safe space for critical dialogue, as conditions that reduce their HIV vulnerabilities and promote their collective resilience.

Conclusions: The findings of the study suggest that effective HIV prevention responses for HYBM must be underpinned by social justice and address their social vulnerabilities. These responses must incorporate anti-oppression and race-gender-class analyses to engage heterosexual young Black men and women in critical dialogue to challenge racist stereotypes and harmful masculine expectations that increase young Black people’s vulnerability to HIV.
**WEPED354**

Understanding barriers and facilitators to antenatal care services in Cameroon

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**Background:** In Cameroon, HIV prevalence among pregnant women is estimated at 5.7%. Prevention of Mother-to-Child Transmission (PMTCT) services are delivered mainly through the Antenatal Care (ANC) platform. In 2012, ≤ 40% of pregnant women in Cameroon accessed ANC services, implying that only a small proportion had the opportunity to receive HIV testing and PMTCT services if needed. This study was conducted to better understand the factors that affect uptake and retention in ANC and related health services.

**Methods:** A mixed-method qualitative study was performed between December 2012 and September 2013. Participants were purposively recruited across eight regions of Cameroon. Individual key informant interviews were completed with 40 health providers and community leaders, and 16 focus group discussions were conducted with groups of six to eight people aged 18–60 years in the community. All interviews were audiotaped, transcribed and coded thematically for analysis. Interpretive analyses were performed using ATLAS-ti.

**Results:** Knowledge of existence of ANC services in the community was universally high. However, rural community participants were less likely to know their HIV status and could not cite specific means by which HIV can be transmitted from mother-to-child. Fear of stigma and discrimination was reported by many participants as leading clients to seek care outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC and the need for women to get their spouse’s permission to attend ANC were additional concerns. Long distances to and waiting times in ANC, and the need for women to get their spouse’s permission to attend ANC were significant barriers to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC. Men’s participation in ANC outside of their community, while high service fees was reported as an obstacle to women’s ability to attend ANC.

**Conclusions:** Many barriers impact women’s ability to access ANC/PMTCT services in Cameroon. Remedial action should focus on health promotion initiatives for women and their partners, provision of ANC supplies, training of nurses and other health facility staff to increase their number and improve service delivery quality, reducing MCH services-associated fees.

**WEPED355**

The role of HIV-expert clients in extending house-to-house nutrition services for PLHIV in Karamoja region Uganda

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**Background:** Karamoja region has grappled with high levels of food insecurity and this affects PLHIV more prone to malnutrition because of opportunistic infections. The objective of the Expert Clients (ECs)’ training was to create a peer-to-peer intervention to offer a viable, creative solutions to areas grappling with human resource challenges that often act as barriers to universally accessible, high quality HIV and Nutrition care and treatment in resource limited settings.

**Description:** Expert Clients were recruited basing on HIV-status, record of ART adherence, education level, ability to be trained and willingness to volunteer. The HIV expert clients were enrolled through the district health offices in all the seven districts of Karamoja. 75 HIV Expert Clients were selected from the seven districts in this training. These were then trained through a week-long course on nutrition assessment counseling and support for PLHIV. To assist in conducting their work, the ECs were also supported with job aids for nutrition in HIV and basic HIV treatment information. District health focal persons for nutrition and HIV were involved at all levels to enable them to understand the model for easy supervision. The HIV expert clients were voluntarily attached to health facilities near their communities and tasked to follow-up PLHIV on issues of Antiretroviral utilization and nutrition.

**Lessons learned:** There was improvement in awareness on food and nutrition requirements for PLHIV who are breastfeeding, responsiveness and demand for specific nutrition services for PLHIV increased. Health facilities with ECs reported improvement in nutrition education and counselling for PLHIV, 75% of the health facilities reported improvement in patient referrals from the community, 92% indicated continued household reporting by ECs on ART and nutrition for PLHIV follow-up, 72% of the health facilities indicated improvement in appointment keeping.

**Conclusions/Next steps:** The utilization of expert clients in extending household nutrition services is a promising model. Future evidence building studies will be necessary to inform crucial human resource management and task shifting decision in the provision of health and nutrition services in Karamoja.

**Socio-economic differences: poverty, wealth, and income inequalities**

**WEPED356**

Poverty and racial and gender disparities among people living with HIV in Miami-Dade County

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**Background:** For over 30 years, Miami-Dade County (MDC), Florida has had among the most challenging epidemics in the country. In 2015, there were over 25,000 people living with HIV/AIDS (PLHIV) in MDC, disproportionately affecting the Black community. Socioeconomic issues associated with poverty may directly or indirectly increase HIV risk factors. We examined association between poverty and HIV prevalence stratifying by gender and race/ethnicity.

**Methods:** To assess racial trends in HIV infection in MDC, we analyzed 2015 prevalence data from CDC and AIDSvu, and US Census data in the 75 major MDC zip codes. Data were stratified and analyzed by sex and race (Black, White and Hispanic of any race) of PLHIV and socioeconomic status (SES) comparing high (>20%) to low-poverty (≤ 5%) zip codes. SES was calculated using the US Census data in the 75 major MDC zip codes. Results were stratified by race/ethnicity and sex. In 2015, MDC, FL had the highest HIV prevalence and incidence in the United States (0.65 and 0.87 per 100,000, respectively). 43% of PLHIV in 2015 were black, 44% Hispanic/Latino, and 11% HIV rate in Hispanic/Latino men and women was essentially the same as that of white men and women respectively. Black men were 2.6 times and Black women, 13 times more likely to be HIV-infected than their White counterparts. In 2015, 226 HIV new infections and 143 AIDS cases were reported among adult women. Blacks were overrepresented, accounting for 74% of AIDS cases. In 2015, in the MDC zip codes analyzed, median HIV prevalence in Whites was 0.35% compared to 2.71% in Blacks. Median HIV prevalence did not differ significantly by residence in poor vs non-poor zip codes in whites (0.54% vs. 0.35%; p = 0.308). However, median HIV prevalence in Blacks living in high-poverty zip codes (4.02%) was higher than in Blacks living in low-poverty zip codes (1.85%; p = 0.01). Median number of women with HIV was higher (IN-193) in high-poverty zip codes than in low-poverty zip codes (p = 0.0002).

**Conclusions:** These findings suggest that HIV varies by both races, gender, and poverty in Miami, with poverty playing a greater role in Blacks and among women.
WEPE357
Social and welfare inequities in people living with HIV in England and Wales: Results from Positive Voices 2017
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Background: Socioeconomic status is an important predictor of health. In the UK, HIV disproportionately affects socially vulnerable populations such as migrants, gay men and drug users, which may compound social inequity. We describe the social and welfare needs of people living with HIV (PLHIV) in the UK.

Methods: Positive Voices is a cross-sectional, probability survey of PLHIV, conducted between January and September 2017 in 73 HIV clinics in England & Wales. Respondents answered questions on socioeconomic status and financial hardship. Participants were also asked about met and unmet social and welfare service needs in the previous 12 months.

Results: Of the 4,416 respondents (51% response rate), 44% were educated to at least undergraduate degree level, compared to 28% in the UK general population. High educational attainment was observed across all age, ethnicity and gender groups. Despite this, 15% of respondents were unemployed, compared to a 4.3% unemployment rate in the UK general population during the same period. The unemployment rate was highest among black Caribbean PLHIV (27%), black African PLHIV (21%) and PLHIV of other black ethnicities (20%) compared to 11% in white British PLHIV. 25% were in receipt of welfare benefits, compared to 8% in the UK general population. Most commonly claimed benefits were Disability Living Allowance (DLA) or Personal Independence Payment (PIP) (15%), Employment and Support Allowance (ESA) or Incapacity benefit (13%), and housing benefits (13%). A quarter (25%) had fallen behind with at least one household bill and 35% did not have enough money to meet their basic needs. The greatest social and welfare service needs were: housing support (22%), financial advice (15%), career skills/training (14%), and employment advice (14%). Two-thirds reported these needs had not been met. Reasons for unmet need included not knowing how to access services, not knowing that services existed, or feeling too overwhelmed to seek services.

Conclusions: PLHIV in the UK experience disproportionately high levels of unemployment, financial hardship, and social and welfare service needs despite high education attainment. Access to social and welfare services are an integral part of long-term care and support and should be considered in planning future programming.

WEPE358
Positive finance: Access to insurance for people living with HIV in the UK
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Background: People living with HIV (PLWH) across Europe face barriers to accessing private insurance that requires medical information, with implications for their financial resilience. The research aimed to describe the recent experiences of PLWH in the UK of accessing financial products, and identify how HIV status specifically impacts access to financial products.

Methods: Between February and April 2017, NAT conducted research using a mixed methods approach involving an online survey and focus groups. 215 people responded to the survey, of whom 202 were eligible to take part. Of these 202, 16 participants participated in a focus group in London or Manchester. The only criteria for participating in the survey and focus groups was that the individual must be living with HIV in the UK.

Results:
- 49% thought that life insurance is not available to PLWH, despite it being available in the UK since 2009.
- 50% had avoided applying for a financial product because of their HIV status due to fears of high cost, refusal and stigma.
- Only 28% knew where to look for HIV-inclusive financial products. Mainstream comparison sites often don’t work for PLWH and specialist insurers can be difficult to find.
- 25% said they knew or suspected they had been refused a financial product in the last five years because of their HIV status.
- Qualitative data indicated that PLWH are often charged higher premiums, but it is not always clear whether the price fairly reflects the risk of a claim. When they are purchased, insurance products don’t always meet the needs of PLWH.

Conclusions: The barriers to access identified from this research can be broadly categorised as follows:
- Self-exclusion from the market
- Difficulty navigating the market
- Ineligibility
- Unsuitable products
- Higher premiums

Some of the causes of these barriers are easily identifiable, such as fear of disclosure due to stigma or the lack of tailored products provided by insurers. Others need further investigation, particularly whether higher premiums fairly reflect the likelihood of PLWH making a claim. Each barrier requires a different response from a range of stakeholders, including the financial services regulator and Government.

WEPE359
Area-level poverty and low willingness to use PrEP among Black individuals in the US South
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Background: The Southern US, where more than 50% of Black Americans reside, has the highest burden of HIV nationally. Poverty is also highest, and access to health care is lowest. Uptake of pre-exposure prophylaxis (PrEP) has been slow among Black individuals, particularly in the South. We sought to investigate the relationship between geographic factors (area-level HIV diagnoses, socioeconomic status, and access to care) on willingness to use PrEP among Black individuals living in the South.

Methods: We estimated the association between ZIP code-level change in rates of new HIV diagnoses (2014-2015; from AIDSvu.org), sociodemographic factors (percent living below the federal poverty line, percent black population, percent unemployment), percent uninsured (from the 2008-2012 American Community Survey) and willingness to use PrEP among Black adults in the South, drawn from the National Survey on HIV in the Black Community (NSHBC, 2016).

Conclusions: Area-level poverty and low willingness to use PrEP among Black individuals in the US South
Results: 50.5% (437/868) participants were from the South, and 383 ZIP codes were represented. The mean age was 34 (SD=9) years. 46% were male. 24% had a household income <$25,000, 14% were uninsured and 23% were high risk based upon self-reported behavioral criteria. Only 25% of the high risk individuals reported willingness to use PrEP. Restricting the analysis to ZIP codes with HIV diagnoses data, 142 ZIP codes were included. The median increase in HIV diagnoses was 25 percents per 100,000 population from 2014 to 2015 (Interquartile range [IQR] 14-49). 37% of ZIP codes were in the upper 25th percentile (highest increase in new HIV diagnoses). Examining area-level factors in multivariable regression models, individuals living in ZIP codes within the upper 25th percentile were more willing to use PrEP (Prevalence Ratio (PR)=2.03, 95%CI 1.03-4.00, p=0.041) compared to individuals living in the lower 75th percentile. Higher area-level poverty was associated with lower (PR 0.48, 95%CI 0.25-0.92, p=0.028) willingness to use PrEP. Percent black population, percent unemployment and percent uninsured were not significant in multivariate analysis.

Conclusions: Overall, low numbers of Black individuals in the South are willing to use PrEP. However, individuals in areas with higher numbers of new HIV diagnoses were more willing to use PrEP. To improve uptake, area-level poverty must be addressed.

WEPE360
HIV and poverty vulnerability among women and girls in Abuja Municipal Area Council, Abuja, Nigeria

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Background: Nigerian women bear a disproportionate burden of the HIV epidemic and constitute 59% of HIV positive individuals. Evidence have shown that one of the major drivers of HIV especially amongst females is poverty and financial dependency; thus, contributing to the feminization of poverty and the epidemic. This study investigates HIV and poverty susceptibility among women and girls in Abuja Municipal Area Council (AMAC), Nigeria.

Methods: In November, 2017, a descriptive study involving 52 females from AMAC was conducted. Respondents who were selected through multistage sampling comprised of female sex workers (FSWs), women and girls among internally displaced persons (IDPs), women living with disabilities (WWD), women from support groups of people infected with and affected by HIV (WSG) and other indigent women. Quantitative data collected with a scaled economic strengthening selection tool were analyzed with descriptive statistics (frequencies and crosstabs).

Results: Median age of respondents was 36 years (range:16-54years). 61.54% (number=32) were HIV positive. Fifty percent of the respondents had no source of income. Conversely, all of the FSWs interviewed considered themselves employed and 43.75% of them earned above N25,000 monthly. Majority of the respondents (69.23%,n=36) lived in dilapidated and overcrowded shelters with insufficient and irregular food (76.92%,n=40). On a scale of 9-32 marks, with 32 marks representing the highest score, the poverty vulnerability scale, majority of respondents were “most vulnerable” (55.77%,scores 21-32) and 40.38% were “more vulnerable” (scores 14-20). Amongst categories of women assessed, WSG were “most vulnerable” (37.93%), followed by IDPs (31.03%), FSWs (20.69%), WWD (8.90%) and others (3.45%). Across all groups, HIV positive women(50%) were more indigent than HIV negative women(38.46%) and people of unknown status(11.54%).

Conclusions: There is a strong relationship between positive HIV status and vulnerability to poverty, thus poverty can be both a cause and effect of HIV infection. Socio-economic data from the respondents revealed the need for economic empowerment initiatives among these categories of women. Building livelihoods through microenterprises for HIV vulnerable women and girls is one of the remarkable ideas for developing financial and economic sustainability, improving household income and creating jobs for increased HIV prevention, care & support and access to treatment for women and their households.

WEPE362
Comparing MSM and transgender women (TW) on socio-demographics and psychosocial constructs relating to the HIV continuum of care and prevention in Lima, Peru

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Background: As we approach the 4th decade of HIV prevention and treatment, there is a need for differentiated and nuanced understanding of key populations who are vulnerable to HIV. MSM and transgender women (TW) remain the primary key populations in Peru, and we use information from the baseline of an HIV prevention and engagement in care trial to compare them and provide insight into their needs.

Methods: MSM/TW recruiters and long chain peer recruitment were used to enroll participants in two large, understudied Lima districts. The survey was interviewer-administered to participants using computer-assisted methods.

Dynamics of social status and power: sex, gender, age, race/ethnicity, sexual orientation, disability
Results: We enrolled 277 MSM and 136 TW, whose average age was 31. TW reported significantly less formal employment and education than MSM, but similar abilities to cover basic needs. TW were more open about their sexual identity than MSM were about their gender identity. There was no difference in alcohol abuse, while TW reported more recreational drug use. TW reported more experiences of stigma due to their sexual or gender identity and more HIV stigma. There were no significant differences between MSM and TW in depression, experiences of stigma in healthcare settings, sexual risk, or social support (all p-values > 0.05).

Although MSM reported more of the same aversive experiences, there was no difference in condomless receptive sex. But while TW had nearly twice the HIV prevalence of MSM, among those living with HIV there was no difference in linkage-to-care, ART use, or self-reported undetectable viral loads (all p-values > 0.05).

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<tr>
<th>Characteristics Comparing MSM and TW Vulnerabilities in Large Districts in Lima, Peru</th>
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Methods: We describe how expected gender roles may contribute to HIV treatment engagement among HIV-positive male PWIDs and FSPs. In-depth interviews were conducted with 30 male PWIDs and 21 FSPs in September 2017. The interviews were in Vietnamese, translated into English, and analyzed using NVivo 12 software.

Results: Male PWIDs often presented later to treatment and were less likely to consistently stay in treatment than FSPs for several reasons. The perceived criminalization of drug use led to a higher level of discrimination reported by male PWIDs, compared to FSPs who were often perceived as victims of their partner’s behavior. FSPs who also inject drugs were also highly stigmatized. Perceived norms around the roles of men as the head of the household economically, in maintaining the family lineage and ancestor worship practices may negatively influence PWIDs’ retention, either because they had to travel for work, or had to hide their HIV status and treatment due to family’s expectations. FSPs, on the other hand, were more likely to stay in treatment because of their expected roles in taking care of their family and in-laws, although it could also be challenging as FSPs reported reluctance to seek support from their in-laws or their own family.

Conclusions: While the couple approach is important for HIV treatment retention, specific interventions need to be tailored to assist male PWIDs and FSPs overcome the challenges. The sharp differential treatment of male PWIDs vs. FSPs by families and communities imply that:

1) more focused support for FSPs is needed for their long-term treatment, and;
2) an increasing number of FSPs who inject drugs could remain hidden, posing an additional challenge to HIV programs.

WEPE2634
Understanding HIV medication adherence amid multi-level, intersecting, and shifting challenges: Listening to the needs of the most vulnerable PLWH in the U.S.

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Background: One-third of PLWH in the U.S. are insufficiently adherent for viral load suppression. PLWH who experience health inequities report worse viral load outcomes and less support from adherence interventions. The purpose of this study is to explore the nexus of daily challenges and adherence among PLWH without viral load suppression, who face multiple and intersecting inequities, such as those that stem from racial/ethnic minority status and/or poverty and/or HIV stigma and/or sexual or gender minority status.

Methods: Participants included 50 PLWH without viral suppression who took part in two peer-led HIV medication adherence intervention studies. Participants experienced multiple inequities: most were individuals of color; all were low-income; many were sexual minorities. HIV-positive peer interventionists documented 6 weekly meetings describing participants’ adherence experiences using detailed field notes. Participants chose notes for data collection, versus recordings, to promote open peer-to-peer dialogue. Content and narrative analyses of 300 field notes were used to identify adherence challenges.

Results: Challenges to adherence were characterized by four descriptive themes - severe, multileveled, intersecting, and variable. Participants experienced an average of 27.8 (range 8-52) major stressors over the course of six weeks. Average stressors reported in a single week were 4.6 (range 1.6-6.5). Common stressors were physical illness, mental health, isolation, poverty, homelessness, substance abuse, and hunger. Most participants reported barriers at the individual (e.g., depression) relational (e.g., isolation) and community/social (e.g., homelessness) levels. All participants described how barriers intersected and escalated (e.g., homelessness worsened drug use and hunger). PLWH experienced barriers that shifted over time and affected adherence (e.g., depression in control one week, poor the next due to an unexpected event).

Conclusions: Peer conversations allowed honest documentation of dialogue from vulnerable patients with compounding challenges and health inequities. Gathering insights from this subgroup of PLWH can
Inform flexible solutions that respond to patient priorities. Interventions (medical and behavioral) need to be ongoing and sustainable, addressing multi-level challenges in the context of patient’s lives, also accounting for instability. Improving adherence among PLWH without a suppressed viral load who face multiple health inequalities is essential to meeting national adherence goals, protecting the health of PLH, and curbing HIV transmission.

**WEPE365**

Sociocultural contexts of HIV risk behaviors among Mak Nyah (Transwomen) in Kuala Lumpur, Malaysia

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**Background:** Very limited data on HIV/AIDS among mak nyah are available because civil and religious (Siarban) laws criminalize mak nyah in Malaysia where the national religion is Islam. Few studies reported the substantial increase in HIV prevalence, gender-based discrimination, violence, and human rights abuses against mak nyah. This study aimed to describe sociocultural contexts of HIV-related risk behaviors among mak nyah in Kuala Lumpur.

**Methods:** After completing qualitative interviews, a total of 150 mak nyah were recruited for survey interviews. Participants were recruited based on purposive sampling through direct outreach and referrals from local ASOs that provided services for mak nyah.

**Results:** Mak nyah study participants (N=150) were: mean age=38.0 years (SD=10.1); 72.0% Malay, 14.0 % Indian, 8.7% Chinese, and 5.3% other; 62.0% single and 33.3% having a partner; 58.0% identified as mak nyah and 35.3% female; 72.0% Malay, 14.0 % Indian, 8.7% Chinese, and 5.3% other; 62.0% single and 33.3% having a partner; 58.0% identified as mak nyah and 35.3% female; 58.0% identified as mak nyah and 35.3% female; 8.7% had sex reassignment surgery; 82.0% heterosexual, 13.4% homosexual, and 4.0% bisexual. Most of the participants (88%) had tested for HIV and 12.7% reported living with HIV. About 2/3 reported currently engaging in sex work and 56.7% reported having engaged in oral sex with customers and 35.3% had not used a condom all the time. Only 1/3 correctly answered all HIV knowledge questions and 27.9% had engaged in condom-less sex when customers offered extra money. More than one third (37%) reported ever being physically assaulted; 28.2% and 18.7% being raped or sexually assaulted when under 18 years old and 18 years and over, respectively; 51.8% were depressed (CES-D).

**Conclusions:** The study provided important descriptions of risk behaviors and sociocultural factors among mak nyah that confirmed qualitative results from previous studies. It is alarming that a high prevalence of sexual and physical violence and depression among mak nyah. System level changes to eliminate discrimination and human rights abuses against mak nyah could take time, but direct health and social services and social media campaigns from CBOS could be implemented not only to address HIV prevention, but also health and human rights for mak nyah in Malaysia.

**WEPE366**

Ashamed, afraid and proud: Masculinities as key barriers to the attainment of the 90-90-90 targets in two rural districts in Zimbabwe

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**Background:** Despite dramatic improvements in access to antiretroviral treatment (ART) in sub-Saharan Africa, men are less likely than women to test for HIV and to link to ART when they test positive. This poses an important challenge to the attainment of the 90-90-90 targets.

**Methods:** We explored HIV+ men’s challenges to HIV testing and care at three purposively-selected high-volume ART clinics in rural Zimbabwe. We conducted twenty focus group discussions with 67 HIV+ men in Community Antiretroviral Refill Groups (CARGs). 61 HIV+ men not in CARGs and 29 HIV women in CARGs, and 46 in-depth interviews with policy makers, implementers, community members and health care workers. Data were analyzed using deductive and inductive approaches.

**Results:** Masculinities and concerns about social status—expressed through the idioms of “shame”, “fear” and “pride”—were prominent themes for why few men get tested for HIV or initiate ART. Men were “ashamed” to be seen testing for HIV by community and family members because it implied “promiscuity”, whereas collecting medications at health facilities (HF) publicly revealed one’s HIV status. HIV-testing and HIV care were thus seen as potentially damaging to men’s reputations. “Fear” of marital conflict was another barrier as wives accused husbands who tested HIV+ of infidelity. Consequently, many men preferred to wait for wives to get tested first or for wives to suggest testing together. The last idiom—men’s “pride” - is deeply tied to notions of masculinities. Men believed they were invincible, and thus downplayed the importance of getting tested, denied an HIV+ result, refused to initiate ART, or stopped taking medications when their health improved or they started new relationships. Other men avoided HIV testing because they did not want to use condoms with wives if found positive, while others did not want an HIV+ diagnosis to affect their ability to attract new sexual partners. Some men considered HF to be “female spaces” and did not want to be seen there. Finally, only economically unproductive men were believed to spend hours at HF.

**Conclusions:** Men’s needs and lived realities continue to be a “blind spot” in HIV programming (UNAIDS 2017). Innovative men-focused strategies are urgently needed.

**WEPE367**

Disability predicts violence against women over 12 months: A prospective cohort analysis amongst young women in urban informal settlements in South Africa

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**Background:** Women living with disabilities are more vulnerable to intimate partner violence (IPV), and women who experience IPV more likely to acquire HIV. Yet, the majority of studies on the associations between disability and IPV are cross-sectional and cannot therefore account for the temporality of associations. Here we assess whether disability sta-
Economic transitions and social and cultural changes affecting HIV and the HIV response

WePed369
Traditional leaders play a key role in the roll out of early ART at community level

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Background: The MAXART consortium, led by the Swaziland Ministry of Health conducted the MAXART Early Access to ART for All (EAAA) study in Swaziland from 2014 - 2017. The study sought to answer questions on clinical outcomes, acceptability, feasibility, affordability and scalability of an Early ART programme in Swaziland. The study also included a component of engaging existing traditional structures to inform communities about the EAAA study and mobilize HIV positive individuals to access early ART.

Methods: To promote better understanding of the role and contribution of traditional leaders in the roll out of early ART study in study communities, data was collected through 96 semi-structured interviews and 9 focus group discussions with key community actors including support group members, community-based volunteers, traditional healers, religious leaders and traditional leaders.

Results: The active role of traditional leaders in informing communities about the Early ART programme and mobilizing communities take up HIV testing and thus reducing stigma around HIV testing. 90% of respondents agreed that traditional leaders play a key role in mobilisation of communities to access early ART.

Economic transitions and social and cultural changes affecting HIV and the HIV response

WePed368
Women’s decision-making and agency in the context of Option B+ in Malawi: An in-depth longitudinal qualitative study

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Background: Although lifelong antiretroviral therapy (ART) for HIV-positive pregnant and breastfeeding women (‘Option B+) has dramatically expanded in Malawi since 2011, challenges with rapid ART initiation and sub-optimal retention in care have been reported. We explored women’s individual decision-making and agency in relation to treatment uptake, long-term retention in care, breast-feeding practices, and reproductive intentions.

Methods: We report on a longitudinal multi-site ethnographic study (July 2015-September 2017), nested in a broader PMTCT impact evaluation, conducted in 13 sites (Southern/Central regions). In-depth inter-

views, focus group discussions and observations were conducted with women retained in care in Option B+ (n=53) and their male partners (n=19), adolescents (n=13), lost-to-follow-up women (n=23), community and PMTCT leaders (n=23), and healthcare workers (n=154). Data were analyzed through interpretive open-ended coding (NVivo11) and a comparative thematic framework approach.

Results: Median age of women retained in care was 32 years; they had 3 children on average. Although most women reported that starting ART was the ‘healthy’ option, male partner disclosure and participation treatment uptake/continuation was central to decision-making processes. Women who felt unable to discuss test results and treatment uptake with male partners reported delaying ART initiation and having challenges continuing ART due to difficulties hiding treatment. Similar opinions were presented across other groups of research participants: complex decision-making dynamics between women newly identified as HIV-positive and male partners of unknown HIV status hindered long-term retention in care. Fears about possible breach of confidentiality while visiting health facilities led some women to decide to stop ART. Breastfeeding decisions and reproductive intentions were perceived by community leaders as the responsibility of the man. Living with HIV and perceptions of risk for themselves and their infants were central to women’s reproductive intentions.

Conclusions: Despite an increased optimism around Option B+, decisions around starting and remaining on lifelong treatment, breastfeeding, and reproductive intentions remain deeply entrenched within gender and cultural norms that affect women’s care trajectories. Additional efforts at balancing joint decision-making between women and their partners, and involving male partners at every step of the testing and care continuum are essential to improving long-term retention in Option B+ and other Test-and-Treat programs.

No reported disability

<table>
<thead>
<tr>
<th>Disability status</th>
<th>Physical IPV past 12m: aOR (95%CI)</th>
<th>Sexual IPV past 12m: aOR (95%CI)</th>
<th>Emotional IPV past 12m: aOR (95%CI)</th>
<th>Economic IPV past 12m: aOR (95%CI)</th>
<th>Non-partner sexual violence past 12m: aOR (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>1.48(0.92-2.38)</td>
<td>1.06(0.64-1.76)</td>
<td>1.64(1.00-2.68)</td>
<td>1.07(0.68-1.70)</td>
<td>1.52(0.89-2.59)</td>
</tr>
<tr>
<td>Moderate</td>
<td>2.94(1.66-5.22)</td>
<td>2.04(1.16-3.59)</td>
<td>2.71(1.42-5.18)</td>
<td>1.67(0.95-2.93)</td>
<td>2.58(1.41-4.74)</td>
</tr>
<tr>
<td>Severe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Adjusted odds ratios for disability status at baseline and violence experience at follow up*
TLS who were tested have publicly shared their HIV status. 92% of CBVs interviewed testified that they worked with TLS Leaders through community meetings to share information on HIV and EAAAs. 87% of Support Group members confirmed that TLS help them in discharging their duties under EAAAs programme.

Conclusions: Traditional authorities play a major role in implementing HIV programmes at community level. With appropriate and accurate engagement they can meaningfully support health programmes to access communities. They can further model good health seeking behaviour thus encouraging uptake of services. They can improve acceptability of HIV programmes and support stigma reduction efforts as well as support treatment retention and adherence.

WEPED370
ART adherence among patients cared in the community client-led ART delivery (CCLAD) - TASO, Uganda experience

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Background: TASO Uganda is one of the largest organizations implementing HIV care and treatment programmes in Sub Saharan Africa. caring for over 100,000 people living with HIV. TASO introduced Community drug distribution points model (CDDP) and recently the Community client led ART delivery model (CCLAD) for stable patients on ART. The main aim of this study is determine adherence outcome among patients on CCLAD.

Description: TASO developed eligibility and exclusion criteria. The CCLAD eligibility criteria were: adherence, poor response to ART (CD4 count consistently below 350 for more than six months), TB co-infection or presence of any malignancies. A data tool tracking client indicators was developed with the help of Peer Leaders. data is captured in one main system to the national data reporting tool. Pre-packaging of drugs, labeled and packed separately, makes distribution of refills to individual clients easier for each client in preparation for delivery. Transport costs: a group of seven to ten clients contributed a nominal user fee to cover the cost of transportation for the leader to collect the drugs each time.

Lessons learned: A total of 62,129 patients were on ART were enrolled in 2015 for this study. 23,112 (37%) were in facility arm. 36,777 (59%) were in CDDP arm. 2799 (4%) were on CLAD arm. The adherence outcome for facility above 95% was 88%. 85% for CCLAD and 85% for CDDP. We learnt that a simple data collection tool facilitated the peers to collect information which is then transcribed to national ART registers. Pre packing of drugs with clear labeling by pharmacy staff enable accurate distribution of ART refills. patients were empowered to take care of the challenging transport cost by jointly contributing to costs for peer leaders to pick group medications.

Conclusions/Next steps: CCLAD models achieved similar adherence outcomes compared to facility-based models and community-based drug delivery by facility staff. Peer leaders, as lay ART providers facilitated the smooth implementation of the CCLAD model. CCLAD model should be scaled up for stable patients on ART

WEPED371
Understanding HIV risk in the postpartum period: Being in an age-disparate relationship increases postpartum inconsistent condom use for socially isolated South African women

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Background: Age-disparate relationships are considered a key driver of the HIV epidemic; however, the evidence supporting the association has been mixed. This heterogeneity may be explained by the fact that other social-contextual factors, such as social isolation, work synergistically with age-disparate relationships to increase women’s vulnerability to HIV infection. In this longitudinal study, we hypothesize that the association between being in an age-disparate relationship and inconsistent condom use postpartum will be stronger for women who are socially isolated compared to those who are not.

Methods: Data come from 605 HIV-negative participants who completed a baseline antenatal visit and 14-week postpartum follow up as part of a larger longitudinal RCT. We used logistic regression to test our hypothesis. Specifically, we examined whether the relationship between baseline age disparity and postpartum inconsistent condom use varied as a function of baseline social isolation, controlling for relevant covariates.

Results: Nearly 25% of women were in an age-disparate relationship with a partner who was 5 years or older: significantly more women in age-disparate relationships reported inconsistent condom use postpartum (26.6% vs. 17.3%, p < 0.02). Just over 10% reported social isolation during pregnancy such that they saw no people in their network in the past week; socially isolated women also reported significantly more inconsistent condom use postpartum (30.0% vs. 17.4%, p < 0.02). As hypothesized, there was a significant interaction between being in an age-disparate relationship and reported social isolation after adjustment for covariates. Specifically, women in an age-disparate relationship were 9.21 times more likely to report inconsistent condom use postpartum if they were socially isolated (95% CI: 2.41, 35.22); there was no effect for those who were not socially isolated.

Conclusions: The findings suggest that being in an age-disparate relationship affects HIV risk, particularly for women who are socially isolated from their friends and family in the early postpartum period. Further research is needed to determine if there are other ways in which one’s existing social networks affect power differentials in age-disparate relationships. Interventions that reduce women’s social isolation during the postpartum period, particularly for those with older sexual partners, may reduce South African women’s vulnerability to HIV during this time.

WEPED372
Measuring gender norms associated with transactional sex for adolescent girls and young women in Central Uganda - implications for structural interventions

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Background: Transactional sex, or informal sexual exchange relationships, are an important determinant of adolescent girls’ and young women’s (AGYW) disproportionate HIV risk in sub-Saharan Africa. Transactional sex relationships are structured by both social and economic gender inequalities, suggesting economic intervention strategies
We find an increase in the value a man provides significantly raises perceived approval of men's authority in relationships, men's transaction-making power increases when they provide more and that women to approve of women who sought multiple partners when their primary partner did not provide.

**Results:** The vignettes examined whether the amount a man provided changed perceived approval of men's authority in relationships, men's sexual decision-making power, and women having multiple partners. We find an increase in the value a man provides significantly raises perceived levels of community approval for his sexual decision-making power (p < .001) and significantly lowers perceived peer approval of AGYW's seeking a second partner (p < .05). Finally, we find women who practiced transactional sex in the last 12 months (51%) were more likely to approve of women who sought multiple partners when their primary partner did not provide.

**Conclusions:** Our findings suggest that approval of men's sexual decision-making power increases when they provide more and that women are less socially sanctioned, or more approved of by their friends, when they seek a second partner in the event their first cannot provide. These findings highlight normative drivers of HIV risk associated with transactional sex that should be addressed by HIV intervention efforts working with AGYW.

**WEPED373**

**Gender disparities in lifetime and recent transactional sex among high-risk youth**

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**Background:** Transgender and gender non-conforming (T/GNC) sex workers are severely marginalized and understudied despite having the highest HIV prevalence of all key populations globally, estimated at 27-40%. HIV prevalence among T/GNC sex workers is nine times higher than cisgender women sex workers and four times higher than cisgender men sex workers. T/GNC refers to gender identity that differs from assigned sex at birth. Cisgender refers to gender identity that corresponds with assigned sex at birth.

**Methods:** This analysis examined gender disparities in transactional sex among a cohort of high-risk 12-24 year olds (n=546) in Los Angeles and New Orleans in the Adolescent Medicine Trials (ATN): Project CARES from 2017-2018. Participants were recruited from homeless youth shelters, LGBT centers, clinics, and social media. Logistic regression was used to test the relationship between gender and prevalence of transactional sex (lifetime and last 12 months). Zero-inflated negative binomial regression was used to test the relationship between gender and prevalence of transactional sex (last four months). The sample was 58% cisgender men, 35% cisgender women, and 7% T/GNC. Among T/GNC respondents, 71% were transgender women, 10% transgender men, and 19% non-binary.

**Results:** Lifetime prevalence of transactional sex was nearly three times higher among T/GNC respondents than cisgender respondents (63% T/GNC, 25% cisgender men, 23% cisgender women) and twice as high in the last 12 months (51% T/GNC, 24% cisgender men, 22% cisgender women). In addition to gender, lifetime transactional sex was significantly associated with being lesbian/gay, bisexual, or queer; lifetime history of homelessness, incarceration, mental health hospitalization, and substance abuse treatment; and recent (last 12 months) illicit drug use. Testing positive for a sexually transmitted infection, sex with an HIV-positive partner, and condomless anal sex. There were no significant gender differences in frequency of transactional sex in the last four months.

**Conclusions:** T/GNC youth are significantly more likely to report transactional sex than cisgender youth. Structural risks of incarceration and homelessness contribute to substance use and mental health conditions, which cumulatively exacerbate HIV risk for T/GNC youth. Interventions for T/GNC youth must address multiple, intersecting forms of marginalization that limit their access to supportive risk reduction environments.

**WEPED374**

**Self-esteem as an indicator of transactional sex among young women in rural South Africa (HPTN 068)**

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**Background:** Transactional sex (TS), or the exchange of sex for financial or material gain, has been well documented as a contributor to the HIV epidemic in sub-Saharan Africa. Studies conducted among young women in South Africa have found that approximately 20% of participants reported engaging in TS. Previous research has yet to identify psychological and social factors that make young women vulnerable to TS. Self-esteem has been associated with the adoption of risk behaviors among young people. The objective of this analysis was to determine if self-esteem is associated with TS among young women in South Africa.

**Methods:** HPTN 068 was a 3-year randomized controlled trial to assess the impact of a conditional cash transfer on HIV incidence among young women in rural South Africa that enrolled 2,533 participants from 2011-2012. In 2015-2017, a cross-sectional survey was offered to all participants from the main trial who had not died or been withdrawn. The current analysis utilized this post-intervention visit survey. Self-esteem was derived from the Rosenberg self-esteem scale and dichotomized at the median. TS was derived from 8-yes/no items that inquired if a participant had exchanged sex for food, money, material goods, or social status since their last visit in the main trial. Participants who responded “yes” to one or more items were categorized as having TS. Log-binomial regression was used to compute a prevalence ratio (PR). Additional covariates were specified to minimize confounding bias.

**Results:** 1,442 young women ages 17-26 years (M=20 years) were included. Approximately half (49%) were categorized as having high self-esteem and 45% reported having engaged in TS since their last visit. The prevalence of TS among those with low self-esteem (23.9%) was 5.05 times the prevalence of TS among those with high self-esteem (4.7%). 95% CI: 3.61-7.08, p<0.001. The effect remained significant after adjusting for age, education, financial security, intimate partner violence, gender attitudes, and adverse childhood experiences (PR=4.10, 95% CI: 2.91-5.78, p<0.001).

**Conclusions:** Findings provide support for the association between low self-esteem and TS in this context. Future research should examine self-esteem and incident TS to establish causality. Psychosocial factors, including self-esteem, should be considered when designing intervention programs.
WEPE375
Beyond money and gifts: Identifying the strategies men use to establish and maintain relationships with adolescent girls and young women in Uganda

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Background: While much research has focused on men’s use of money/gifts as a strategy for establishing relationships with adolescent girls and young women (AGYW), including implications for HIV risk, little is known about other tactics employed. We explored men’s perspectives on these issues in Uganda.

Methods: We conducted in-depth interviews with 94 male partners of AGYW (ages 19-49) in three districts of Uganda, from March-May 2017. Respondents were recruited at community ‘hot spot’ venues (n=54) and via AGYW participating in DREAMS interventions (n=40).

Results: Most respondents (80%) were married (with mean age 28). Half reported recent multiple concurrent partnerships, mainly with AGYW. Nearly all men described using money/gifts as a strategy for starting and/or maintaining these relationships—from a meal to school fees or luxury items. However, participants reported other strategies as well. Some men used the nature of their occupation to engage girls, such as ready access to transport from a boda-boda motorcycle-taxi driver, or a man’s bar or shop as a social hang-out space. Many men described using ‘go-between’s’, his own or the girl’s friends or relatives, to establish familiarity before approaching her himself—often in return for bribes. Finally, men used regular phone contact to emphasize their interest in a young woman, with some men buying her a phone to make sure he can ‘keep her close.’ Men saw these strategies as necessary to ‘get the girl,’ grounded in the belief that he is only valuable based on the material wealth and lifestyle he can provide.

Conclusions: Men in Uganda use a range of strategies to establish relationships with AGYW, including money/gifts, the nature of their occupation, go-between’s, and regular phone contact. Such strategies generally demonstrate controlling behaviors and may heighten AGYW’s vulnerability to HIV (and violence). Community-based interventions are needed to engage both men and women in critical reflection about the risks and emotional impacts of such strategies on both genders.

Migration and HIV
WEPE376
Sexual partnership patterns and HIV risks among male migrant market workers from Central Asian countries in Kazakhstan

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Background: Globally, risky sexual behavior found to be associated with migration and mobility and contributes to HIV/STIs transmission. We hypothesized that sexual partnership patterns, including: 1) monogamous partnership (MP) - both partners report only one partner; 2) indirect multiple partnerships (IMP) - a person reports one partner, while his partner has many partners; 3) simple multiple partnership (SMP) - a person reports many partners, the later reports one partner; 4) complex multiple partnerships (CPMP) - a person reports many partners, who also have multiple partners, would be associated with mobility and HIV/STIs sexual risk (unprotected sex, sex under influence of alcohol, sex with a sex worker) among male migrant workers from the biggest market in Central Asia (CA), Almaty, Kazakhstan.

Methods: We used data of sub-sample (n=830) of sexually active men from a cross-sectional survey with biological data on HIV/STIs (syphilis, chlamydia, gonorrhea) from the Silk Road Health study among 1,342 male market workers. We used regression analysis (adjusting for age, marital status, income, migration status) to examine the association between sexual partnership patterns, mobility, HIV/STIs sexual risk and prevalence of STIs.

Results: Of the sample, 44.9% reported being in MP. 12% - IMP, 26% - SMP, 73.1% - CPMP. Mobility was associated with higher likelihood of being in CMP (IRR=1.68, 95%CI: 1.04, 2.72; p=0.05) and with lower probability of being in MP (IRR=0.70, 95%CI: 0.59, 0.83; p<0.001). Being in CMP was associated with higher likelihood of having unprotected sex with a female partner (IRR=1.43, 95%CI: 1.17, 1.74; p<0.001). Commercial sex was associated with higher likelihood of being in CMP (IRR=2.25, 95%CI: 1.46, 3.45; p<0.001) and in SMP (IRR=1.88, 95%CI: 1.32, 2.69; p<0.001). Likelihood of having sex under influence of alcohol was higher among men in CMP (IRR=1.95, 95%CI: 1.45, 3.39; p<0.001) and in SMP (IRR=1.88, 95%CI: 1.32, 2.69; p<0.001), whereas for men in MP, it was lower (IRR=0.28, 95%CI: 0.18, 0.43; p<0.001).

Conclusions: Sexual partnership patterns are characteristics of mobile population that may increase heterosexual transmission of HIV/STIs and must be considered in HIV/STIs prevention approaches among mobile populations in CA.

WEPE377
Antiretroviral treatment outcome in migrant workers living with HIV in Northern Thailand

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Background: Migrant workers living with HIV in Thailand have access to ART through various publicly supported health care programs. However, there has been concern that being minorities plus potential socio-economic barriers would impact the effectiveness of treatment in this population. We determined HIV treatment outcomes among migrant workers in northern Thailand.

Methods: A cross-sectional study was conducted at 12 community hospitals in Chiang Mai, Northern Thailand. Inclusion criteria were: 1) working in Thailand with history of birth outside Thailand; and 2) having HIV infection and on ART for ≥1 year. The study complied with local IRB. All eligible patients were invited to join, written informed consent was obtained prior to a face-to-face interview. Laboratory results and ART regimens were reviewed from hospital record. HIV treatment outcomes were determined from immunologic and virologic measurement.

Results: Two hundred and fifty-seven patients were enrolled. 65% were female. The mean age was 39.8 ± 18.8 years. Seventy-eight percent identified themselves as Shan ethnicity, and 99% of all were from Myanmar. Half (54%) never attended formal education. Ninety-one percent were employed; 23% in construction, 21% in agricultural/farm, and 21% were general laborers. Their median monthly income was 6,000 baht (185 USD) (IQR 3,500-8,000). Sixty-two percent were living with husband/wife or partner. The median duration on ART was five years (IQR 3-7) with a majority (93%) on the first-line NNRTI-based (49% efavirenz, 42% nevirapine), and 9% receiving PI-based regimens. Eighty-eight percent self-reported ≥95% adherence. Their mean current CD4+ lymphocyte count was 450 ± 279 cells/mm3; 178 (63%) had CD4+ lymphocyte count ≥ 350 cells/mm3, and 94% were virologically-suppressed having HIV RNA level < 400 copies/mL. No difference was seen in characteristics between those virologically suppressed or not. In multivariate logistic regression analysis, factors associated with CD4+ lymphocyte count ≥ 350 cells/mm3 included female sex, received HIV testing due to reasons other than illnesses, and duration on ART ≥ 5 years.
Conclusions: Favorable ART outcomes were seen among migrant workers in northern Thailand. Screening for HIV prior to other illnesses and subsequent linkage to HIV care should be continuously encouraged to preserve immune function and minimize time for HIV transmission.

**WEPED378**
Internal migration, changes in household composition and engagement in HIV care and treatment in rural South Africa

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Background: Within South Africa, where national HIV prevalence is 12.2%, evidence suggests that rural areas characterized by high levels of temporary and internal migration and changes to household composition are most impacted by the epidemic. Understanding and tracking engagement in care in communities with highly mobile populations is complicated as individuals access care at more than one location. We utilized data from a health and socio-demographic surveillance site (HDSS) in Agincourt, Mpumalanga to assess the impact of population movement on HIV care engagement.

Methods: We merged data for all adults aged 18 to 49 captured within the annual HDSS census with electronic medical record data captured between 1 August 2015 and 31 December 2016 at the ten clinics serving the HDSS catchment area. Linking clinical data to the census records allowed us to track HIV care and treatment for individuals who accessed care at multiple sites, as well as to assess both migration (within and away from the region) and changes in household composition for each individual.

Results: Overall 32,481 women and 30,278 men aged 18 to 49 were resident in the HDSS between August 2015 and December 2016. Among residents, 50% had experienced some type of migration and 40.5% experienced a change in the number of adults living in the household. Being identified as HIV-positive on clinic records was associated with recent birth (OR 1.5, 95% CI 1.4-1.7) or death in the household (OR 1.6, 95% CI 1.2-2.2). Those who had migrated within the HDSS or experienced temporary migration were less likely to be identified as HIV-positive OR 0.72, 95%CI 0.62-0.83 and OR 0.86, 95% CI 0.86-0.94, respectively. Internal migration (OR 0.71, 95% CI 0.63-0.94) and having given birth (OR 0.67, 95% CI 0.56-0.81) were associated with defaulting from care.

Conclusions: In a high prevalence area with both a high degree of temporary and permanent migration, migration was associated with both lower probability of being identified as HIV-positive and increased probability of default from care. Our findings highlight the need for innovative care strategies to improve HIV diagnosis and engagement in care for migrant populations.

**WEPED379**
Qualitative study on the providers’ perspectives regarding access to HIV care and treatment of migrants between Lesotho and South Africa

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Background: The HIV treatment and care cascade aims to diagnose and provide treatment and care to HIV infected individuals. However, HIV treatment and care for migrants is affected by their mobility and interaction with HIV treatment programs and the health care systems in different countries.

Objective: To assess service providers’ knowledge around healthcare services provision to migrant HIV patient populations and continuity of care in both rural and urban facilities situated in high HIV burden districts of Lesotho.

Methods: The study setting included three borderland districts of Lesotho where migration flows are known to be high. A total of 15 health facilities accessed by high patient volumes were selected in Maseru, Leribe and Mafeteng. Purposive sampling was used to recruit health care providers for qualitative in-depth interviews across facilities. Two service providers at each facility were identified among those with highest interaction with HIV-infected patients on ART (clinicians, physicians, nurses, pharmacists, or counsellors). Data were analysed using the grouping of themes approach.

Results: Service providers indicated that the current referral system for HIV-positive patients on ART lacks flexibility; most migrants do not know their precise destination before leaving their country; yet, a transfer letter is accepted in South Africa only if addressed to a specific health facility. They also identified discrimination based on nationality or language as another barrier to access. Service providers indicated that most migrant patients preferred all HIV treatment services to be rendered in Lesotho, as they perceive the treatment provided in South Africa to be less effective and having more serious side effects. A need for mHealth systems or telephone tracking to track patients outside the country was suggested in combination with multi-month dispensing of antiretroviral treatment (ART) and harmonizing documentation among neighbouring states thus making referral processes easier.

Conclusions: Service providers’ perspectives indicate the need to modify and re-structure HIV care among migrants. Specifically, in relation to differentiated care model that will support multi-month supply of treatment, tracing and mirheath platforms to improve various HIV outcomes including retention, adherence, virologic suppression and mortality.

**WEPED380**
Access to HIV care and treatment for migrants between Lesotho and South Africa

I.O. Fatuuryele1, K. Ntene-Sealiete2, D. Karletso1, A. Musekiwa1, M. Kabobo1, N. Sigwebele1, S. Mndaweni1, B.M. Mpiila1, P. Pisa1, K. Male1, 1EQUIP Innovation for Health, Maseru, Lesotho, 2Ministry of Health, Maseru, Lesotho, 3Ministry of Health, Maseru, Lesotho, 4EQUIP Innovation for Health, Centurion, South Africa, 5EQUIP Innovation for Health, Centurion, South Africa, 6EQUIP Innovation for Health, Maseru, Lesotho

Background: The HIV treatment and care cascade aims to diagnose and provide treatment and care to HIV infected individuals. However, HIV treatment and care for migrants is affected by their mobility and interaction with HIV treatment programs and health care systems in different countries.

Objective: To assess healthcare needs, preferences and accessibility barriers of HIV-infected migrant populations in high HIV burden, borderland districts of Lesotho.
Methods: We selected 15 health facilities accessed by high patient volumes in Masera, Leribe and Mafeteng. We then administered a survey questionnaire to consenting HIV infected individuals on anti-retroviral therapy (ART).

We defined a migrant as a Lesotho national who is currently living or has been living in South Africa for at least three consecutive weeks in the past six months.

Results: We enrolled a total of 2,784 HIV-infected migrants: 57.0% from urban sites and the remainder from rural sites; majority were aged between 36-45 years (37.6%); and almost half (49.7%) were domestic workers followed by construction workers (18.0%). More than 95.0% preferred and collected their medications primarily in Lesotho. In terms of preferred dispensing intervals, less than 70% opted for a 1-2 month anti-retroviral (ARV) refills whereas 30.2% and 83.0% indicated a preference for 3-6 month and 6-12 month refills respectively. More than 65.0% encountered barriers to receiving their antiretroviral treatment (ART) and about 25.0% defaulted while in South Africa. Treatment default rate for domestic workers and textile industry workers was significantly higher than that of other professional categories (p<0.02); however, we did not observe significant differences in defaulting with respect to gender (p=0.11). The primary reason for defaulting was failure to afford travelling costs to collect medication.

Conclusions: Existing healthcare systems in both South Africa and Lesotho experience challenges in providing proper care and treatment for HIV infected migrants. There is need for targeted interventions and a differentiated care model specific to HIV infected migrants such as a multi-month supply of treatment.

WEPE381
The intersections of transnationalism, sexuality, and HIV risk: The case of Chinese immigrants to Canada

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Background: Immigrants studies in recent decades widely document international migrants’ dual, simultaneous engagement in sending and receiving countries. The notion of transnationalism - in such forms as cross-country mobility and connections - and its implications for research into HIV risk have been largely overlooked, however. Based on a study of the new wave of Chinese immigrants to Canada, this paper explores the effects of transnationalism on those individuals’ risk perceptions, risk exposure and risk responses.

Methods: Informed by multi-sited ethnography, the data were collected through individual, semi-structured, in-depth interviews carried out from 2012 to 2015 with 66 Chinese adult immigrants - 31 women and 35 men - in Canada and China. Guided by the coding scheme that was collectively developed by the research team, the transcribed interviews were coded by using NVivo (9.2).

Results: First, the settlement processes and subsequent challenges in Canada - such as economic downward mobility, geographic separation of married spouses, and social marginalization and isolation - have made Chinese immigrants under study vulnerable to sexual health (including HIV) risks that they may not face back home. Second, despite the changing dynamics of HIV risk in a in a post-immigration context, their risk perceptions and attitudes toward HIV are largely influenced by the values and beliefs they developed in China. Third, although living in Canada means a bigger space for individual freedom, their simultaneous awareness of the desired gender roles and relations in the two, quite different, societies in turn generates various contradictions and conflicts that compromise their capacity to respond to the risk.

Conclusions: In a globalizing world, risks to international migrants’ health involve complex, multi-faceted interactions between host and home country values, practices and norms. Taking into account Chinese immigrants’ sustained linkages with their home country, we argue that researchers should go beyond a nation-bound concept of society (i.e., the host society), and take into account the simultaneous influence of both Canada and China on their HIV vulnerability.

Violence and conflict: political, social, structural, interpersonal, and family-based

WEPE382
Quantifying the levels of violence towards men who have sex with men (MSM) in three cities of Honduras

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Background: High rates of drug and gang violence, makes Honduras a violent country. A social context of traditional values, homophobia and machismo create an environment that makes MSM vulnerable. There has been no recent quantification of violence towards them. The Pan American Social Marketing Organization conducted a population-based study to assess the USAID Combination Prevention Program for HIV and quantify the proportion of this population experiencing violence.

Methods: Between May-August 2017, a respondent driven sampling (RDS) cross-sectional survey was conducted in three Honduran cities with 1922 MSM (47% from Tegucigalpa, 31% from San Pedro Sula, 22% from La Ceiba); aged 18-40 years old. Four types of violence were measured (psychological, verbal, physical and sexual); by asking participants if they have felt threatened, insulted, punched of forced to have sex during the last 12 months, and if they perceived it was due to their sexual preference.

Results: Overall, 15% of the participants self-identified as heterosexual, 33% as bisexual, 33% as gay, and 9% as transgender. In addition, 50% was of low socioeconomic status (SES), 30% of middle SES, and 20% of high SES. In Tegucigalpa, 29% of the participants suffered some type of violence; 21% suffered psychological violence; 34% verbal violence; 11% physical violence; and 7% sexual violence perceived to be related to their sexual orientation. In San Pedro Sula, 18% suffered some type of violence; 17% suffered psychological violence; 26% verbal violence; 10% physical violence; and 5% sexual violence. Finally, in La Ceiba, 26% suffered some type of violence; 25% suffered psychological violence; 34% suffered verbal violence; 15% physical violence; and 6% sexual violence. Results show that suffering some type of violence may reduce the chances of using condom at last sex (OR 0.694 [0.511-0.943], p < 0.05), and increase the probability of conducting an HIV test (OR 1.536 [1.214-1.942], p < 0.001).

Conclusions: The study shows considerable levels of violence towards MSM due to their sexual preferences, and how it can influence healthy behaviors. Therefore, it is important for HIV prevention programs to promote violence prevention activities and offer psychological support at clinic level.
WEPED383
Prevalence of intimate partner violence among HIV positive depressed perinatal PMTCT-plus clinic attendees in urban Tanzania: A baseline study

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Background: Intimate partner violence (IPV) among women with HIV and depression in Tanzania is a social problem that may occur following partner disclosure of a woman’s positive HIV status. The main objectives of this study were: to estimate the prevalence and types of IPV among HIV positive and depressed perinatal women attending antenatal clinics in 16 health facilities in Dar es Salaam, Tanzania, and to examine associations between IPV and disclosure of HIV status in this sub-population.

Methods: The baseline survey of a cluster randomized controlled trial that enrolled 742 attendees of antenatal clinics in Dar es Salaam contributed data for this analysis. Participants attending clinics for prevention of mother-to-child transmission of HIV and on antiretroviral therapy (ART) were enrolled if they provided informed consent to participate and screened at or above the threshold of 9 on the PHQ-9, a depression screening tool. Data were collected using interviewer administered questionnaires to obtain sociodemographic measures, experience with physical or sexual IPV in the past six months, self-disclosure of their HIV status, and experience of emotional violence from their partner after disclosure of status.

Results: The mean age of participants was 29.6 years old (SD=5.4; range of 18-43). Among 725 women who responded to the question, 569 (90.9%) had experienced IPV in the past six months, and 76 (10.2%) women had experienced sexual violence. Nearly 75% disclosed their HIV status to anyone outside health facility staff of whom 63% had disclosed their HIV positive status to their partners. The risk of experiencing any physical or sexual violence was not different between women who disclosed their HIV status to their partners and women who did not disclose (RR: 0.98, 95% CI: 0.82, 1.18). After disclosing their HIV status to partners, 60 (17.3%) of these women experienced IPV.

Conclusions: Reports of both physical and sexual IPV were high in this population of HIV-infected, depressed pregnant women. Although there was no association between physical and sexual IPV and disclosure, increased protective norms need to be made regarding the risk of emotional abuse following disclosure of HIV status.

WEPED384
Coerced first sex among adolescents living with HIV in the Copperbelt, Zambia: Cross-sectional analyses of prevalence and associations with ART adherence, depression and alcohol use

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Background: Experience of sexual violence is linked with poor antiretroviral therapy (ART) adherence, poor mental health, and alcohol abuse among HIV-positive adults. However, we lack data on sexual violence and associated outcomes among adolescents living with HIV (ALHIV) in sub-Saharan Africa (SSA). This secondary analysis aimed to estimate prevalence of one form of sexual violence—coerced first sex—and its associations with ART adherence, depression, and alcohol use among ALHIV ages 15-19 in Zambia.

Methods: A cross-sectional study was conducted (December 2012-May 2013) in three HIV clinics in urban areas of the Copperbelt Province to examine ART adherence and sexual behaviors. We interviewed 309 of the estimated 365 ALHIV receiving care at these clinics. Prevalence and odds ratios were calculated for coerced first sex, a binary measure, were tabulated. Exact logistic regression was used to estimate crude and adjusted associations between experience of coerced first sex and a 24-hour consecutive treatment gap in ART in the past three months, a positive screen for depression based on the Hopkins Symptoms Checklist depression subscale (HSC-15), and past-month alcohol use.

Results: 64 ALHIV (21% of the sample, 55% female, 65% perinatally infected) who reported having ever had sex were included. Over one-third of males (9/29, 31%) and two-thirds of females (22/35, 63%) reported their first sexual experience was forced. Of these, 16% (5/30) reported they acquired HIV through rape or forced sex. In analyses adjusted for age and sex, adolescents who experienced coerced first sex showed higher odds of having a 24-hour treatment gap in ART in adherence in the past three months (OR 1.53; 95%CI 0.35-6.89), but this association did not reach significance.

Conclusions: The high prevalence of forced sexual debut in our study, particularly among females, highlights the need for clinicians to ask about experiences of sexual violence on enrollment in ART and to tailor services appropriately. Our study was not powered for these analyses, and additional research is needed on experience of sexual violence and its effects with HIV-related outcomes, including ART adherence, among ALHIV in SSA.

WEPED385
The relationship between intimate partner violence and HIV risk behaviors in Black and White young men who have sex with men

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Background: Young men who have sex with men (YMSM) are the group at highest risk for HIV infection in the US. Previous research demonstrated that experiencing intimate partner violence victimization (IPV) was associated with increased risk for HIV in minority women. Although data indicates that men are also victims of IPV, few studies have examined IPV experiences of YMSM, and the relationship between IPV and HIV risk in this high-risk population. Accordingly, the following research questions were asked:

1) What is the extent of IPV experienced by YMSM? 2) Is IPV significantly associated with HIV-risk behaviors, accounting for demographics?

Methods: Participants were 168 YMSM ages 18-34 (M=25.01, SD=3.58) recruited from AIDS service organizations (ASOs) in two mid-sized midwestern cities, who were 57% Black and 43% White. Data were collected through computer-assisted personal interviews assessing HIV risk behaviors in last 12 months: number of unprotected anal intercourse (UAI) occasions; number of male sexual partners (MSEXP); PrEP use. Independent variables were types of IPV, physical, controlling, monitoring, HIV-related, emotional. Demographic variables were ethnicity, education, income. Data analyses included descriptive statistics, non-parametric correlations, logistic and negative binomial regressions.

Results: More than half (57.7%) reported experiencing at least one type of IPV in the last year. Logistic regression results showed that those who experienced higher levels of IPV-related (IPV (OR 1.44, p<0.01) and higher income levels (OR 1.30, p<0.05) were more likely to use PrEP than their counterparts. Bivariate analyses indicated that monitoring IPV was significantly associated with more UAI, and controlling and HIV-related IPV were significantly associated with more MSEX.P. However, results of negative binomial regressions showed these relationships were not significant with demographics in the models. Analyses examining demographic differences in HIV-risk behaviors indicated that White and more highly educated YMSM reported significantly more MSEX.P than their counterparts.
Conclusions: Findings suggest that HIV-related IPV (e.g. partner lying about or not disclosing HIV status) may act as a motivator to using PrEP for YMSM because of their increased perceptions of susceptibility. Other forms of IPV may not be directly associated with increased UAI or MSEXP. Results may be specific to YMSM using ASO services in mid-sized cities.

WEPE0386

"Neither safe nor secure": Systematically addressing safety and security in HIV programs for key populations to protect implementers and facilitate effective programming

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Background: Community-based organizations (CBOs) are the heart of HIV programs for and with key populations (KPs) - men who have sex with men, sex workers, transgender women, and people who inject drugs. Implementers of KP programs working in hostile environments—for example, where KP members are criminalized—face safety and security challenges ranging from eviction and blackmail to torture and death. These human rights violations also limit the impact of HIV programs. More needs to be done to protect implementers and limit programming interruptions.

Description: To address this gap, in 2017 the International HIV/AIDS Alliance and FHI 360—through the USAID- and PEPFAR-supported LINKAGES project—conducted a desk review and convened a workshop in East Africa of 48 CBOs, nongovernmental organizations (NGOs), UN agencies, donors, and security experts working in hostile environments to develop a safety and security toolkit. The toolkit includes: 1) a review of safety and security challenges, their impacts on HIV programming, and promising practices to address them; 2) practical checklists to help program implementers systematically identify safety and security gaps affecting organizations, individuals, and implementation sites; and 3) an annotated bibliography of safety and security resources. Workshop attendees used and added to the toolkit, making observations about its utility in their contexts.

Lessons learned: Workshop participants confirmed that very few organizations implementing programs for and with KPs feel that they are adequately equipped to keep their implementers safe. At the same time, many CBOs have developed strategies and resources to address safety and security challenges that they believe could also help others. Helping CBOs identify their gaps and linking them to existing resources, through the toolkit, is an effective way to increase awareness of both safety and security gaps and resources.

Conclusions/Next steps: Integration of this toolkit, including completing the checklists and developing a safety and security plan to address any identified gaps, should be a resourceful part of HIV programs for KPs. Donors and NGO partners must work together to ensure that local organizations taking on risks as part of implementing HIV programs also receive support to mitigate and respond to those risks.

WEPE0387

Preventive strategies for sex workers to reduce risk of violence and HIV

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Background: Violence is one of the most important factors affecting the vulnerability of sex workers to HIV/AIDS. Sex workers experience physical, sexual, economical and emotional violence from clients, police and the community. This often causes inconsistent condom use and prevents sex workers from accessing necessary support and health care. To avoid and mitigate the risk of violence and HIV they adhere to a variety of strategies and techniques. This study describes prevention and mitigating strategies used by sex workers in Southern Africa to reduce risk of violence and HIV.

Methods: Participatory mixed methods were used. In total 2227 sex workers participated in the study (N= 1895 for survey, N= 79 for in-depth interviews, N= 253 for FGDs) in Botswana, Mozambique, Namibia, South Africa and Zimbabwe. Sex workers were part of the design and roll-out of the study. Additionally they were trained as research assistants and distributed the survey among peers. The survey and in-depth interviews focused on violence; social capital; law enforcement; and risk and mitigation factors.

Results: Sex workers who experience violence adhere to a variety of strategies and techniques to avoid and mitigate risks. Most used strategies are negotiating and receiving payment before having sex (97%), avoiding known dangerous places (96%) and adapting their behavior (92%). Sex workers who use preventative measures see no significant difference in the amount of violence they face. Regression analysis shows that the only effective strategy is giving money to another sex worker to protect earnings, which decreases the amount of economical violence. Furthermore, sex workers who refuse clients more frequently experience more violence. Conclusions: Preventative measures used by sex workers are not sufficient to reduce violence and increase their safety and security. To prevent violence and HIV sex workers’ human rights need to be respected by society and protected by law enforcement and the judicial system. Furthermore, decriminalization of sex work is necessary, since it promotes safe working conditions for sex workers, reduced police violence and abuse, and better client negotiation capacity.

WEPE0388

Effects of a community empowerment intervention on physical violence among female sex workers in Tanzania

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Background: Female sex workers (FSWs) in Tanzania experience high rates of gender-based violence (GBV), which is associated with increased risk for HIV. We assessed whether a community empowerment-based approach for combination HIV and violence prevention was associated with reduced physical violence among FSWs in Iringa, Tanzania. We also sought to determine the predictors of physical violence among this population.

Methods: A phase II community randomized controlled trial of a community empowerment-based combination HIV prevention approach, Project Shikamana, was conducted in Iringa, Tanzania. Intervention components included workshops to raise awareness about violence and sex worker rights, and provide opportunities for FSWs to strategize ways to prevent and address violence perpetrated against FSWs. We used logistic regression models for repeated measurements at baseline and 18 months follow-up to explore changes in physical violence in the past 6 months by intervention community, and assess the determinants of physical violence among FSWs.

Results: A total of 387 FSWs were enrolled in the Project Shikamana cohort at baseline and completed the follow-up survey. Baseline prevalence of violence was 41% and 35% reported physical violence in the past 6 months. Stratified analysis by study community revealed that FSWs in the intervention community had significantly decreased odds of physical violence at follow-up (OR: 0.51, 95% CI 0.29-0.88). There were no significant differences in the control arm. In unadjusted analyses, intoxication during sex work, work mobility, clients expecting FSWs to use substances during sex work, having four or more clients per week, and denial payment for sex work were associated with increased odds of physical violence. Clients’ expectations of FSW substance use
and denial of payment for sex work remained significantly associated with increased odds of physical violence, after adjusting for age, income, marital status, HIV status, and significant variables in the bivariate analysis.

Conclusions: Project Shikamana was associated with reductions in physical violence among FSWs in the intervention community. Findings suggest the potential role community-empowerment interventions can play in violence prevention among FSWs and highlight the need for future interventions among this population to address client expectations of substance use during sex work and denial of payment for sex work.

WePed390
Experiences of traumatic events increases men's HIV-risk behaviours: A cross-sectional and structural equation model (SEM) amongst young (18-30) men in urban informal settlements in South Africa

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Background: Qualitative research on men’s HIV-risk behaviours has emphasized how men’s experiences of traumatic events, such as witnessing violence, being attacked, and so forth may lead to increased HIV-risk behaviours. Little quantitative research has sought to operationalize these ideas. We seek to understand the associations between experiences of traumatic events and HIV-risk behaviours amongst heterosexual men in urban informal settlements in South Africa.

Methods: We conducted a cross-sectional survey among 2517 men living in urban informal settlements in Johannesburg and Durban, South Africa, enrolled in two intervention trials. We modelled associations in two ways, first through adjusted regression models, and secondly structural equation modelling (SEM) to assess whether men’s experiences of traumatic events were independently associated with increased HIV-risk behaviours, and whether there were mediated pathways via mental health, gender attitudes, and intimate partner violence (IPV). A synergistic structural equation model (SEM) was used to assess if the associations were independent of each other.

Results: Of 2517 men, 87.7% reported any past year risky sexual behaviour and 63.8% reported any traumatic event in their life. In adjusted regressions, witnessing violence, being attacked, and having fear of violence increased the risk of being attacked, and having fear of violence increased the risk of being attacked. Little quantitative research has sought to operationalize these ideas. We seek to understand the associations between experiences of traumatic events and HIV-risk behaviours amongst heterosexual men in urban informal settlements in South Africa.

Conclusions: Increased community-level CE was associated with reduced physical IPV incidence among AGYW in South Africa. These results support interventions that foster the development of CE at the community level to prevent IPV among AGYW and potentially improve HIV outcomes among this priority population.

WePed389
Community collective efficacy is associated with reduced intimate partner violence (IPV) incidence in the HPTN 068 cohort

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Background: Intimate partner violence (IPV) is associated with increased risk for HIV and reduced engagement along the HIV care continuum. Collective efficacy (CE), defined as mutual trust among community members and willingness to intervene on the behalf of the common good, has been found to be associated with reduced neighborhood violence. Limited research has explored whether CE is associated with reduced incidence of IPV. This is of particular interest among adolescent girls and young women (AGYW) in sub-Saharan Africa, where the burden of HIV is greatest and IPV is common.

Methods: We conducted longitudinal analysis among 2,533 AGYW (ages 13-30) enrolled in the HPTN 068 cohort in the Agincourt Health and Demographic Surveillance System. We included participants from the 28 villages where community surveys and annual census data were collected during the 068 study. HPTN 068 participants completed up to five annual survey visits (2011-2016). Household-level data were collected from the parent/guardian of each participant at all visits. CE was measured at the village-level in 28 communities in Agincourt via two population-based cross-sectional surveys among 18-35 year old residents in 2012 and 2014. The CE score represents a summary village score created by combining validated measures of community social cohesion and to social cohesion and to social control. We used a Poisson generalized estimating equation regression model to assess the relative risk (RR) between village mean CE scores and subsequent physical IPV 12-month incidence, adjusting for age at baseline, HIV status, education, baseline reports of physical IPV, household assets, and community characteristics.

Results: Thirty-eight percent of the cohort (N=950) reported at least one episode of physical IPV after baseline. For every standard deviation increase in village-level CE, there was a 6% reduction in physical IPV incidence in the past 12 months (RR 0.94, 95% CI: 0.90, 0.98, p<0.001) among AGYW after adjusting for covariates.

Conclusions: Increased community-level CE was associated with reduced physical IPV incidence among AGYW in South Africa. These results support interventions that foster the development of CE at the community level to prevent IPV among AGYW and potentially improve HIV outcomes among this priority population.
WEPED391
Hidden and covered - underreporting of violence in transgender project even after empowerment processes

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Background: Gender inequality, stigma and discrimination, punitive laws, lack of sensitized government testing centres, service accessibility, providers’ attitude, and violence, remains some of the barriers faced by the TGH population in India. India HIV/AIDS Alliance implemented Wajooid programme for empowering the TGH to increase their access to the health services by creating an enabling environment. Under this, one of the major objectives is documenting the human rights violence faced by TGH.

Methods: A cohort of 385 client’s crisis cases were documented in two years under the programme intervention. Client data were collected using structured software called ReACT excel tool. Descriptive analyses were carried out using the SPSS 20.0. As an intervention, individuals facing any kind of crisis will be intimated to the Wajooid programme. Community mobilisers, advocacy officers and crisis response team will support the individuals to overcome the crisis within 48 hours.

Results: Among 2,925 TGH only 385 (13%) TGH self-reported the crisis. 53% of crisis reported was of physical violence, 26% on harassment,19% on discrimination and remaining on trauma. Under the self-reporting population, 61% of crises were faced by transwoman, 29% by Hijra (subgroup of TGH). 37.4% of crisis reported was by Hijra (subgroup of TGH) who reported crisis in the age group of 26-30 years and 31% were from 18-25 years. 51% of crisis reported was of physical violence, 26% on harassment,19% on discrimination and remaining on trauma. Under the self-reporting population, 61% of crisis were faced by transwoman, 29% by Hijra (subgroup of TGH). 37.4% of crisis reported was by Hijra (subgroup of TGH) who reported crisis in the age group of 26-30 years and 31% were from 18-25 years.

Conclusions: The crisis which is self-reported here, many TGH were facing issues and struggling with barriers and has not reported yet, in the programme itself only 13% of TGH reported about the crisis. In this scenario enhanced awareness and empowerment is required for the TGH community and sustained interventions to solve their crisis by themselves, otherwise HIV programme will never be able to fully attain its goals.

WEPED392
Effects of intimate partner violence on engagement in HIV care among women living with HIV in Rakai, Uganda

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Background: There is an association between intimate partner violence (IPV) and HIV acquisition, but less is known about the effect of IPV on engagement in HIV care. We estimated the effects of IPV on engagement in HIV care among women in Rakai, Uganda.

Methods: This mixed-methods study employed quantitative analysis of women living with HIV (N=2,016) in the Rakai Community Cohort Study from 2008-2013, during which the Conflicts Tactics Scale was included in the survey. Measures included recent (last 12 months) forms of psychological, sexual, and physical IPV. Generalized estimation equations estimated population-averaged association of recent IPV and engagement in HIV care. Interaction terms assessed effect modification by age. Qualitative research included in-depth interviews with women who had reported IPV (N=25) and with service providers who provide HIV care and/or services for IPV (N=15). Interviews/discussions explored the behavioral mechanisms by which IPV impacts engagement in HIV care.

Results: 53% of participants were engaged in care and 29% reported recent IPV. The odds of engagement in care were 55% lower for women who reported any IPV in the same survey interval compared to those without recent IPV (Table 1, Model 1). Among participants with a recent IPV diagnosis, IPV reduced the odds of engagement in care by 69% which was marginally significant (Model 2). Recent IPV was marginally associated with a 59% reduced odds of engagement in care in the subsequent survey interval (Model 3). Models 1-3 demonstrated significant modification by age, in which the youngest age group (15-30 years) who experienced IPV have the lowest odds of engagement in care in the same and subsequent survey intervals. Qualitative research recounted direct effects of IPV on care and ART use, including partner destruction of medication. Multiple indirect effects of IPV on engagement in care were reported; these were often related to psychological violence that reduced women’s HIV service use to avoid IPV victimization.

Table 1: Relationship between IPV and engagement in HIV care among women living with HIV in Rakai, Uganda (2008-2013)
WEPE393

Why suffer in silence? The violence within!


Background: The USAID Strengthening the Care Continuum project, implemented by JSI, improves civil society and the Government of Ghana’s capacity to provide quality and comprehensive HIV services for key populations and people living with HIV. Intimate partner violence (IPV) among men who have sex with men (MSM) in Ghana, specifically Takoradi, has brought to the forefront disturbing concerns to practitioners in the public health community due to its devastating health effect on victims. Anecdotal evidence suggests that KPs suffer IPV, most of which go unreported largely because potential victims perceive their sexual behavior as criminal, against heterosexual norms of sexual practice and the economic power dynamics within the MSMs sexual relationship.

In 2015, we found out that 41 MSMs out of 1163 MSMs screened for SGBV suffered intimate partner violence within their relationships but did not officially report to the police for action due to fear of being arrested. All the 1163 MSMs were provided SGBV services. This informed the study which sought to:

“Reduce the effect of intimate partner violence within MSM relationships in the Western region of Ghana”.

Description: To address the challenge of IPV within MSM community, the project conducted advocacy against intimate partner violence among MSMs and in the process, key IPV messages were disseminated in the KP communities. Programs to educate MSMs on the safety and healthy living was done. Meetings with key partners such as Commission for Human Rights and Administrative Justice (CHRAJ) and Police, to advocate against SGBV to ensure access to SGBV services by KPs. A help desk was set up to provide emotional support, counseling and information to empower MSMs who have suffered violence.

Lessons learned: Reported cases of IPV has started showing a downward trend. 41 in 2015, 13 in 2016 and 9 in 2017 after the intervention. This data suggests that when programming for MSM exists to inform against IPV, violence and abuse among this population could be reduced.

Conclusions/Next steps: The findings suggest the usefulness of this approach and the potential for expansion. Intimate Violence among MSMs also reduced indicating that advocacy among KPs needs to be increased.

WEPE394

Men’s vulnerabilities are compromising their own health risk in Durban, South Africa

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Background: There is often limited focus on the vulnerabilities men face in their lives - either as key public health issues or as they link to HIV transmission. We examined such vulnerabilities and their association with HIV risk behaviors among men in Durban, South Africa.

Methods: We surveyed 962 men ages 20-40 recruited at community ‘hot spot’ venues (n=458) and at HIV service sites (n=504) in two informal settlements in Durban, from May-September 2017. Adult experiences of violence and of deprivation, and childhood experiences of abuse and of parental absence, were each measured with sets of 2-4 items. Alcohol abuse was measured by the AUDIT-C, depression by the PHQ4 scale (alpha=0.81).

Results: Respondents’ average age was 28.15% were married/cohabiting. On average respondents had 3.7 sexual partners in the last year, and 14% used condoms consistently with their last three non-marital partners. About 40% had ever witnessed an armed attack, been robbed at knifepoint/gunpoint, and had felt close to death. Before age 18, 77% had been beaten physically at home (14% ‘very often’), 21% had seen/had their mother being beaten by her husband/boyfriend. 42% were not raised by at least one biological parent, and 37% had lost a parent. Half (52%) abuse alcohol, and 30% were moderately or severely depressed. In multivariate analyses, adult experiences of violence (p=0.001) and of deprivation (p=0.001), and childhood experiences of abuse (p<0.005), were each associated with having multiple sexual partners in the last year. Childhood experiences of abuse and of parental absence were associated with less consistent condom use (p<0.05 and p<0.01 respectively). Parental absence was also associated with having more age-disparate partners (p<0.05). Men who abused alcohol had more partners in the last year (p<0.001) and more highly age-disparate partners (p<0.01). Depression was also associated with having more partners (p<0.05).

Conclusions: Men in Durban are experiencing serious vulnerabilities including depression, alcohol abuse, and childhood and adult experiences of deprivation and violence. Each of these factors had direct effects on key HIV risk behaviors. Interventions should focus on reducing such vulnerabilities, to promote wellbeing and to curtail the HIV epidemic.

Humanitarian crises and HIV

WEPE395

Triple threat: Resurfing epidemics, a broken health system, and global indifference to Venezuela’s crisis

M.A. Torres, A. Nievergelt

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Background: There is an unprecedented humanitarian emergency in Venezuela. In 2017, gross domestic product plummeted by 12% and inflation rates soared to 1,600%. Economic collapse has made accessing food and life-saving medicines difficult or impossible for most. The global response has been stunning indifference. The political nature of the crisis means that information is also limited, hindering efforts for effective relief. Greater transparency is needed to compel urgent global action.

Methods: To document the health emergency in Venezuela, ICASO and Acción Ciudadana contra el SIDA (ACCSSI) performed a rapid assessment during September 2017. A desk review was performed along with a series of targeted key informant interviews with people living with HIV, doctors, advocates, academics and United Nations representatives. The approach also included synthesis of information from an emergency consultation, convened by affected communities in Caracas, Venezuela.

Results: Venezuela is undoubtedly experiencing an acute public health emergency. There has been a 205% increase in new malaria cases after the country declared elimination; there is almost a complete lack of access to tuberculosis screening for vulnerable populations such as prisoners and indigenous communities; the number of AIDS-related deaths in the country has risen by nearly three quarters since 2011. Food is scarce and malnutrition and starvation are spreading. People on the ground describe frequent stock-outs of medicines, including antiretrovirals, and fear of imminent death.

Conclusions: Venezuela is a case study of the many ways in which international policies, based on numerical indicators and data, have failed to address a burgeoning crisis for the country and the region. Venezuela’s crisis is the result of a long process of political unrest and bad economic decisions. While it is in many ways unique, the case also is an indication of things to come. Many current high-income countries
are more vulnerable than they appear, and could experience shocks - whether due to conflict or natural disasters - that rapidly move them from one spot on the development spectrum to another.

WEPED396

Comprehensive services for Internally Displaced Persons (IDPs) and IDPs with chronic diseases affected by the war in Eastern Ukraine

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Background: The Humanitarian Needs Overview[1] estimates that 3.1 million people are in need of humanitarian assistance in Ukraine. Many IDPs stated that continuous stress and numerous obstacles interfere with seeking humanitarian assistance therefore they are reluctant to do so. It can make a direct threat to health and life for IDPs with chronic diseases like HIV infection, hepatitis, etc. [1] Ukraine: Humanitarian Crises Analysis, 2016. SIDA

Methods: In January 2016, the All-Ukrainian Network of PLWH has launched the 2-year project aimed at improving access to comprehensive services for IDPs (including the HIV-services) and adopting of the regional programme for IDPs which is to be financed from the budgets of the Donetsk and Dnipropetrovsk regions of Ukraine. The project envisages outreach activities and the work of the Centers for Comprehensive Services; legal component ensures collecting violations and protecting human rights. At the regional level, the project has taken over coordinating efforts between humanitarian actors, NGOs, and public institutions involved in IDP support.

Results: The feedback from project clients is apporatory but also stimulates project to remain flexible as lots of external factors have been constantly affecting it. Overly strict regulation hinders adopting of the regional programme for IDPs. Numerous cases of mental health issues among IDPs (which reportedly lead to cessation of treatment by people with chronic diseases) require remedial actions to be done by either project itself or its partners.

Conclusions: Although the project is still in progress, the following conclusions can be already made:

- While majority of the international humanitarian missions work mainly in the ‘grey zone’, it remains vital to keep supporting those IDPs who seek asylum at the government-controlled areas.

- The natural migration makes the continued client retention in the project almost impossible. Scaling up the initiative to other regions remains vital.

- Legal amendments should be advocated to ensure that all the required civil procedures and services are accessible and non-discriminatory toward IDPs.

WEPED397

Model of gender-sensitive services for internally displaced HIV positive women in Donetsk and Lugansk oblasts

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Background: Ukraine continues to have a concentrated HIV epidemic among key populations at higher risk of HIV. The armed conflict in the East of Ukraine affected Donetsk and Lugansk oblast and caused numerous internal displacement. Recent study showed that there are more internally displaced women than men, and they are more vulnerable to rights violation (as a cause and result of HIV and other sexually transmitted diseases) as well as to violence. requiring special legal support and services at the host communities.

Description: UNDP’s two years initiatives aimed to assess the ability of local public and civil society sector institutions to effectively respond to the growing HIV epidemic and ensure equal access to various local services for HIV positive women and girls affected by the conflict in the Eastern Ukraine.

In 2017 the mapping of gender-sensitive services for HIV positive was conducted followed by piloting Crisis Response Points for women and girls living with or affected by HIV at Donetsk and Lugansk oblasts.

Lessons learned: Absence of gender-sensitive services for internally displaced HIV positive women or women affected by the epidemic in the conflict areas. The piloted model of crisis response helped 30 women at risk of HIV or living with HIV applied to crisis response points for assistance, out of them almost 1/3 discovered rough violation of their rights. The developed awareness raising campaign “Be aware=be protected” targeting key populations has to support local level initiatives to motivate women and girls victims of sexual violence to refer for help and test for HIV.

Piloted crisis response models have to be presented at round tables or stakeholders meetings where all collected practices and challenges should be discussed.

Conclusions/Next steps:

- Local stakeholders have to be mobilized to pay more attention to address GBV and HIV/AIDS in the conflict regions.

- The New National HIV/AIDS Program and local HIV-related policies have to plan a specific gender-sensitive services for IDPs and HIV-positive women and girls faced GBV.

- Advocacy efforts and community mobilization should be taken over by local HIV services NGOs and local activists.

WEPED398

HIV response in the midst of natural disasters and a humanitarian crisis: The case of Puerto Rico

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Background: Hurricanes Irma & Maria made landfall in Puerto Rico (PR) on September 2017. The aftermath of both Hurricanes has been devastating, with detrimental impact on public health issues. PR has been in a state of political-economic emergency for years. The colonial relationship with the United States serves as a main constraint for local authorities and communities, due to an existing gap on congressional spending for health services. Social conditions prior to the natural disaster heightened the vulnerability of specific populations, particularly people living with HIV (PLWH).

Description: With a collapsing economy and a weakened infrastructure, the impact of the hurricanes, 2 weeks apart from each other, created a deeper humanitarian crisis. Basic goods including water, power, food and gas, were scarce if not absent for a long period of time. Communication networks were severely affected. Roads and transportation systems were paralyzed, making it impossible for PLWH to get to the clinics. Some HIV clinics suffered damages to their infrastructure, limiting service provision leaving PLWH without access to treatment and care.
Sexuality- and/or gender-based violence and exploitation, including in conflict settings

**WEPED399**

Experiences of gender-based violence among FSWS, MSM, and transgender women in Latin America and the Caribbean: A mixed methods analysis to inform HIV programming

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**Background:** Female sex workers, men who have sex with men, and transgender women are disproportionately affected by gender-based violence (GBV) and HIV. Yet little is known about the impact of GBV and the services key population (KP) members want after experiencing violence. This study explored the nature and consequences of GBV and the needs of victims to inform HIV programming.

**Methods:** Using a participatory approach, FSWS, MSM, and transgender women in Barbados, El Salvador, Trinidad and Tobago, and Haiti worked with the PEPFAR-supported LINKAGES project, UNDP, and the University of the West Indies to conduct a mixed-methods study. KPs trained in qualitative methods conducted 278 structured interviews with peers to understand GBV experiences and linkages between violence and HIV risk. Responses to open-ended questions were coded in NVivo and analyzed using applied thematic analysis; responses to closed-ended questions were entered into EpiData and analyzed descriptively.

**Results:** Nearly all participants (98 percent) experienced some form of GBV. Emotional and economic violence were most common (99 percent and 80 percent, respectively). More than 70 percent also reported sexual and physical violence and other human rights violations. Over 70 percent reported violence under age 18, during sex work, from intimate partners, in public places, health care, and from police. Impacts included trauma; lack of legal and health services; and loss of employment, housing, and education. Only 23 percent believed GBV put them at risk for HIV. While many disclosed violence to friends and family, few sought services for fear of further abuse. Participants wanted KP-friendly mental and physical health care and improved support from law enforcement.

**Conclusions:** GBV was pervasive, but victims had limited access to services and lacked recognition of the link between HIV and GBV. We recommend that HIV programs educate KPs on connections between HIV and GBV; implement GBV detection and care; sensitize and expand GBV programs traditionally targeting cisgender women and work with law enforcement to limit violence and create an environment where HIV programs can effectively operate. Integrated interventions addressing both HIV and GBV could help reduce KPs' burden of HIV, increase service utilization, and respect, promote and fulfill their human rights.

**WEPE400**

Increasing access to HIV prevention and treatment prevalence gender-based violence screening in Lubombo region of Swaziland

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**Background:** Despite linkage between HIV/STI and gender based violence (GBV), services for GBV survivors are limited. In 2016, the PEPFAR-funded project in Lubombo region started developing regional capacity for provision of medical and therapeutic counselling care to survivors GBV. The objective is to share lessons learned from establishing a GBV screening program in Lubombo for HIV care and treatment programs.

**Description:** Between September 2016 and September 2017, GBV services were established in 9 health facilities in Lubombo, and later expanded to 29 health facilities. A reporting network established for social, health, legal, police and community linkages and tools were developed. GBV Peer navigators routinely screened for GBV, provided health education, medical, therapeutic counselling and referral services. Data were de-identified and analysis done for routine patient care, quality improvement and program purposes.

**Lessons learned:** (1) the burden of HIV among GBV cases was high. (2) GBV screening program identifies links HIV positive cases to HIV care and treatment. (3) GBV survivor’s empowerment is critical for post GBV HIV prevention services. From inception, GBV case reporting increased from 1 GBV case per health facility per month to 12 cases. A total of 584 cases with mean age of 25 years were reported. 478 (79.1%) females, < 10 years (63), 10-14 (54), 15-24 (79), 20-24 (91), and 25+ (32). Emotional and psychological constituted (42%) neglect and economic abuse (26%), physical abuse (3%) and sexual abuse (10%); 100% of cases received psychosocial pack. 67% Sexual abuse cases who reported within 72 hours were eligible and received post HIV/ FP post exposure prophylaxis (PEP). 66 GBV cases came with HIV known status. 139 tested on site were HIV positive. All HIV positive cases were linked to treatment and care. 70% of GBV cases reported to health care facility/peer navigator and 30% to police then referred to health facility.

**Lessons learned/Next steps:** (1) national scale of GBV screening in health facilities, the network for GBV referrals and empowerment of GBV survivors should strengthened as an entry into care and for HIV prevention services.

<table>
<thead>
<tr>
<th>Age Group (N=584)</th>
<th>Physical abuse violence</th>
<th>Sexual abuse violence</th>
<th>Emotional/ Psychological abuse violence</th>
<th>Neglect and Economic abuse</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10 (N=584)</td>
<td>109</td>
<td>61</td>
<td>243</td>
<td>171</td>
<td>584</td>
</tr>
<tr>
<td>11-14 (N=584)</td>
<td>85</td>
<td>57</td>
<td>201</td>
<td>135</td>
<td>478</td>
</tr>
<tr>
<td>20-24 (N=584)</td>
<td>24</td>
<td>4</td>
<td>42</td>
<td>38</td>
<td>106</td>
</tr>
</tbody>
</table>

[Characteristics of presentations. By type of violence: for presentations October 2016 to December 2017]
WEPED401
Child labour in Tanzanian small-scale gold mines: High HIV and violence risk

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Background: Tanzania is among the world’s leading gold producers, partly through artisanal and small-scale mining (ASM). Though illegal, child labour in ASM is common and is considered one of the worst forms of child labour. Formative research in Tanzania suggests ASM communities are a high HIV-risk environment. Under the USAID Kizazi Kipya (K2) program, we assessed the association of child labour in ASM with experience of violence, sexual risk behavior and HIV in three councils with ASM activities in Tanzania.

Methods: In 2017, we conducted a baseline survey in ASM communities among 786 children (6-19 years) and their caregivers who had been identified to enrol in the K2 program. We also offered children voluntary HIV testing and counseling. K2 aims to reduce social and health (including HIV) risks of vulnerable children. K2-ASM beneficiaries were divided into children ‘working in mining’ (i.e. digging, crushing, washing ore, amalgamation and/or food preparation), bar work and sex work catering to miners) and children ‘not in mining’ living in the ASM communities but not working in mining. Respondents age 6 and older who answered the violence questions themselves were included in this descriptive and multivariable logistic regression analysis (n=371).

Results: Sexual, physical and emotional violence had been experienced by 12.6% of boys and 11.2% of girls (p=0.68), 76.1% of girls and 80.3% of boys (p=0.05). HIV prevalence was statistically significantly higher among children working in mining than among those in the general population (Figure-1). HIV prevalence was statistically significantly higher among children working in mining than in the general population. The proportion of children reporting HIV prevalence was 47.0% of boys and 33.0% of girls (p < .05) respectively.

Conclusions: ASM communities are a structurally high HIV-risk environment for children. Direct involvement in mining work puts both girls and boys at higher risk of experiencing sexual and physical violence. Child protection and HIV programs need to target children in ASM communities. These findings will inform service delivery to these beneficiaries through the K2 program.

Table 1. IPV and selected associated factors, stratified by HIV-status

| HIV- | N=300, median age 18y(IQR:15-23) | HIV+ | N=422, median age 34y(IQR:28-42)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IPV in n (%)</td>
<td>ADHD</td>
<td>95% CI</td>
<td>IPV in n (%)</td>
</tr>
<tr>
<td>Physical violence</td>
<td>(64/300 (21)</td>
<td>-</td>
<td>98/422 (23)</td>
</tr>
<tr>
<td>Sexual violence</td>
<td>(42/300 (14)</td>
<td>-</td>
<td>60/422 (14)</td>
</tr>
<tr>
<td>Physical violence</td>
<td>(33/300 (11)</td>
<td>-</td>
<td>48/422 (16)</td>
</tr>
<tr>
<td>Both</td>
<td>11/300 (4)</td>
<td>-</td>
<td>30/422 (7)</td>
</tr>
<tr>
<td>Accepted HB-HTC</td>
<td>34/165 (21)</td>
<td>1</td>
<td>p&lt;0.30</td>
</tr>
<tr>
<td>Declined HB-HTC</td>
<td>30/135 (22)</td>
<td>1.47</td>
<td>0.71-3.06</td>
</tr>
<tr>
<td>Started ART within 6m</td>
<td>64/300 (21)</td>
<td>1</td>
<td>p&lt;0.08</td>
</tr>
<tr>
<td>Did not start ART</td>
<td>34/165 (21)</td>
<td>1</td>
<td>p&lt;0.92</td>
</tr>
</tbody>
</table>

*Description of study population and association of working in mining, age and gender with 3 types of experienced violence

WEPED402
Intimate partner violence and associated factors in HPTN 071 (PopART) study communities - a comparison by HIV status

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Background: The HPTN 071(PopART) study is a community-randomised trial in Zambia and South Africa, examining the impact of combination-prevention including universal test and treat (UTT), on HIV-incidence (Figure-1). Intimate partner violence (IPV) is known to adversely affect women’s health. We evaluated factors associated with IPV (physical and/or sexual) in PopART intervention communities.

Methods: During 2015-16, a random subset of adults who participated in the first year of the PopART intervention were recruited. Data on 300 HIV-negative women from Arm-A and Arm-B communities being offered HB-HTC, and 422 HIV-positive women from Arm-A communities who had been referred for ART were included (Figure-1). Demographic, socio-economic, behavioural factors and perceptions/opinions about HIV/HIV service factors were surveyed using standardised questionnaires and associations with IPV were examined. Logistic regression was performed to estimate odds ratios.

Results: Among >700 women studied, ~20% of both HIV-negative and HIV-positive women reported experiencing physical and/or sexual violence in the last 12-months (Table 1). The proportion of women reporting sexual violence was similar by HIV status, but HIV-positive women were more likely to report physical violence and both sexual

![HIV prevalence among children working and/or living in mining communities, compared to children in general population](image)
and physical violence. Among HIV-negative women, transactional sex (aOR: 3.01, 95% CI: 1.24-7.29, p = 0.02) and not knowing partner’s HIV status (aOR: 1.47, 95% CI: 0.71-3.06, p = 0.30) and aOR: 0.92, 95% CI: 0.53-1.62, p = 0.78, respectively). In HIV-positive women, IPV was associated with disclosure of HIV status to their sexual partner in the crude analysis but not after adjusting for confounding factors (aOR: 1.69, 95% CI: 0.87-3.72, p = 1.0). IPV was not associated with declining HIV-10-4 or failure to initiate ART within 6-months of referral (aOR: 1.47, 95% CI: 0.71-3.06, p = 0.30 and aOR: 0.92, 95% CI: 0.53-1.62, p = 0.78, respectively).

Conclusions: We identified factors associated with IPV which differed by HIV status. Our findings could help the development of interventions against IPV. Promisingly, our evidence suggests that acceptance of PopART UTT interventions was not affected by IPV.

WEPEd403

Spreading WINGS (Women Initiating New Goals of Safety): Cross-cultural adaptation, feasibility and preliminary effects of an intervention to address gender-based violence among women who use drugs in India

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Background: Rates of gender-based violence (GBV) against women who use drugs (WUDs) are 3-5 times higher than among other women, elevating their HIV risks. Asia is home to the largest population of WUDs but has no well-established programs to address GBV in this population. We aimed to address this gap by implementing and testing an intervention to address GBV among WUDs in India.

Methods: We cross-culturally adapted WINGS, a Columbia University-licensed evidence-based GBV screening, brief intervention and referral to treatment model for WUDs. 48 WUDs were recruited from Sahara Aalhad, an NGO in Pune and 36 completed a 3-month post-intervention follow-up. Between baseline and follow-up, WUDs received one two-one-on psycho-educational sessions on safety planning skills to reduce their risks for GBV. WUDs were also linked to HIV testing and treatment and GBV-related services as needed. Generalised linear models estimated changes in study outcomes, between baseline and 3-month post-intervention assessment. Random-effect Poisson and logistic regression models were used for continuous and dichotomous measures, respectively.

Results: At baseline, the mean age of WUDs was 30, 45.8% were married and 75% had children. 25% had an education higher than primary school. 22.0% had been employed in the past year and 20.8% had experienced homelessness in the past 3 months. 54.2% had engaged in sex work, 20.5% had been arrested and 31.3% used heroin in the past 90 days. Prevalence of any GBV was 87.5%, of which 85.4% was verbal. 83.5% was injurious physical violence and 79.2% was sexual violence. Effects of WINGS on incidents of GBV are presented in Table 1. WUDs reported significantly fewer incidents of verbal and physical GBV post intervention, both from intimate partners and others. There were also significant increases in linkages to GBV services over the 3-month follow-up period. No significant differences were observed on sexual violence. 39.5% were provided referrals for HIV testing. 10% registered for ART at Government health cares.

Conclusions: Our findings could help the development of interventions against IPV. Promisingly, our evidence suggests that acceptance of PopART UTT interventions was not affected by IPV.

WEPEd404

Assessing the safety of Zambian female sex workers amidst violence from their male clients

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1Aix-Marseille University, Marseille, France, 2Rwanda Zambia HIV Research Group, Atlanta, United States, 3Zambia-Emory HIV Research Project, Ndola, Zambia, 4Zambia-Emory HIV Research Project, Lusaka, Zambia

Background: Zambian female sex workers (FSW) are vulnerable to violence from their male clients, which places them at risk for HIV. FSW experiencing violence may find themselves isolated as the police represent the major violence response service and sex work remains illegal. Community-based support programmes can mediate between FSW and violence response services in addition to providing risk-reduction education and HIV testing services. We investigated FSW response to violence from male clients and their knowledge of support programmes.

Methods: Between September 2012 and March 2015, the Zambia-Emory HIV Research Project (ZEHRP) recruited 555 HIV-negative FSW aged 18-45 from Lusaka and Ndola into a cohort study. FSW completed a face-to-face baseline questionnaire, in which they were asked if they had ever experienced violence from their male clients (y/n). FSW were also posed multiple response questions on what they did in the event of such violence, measures they generally took to ensure their safety around clients and if they knew of any programs to support FSW.

Results: Of 498 respondents, 37% (n=186) reported having experienced violence from their male clients. When faced with violence, the majority of women reported running away (72%), while 30% attempted to negotiate with clients, some called their friends (32%) and only a minority of 13% chose to call the police. To ensure their safety around clients and if they knew of any programs to support FSW.

Conclusions: FSW were reluctant to report violence to the police. Study findings suggest the feasibility and promise for community-based implementation of a peer-delivered intervention for addressing GBV among WUDs in resource-constrained settings. Evidence on larger samples and across cultural contexts is urgently needed to meet needs of WUDs in Asia.
**WEPED405**

Young Jamaican men who have sex with men experiences with childhood sexual abuse and sexual assault

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**Background:** The prevalence of HIV is exceptionally high among Jamaican men who have sex with men (MSM). Researchers have theorized that the high prevalence of HIV among Jamaican MSM may be due to social vulnerabilities, such as high unemployment, homelessness, limited education, coupled with the criminalization of same-sex sexual behaviors. A noticeable gap in the literature is the impact of childhood sexual abuse (CSA) and sexual assault on the state of the epidemic among this population. This study focuses on Jamaican MSM’s experiences with CSA and sexual assault and how these domains relate to HIV risk and prevention.

**Methods:** In this qualitative descriptive study, we used semi-structured in-depth interviews with 20 MSM and a focus group discussion with 10 MSM as the primary data sources. Participants were recruited from five urban and peri-urban parishes in Jamaica. Data were recorded, transcribed verbatim, and analyzed using thematic content analysis.

**Results:** Participants were aged 18-29 years and self-identified as gay or bisexual. More than one-third of the sample disclosed a history of childhood sexual abuse or sexual assault. Participants who manifested a feminine presentation as a child reported experiencing significant sexual violence, which often starts with unwanted touching, exposure of genitalia, and end with nonconsensual sexual acts. The predominant characteristics of the perpetrators include male family member (i.e., cousin, uncle), pastor, or family friend. Agency and resiliency was achieved through reporting the abuse to family and friends; however, the decision to disclose the abuse was weighed against whether or not they would be believed. Participants have also described how these experiences have led to continued psychosexual trauma extending into adulthood and acted as triggers and barriers to engaging in HIV prevention and care.

**Conclusions:** Our findings serve as a catalyst for understanding how CSA and sexual assault affect young Jamaican MSM and how such experiences may in turn affect attitudes and behaviors regarding HIV testing and engagement in care. Findings also highlight the need for incorporating CSA and sexual assault questions into health and sexual history screening materials for Jamaican MSM and call for the strengthening of mental health services for survivors of abuse.

**Prisons and other closed settings**

**WEPED406**

Myanmar prison health: Opening closed doors for the prevention, care and treatment of inmates living with HIV, TB and other infections - lessons learned

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**Background:** The Myanmar prison population is estimated at 60,000 in 45 prisons. Anecdotally, reports indicate that overcrowding of prisons in Myanmar creates an environment which heightens the risk of vulnerability to HIV, TB, hepatitis and other infectious diseases. The Prison authorities took the leadership allowing AHRN as NGO to enter the prison and in two labour camps in Kalay, to pilot the implementation of health care service for inmates and staff.

**Description:** Kalay is located along the remote transport route to Myanmar’s border with Northeast India, which runs through the Chin Mountains and connects to the border town of Tamu, 80 km north. There are more than 1800 inmates and more than 200 prisoners in each labour camp. The health care service for the inmates is limited due to lack of human resources and infrastructure.

**AHRN staff was trained on prison contexts, occupational health, security regulations and social peculiarities. In July 2017 the prison health intervention commenced in Kalay prison and two labour camps, including HIV testing, counseling and care, Hepatitis B screening and vaccination, Health Education, TB screening and Treatment, Basic Health Care in order to assist the prison health department in addressing pressing health concerns.**

**Lessons learned:** Within six months, 1006 inmates and staff were vaccinated for HBV, 180 inmates received HIV testing and counseling, 140 PLHIV received HIV care, 233 inmates have been screened for TB and 6 are under TB treatment, and 1137 received BHC. Training of AHRN staff on specifics of working in prison proved important for mutual appreciation and understanding and increased access. A through-care has been drafted to ensure patient follow-up after release.

**Conclusions/Next steps:** Regular briefing with prison authorities to stem expectations were important to build trust and confidence that AHRN as ‘outside’ group respect the security considerations. Resource constrains limit full ART coverage. Infection control measures can expand, through-care and referral of inmates has not been formalized yet. There is the opportunity to implement further health standard operation procedures, training of staff, increase and systemize voluntary HTC and screening on TB coverage.

**WEPED407**

HIV risk perceptions and risk reduction strategies among prisoners in Kyrgyzstan: A qualitative study

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**Background:** In Kyrgyzstan, both methadone maintenance therapy (MMT) and needle-syringe programs (NSP) have been introduced in prisons as measures to reduce HIV transmission. To investigate their delivery and effects, we undertook qualitative research to explore how prisoners with a history of drug injection conceptualize and reduce their HIV risk during incarceration.

**Methods:** Prisoners were purposively sampled ensuring addiction treatment and incarceration. Women prisoners tended to discuss addiction treatment and incarceration. Men participants prioritized their HIV risk during incarceration. Three overarching themes emerged:

1. **Rationality of safety** whereby avoiding HIV infection was perceived as both an individual and collective responsibility.
2. **Peer HIV risk governance** that included tactics for ensuring safety, whereby prisoners encouraged one another into curbing risky injection practices to avoid harming themselves and others and disciplined prisoners who failed to disclose their HIV status.
3. **Relationships with prison healthcare providers** whereby prisoners’ ongoing patient-clinician relationships supported their efforts to reduce their HIV risk during incarceration. Women prisoners tended to discuss their HIV risk reduction strategies in terms of compassion and male prisoners in terms of coercion.
WEPED408
A systematic review of HIV outcomes and engagement in care across incarceration trajectories among women living with HIV

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Background: Despite increased rates of incarceration among Women living with HIV (WLWH) globally, the over-representation of WLWH in correctional settings, there is limited data concerning the gender-specific impacts of incarceration on HIV outcomes and engagement in care for WLWH.

Methods: We systematically searched OVID Medline, Web Of Science, PsycINFO, CINAHL, Sociological abstracts, Cochrane Library, and EMBASE, for peer-reviewed English-language studies, published between January 2007 and February 2017 reflecting: Incarceration, Women (trans inclusive), and HIV. Articles were included for evaluation if they presented sex/gender specific outcomes for WLWH, prior-to, during or following incarceration including at least one of three endpoints of interest: Viral Load (VL), ART adherence, or engagement in care. Studies were identified, screened and selected using systematic methods.

Results: Of 1119 studies matching the search criteria, 24 (2%) met the final inclusion criteria. Of the included studies, 19 contained samples of women and men, 6 of which were trans inclusive. Five studies were conducted exclusively among women, including one study focused solely on trans women. The majority (n=23) were conducted in the United States. For periods prior-to and during incarceration, our review did not reveal clear gender differences with regards to VL suppression, medication adherence or engagement in care for WLWH. However, studies reporting post-incarceration outcomes demonstrated significant gender disparities in all three outcomes of interest. The majority (86%) of studies that reported on post-incarceration periods, conducted among both women and men, demonstrated that women were less likely to be engaged in care, less likely to be virally suppressed, and less likely to achieve optimal ART adherence in the months following release from correctional facilities.

Conclusions: Our literature review shows significant gender disparities in HIV outcomes for WLWH following release from correctional settings. Despite growing numbers of incarcerated WLWH globally, there remains a substantial gap in research examining the impact of incarceration on HIV health outcomes for WLWH. This review highlights the critical need for further studies examining the experiences of WLWH throughout incarceration trajectories, and the need to develop specific gender-informed interventions aimed at improving post release engagement in care for WLWH, alongside efforts to prevent the incarceration/re-incarceration of WLWH.

WEPED409
The role of civil society organizations (CSOs) in improving early HIV detection and continuity of ART in Tajikistan prisons

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Background: In 2014, the prevalence of HIV in the Tajikistan penitentiary system was 7 times higher than the prevalence level in general society. Prisons authorities report that the penal system faces difficulties in organizing regular HIV testing among prisoners and that inmates lack basic knowledge about HIV, are ashamed to apply for assistance and are afraid to disclose their health status. This discourages timely detection of HIV, and leads to interruption of ART and HIV transmission among inmates.

Description: In accordance with the START Plus model (officially approved and introduced by the penitentiary system) and in cooperation with prison administrations and civilian AIDS centers, AFEW-Tajikistan delivered voluntary HIV testing and counseling (HTC) and regularly organized HIV prevention mini-trainings for prisoners. Each HIV-positive prisoner received the necessary counseling, as well as social and adherence support to ensure continuity of ART during the transitional period before and after release.

Lessons learned: In 2017, 1586 (72%) prisoners of three colonies situated in Norak, Yovon and Khuypad were reached by the HTC campaign. As result, 14 new cases of HIV were detected, equivalent to 21% of all 67 new cases detected in all Tajikistan prisons in 2017. 100% of inmates with newly-detected HIV initiated ART and received counseling and adherence support from AFEW-Tajikistan and partner CSOs social workers. 100% of HIV-positive prisoners released from these prisons were also assisted in health specialist appointments, timely registration at an AIDS provider in their hometown, continuation of ART, and TB testing. To support continued adherence to ART, CSO social workers regularly visited ex-prisoners and assisted them in resolving social problems, acquiring the necessary vocational education and seeking employment. As result, there were 0 cases of ART interruption among the HIV-positive START Plus participants.

Conclusions/next steps: With the official support of the prison authorities and based on evidence of its effectiveness, the START Plus model provides CSOs with opportunities to deliver services for prisoners and ex-prisoners in the transitional period before and after release, and initiate dialogue with donors to attract funds for supporting community-driven initiatives on HIV prevention and health promotion in prisons.

WEPED410
Peer Navigation System in Central Asian prisons as the most effective approach for HTS, ARV treatment initiation and adherence support

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Background: The majority of inmates (over 60%) in Central Asia inject drugs or was imprisoned for drug-related crimes. Due to unsafe practices inmates are at high risk of becoming infected with HIV and transmitting it to others. Historically, in post-Soviet countries, prison staff and doctors of governmental health system are perceived by inmates as “enemies” that cannot be trusted. Inmates PWID and PLHIV perceive all initiatives coming from them as a means of controlling or conducting experiments on people. That’s why most of them refuse testing and treatment, and the ART coverage, adherence to treatment are still on the very low level.

Description: USAID HIV React Project (2014-2019) implemented by „AIDS Foundation East-West in Kazakhstan“ in 18 prisons of Central Asia (Kazakhstan, Kyrgyz Republic, Tajikistan) consisting 16600 inmates including more than 700 PLHIV (data for October 2016). There are 66 peer navigators among current inmates in all project prisons are involved in the project implementation by actively promoting HTS among prisoners who inject drugs, putting their efforts into motivating and escorting PWID prisoners into testing points inside the prisons and motivate PLHIV to start ART and adhere to treatment.
Lessons learned: Inmates trust Peer Navigators because they are also inmates with drug use experience and/or positive HIV status. This significantly increases the effectiveness of the work aimed to achieve the 90-90-90 goals among inmates. Peer Navigators are motivated to work by incentives (additional food and hygienic packages) and by opportunity to increase its authority in their community. The main factors for the success of the approach is the proper initial selection and regular trainings for peer navigators. Personal experience is the key, therefore they should be well trained and free from any prejudice, myths and misconceptions.

Conclusions/Next steps: During the recent Project year (October 2016 – September 2017) 4,650 PWID and 1049 PLHIV inmates (including recently released covered by Peer ex-inmates) were covered by the trained Peer Navigators. 3690 PWID received HTS, 574 PLHIV on ART received ART Peer Navigation System is the most effective approach to achieve 90-90-90 goals among inmates in Central Asia.

WEPEP411
Harm reduction friend or foe? Correctional officers and prison-based needle and syringe programs

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Background: In Canada, federal prisoners comprise a marginalized population, many of whom are dependent on drugs. 80% of federally incarcerated men were identified as having a substance use problem upon admission and one-quarter of federally incarcerated women are serving time for a drug offence. Yet the past decade of tough-on-crime legislation has further eroded prisoners' health and safety and contributed to overcrowding, violence and exceedingly high rates of HIV and HCV, especially among Indigenous prisoners.

Description: Although injection drug use is a major factor contributing to HIV and HCV transmission behind bars, the Canadian government has refused to implement prison-based needle and syringe programs (PNSPs), citing unfounded threats to prison security, among other reasons. In a qualitative study with former prisoners and medical and community professionals who provide support to incarcerated populations, we sought to elucidate the main barriers to PNPSs and in particular, those posed by correctional officers.

Lessons learned: As the primary frontline workers in prisons, correctional officers play a significant role in PNPSs success or failure. However, respondents overwhelmingly saw correctional officers as a key obstacle to PNSP implementation and perceived many officers as having little compassion for prisoners' health and wellbeing. A narrow focus on prison security has led many officers to believe that the provision of sterile injection equipment undermines their responsibility to maintain security or could be seen as condoning drug use, while overlooking the fact that PNPSs improve workplace safety by reducing accidental needle-stick incidents.

Conclusions/Next steps: As respondents emphasized, it is essential for correctional officers to be educated on drug use and drug dependence if PNPSs are to be effective. A peer knowledge exchange between correctional officers in Canada and those working in international PNPS settings would be immensely helpful. The challenges to PNSP implementation are considerable, but they are not insurmountable. Where PNPSs exist, there is a high level of staff support for the programs. With education about the manifold benefits of PNPSs, including for workplace health and safety, misconceptions about PNPSs can be addressed.

Conclusions/Next steps: Lessons learned: While having a broadly supportive constitutional and common-law framework on the rights of all persons in detention, nothing in legislation governing arrest and powers of police specify rights or duties on access to healthcare or medicines when a person is held in police custody. Furthermore, there is no domestic regulatory guidance to ensure that detainees’ access to treatment is sustained in transfer periods between police custody and remand sections in prisons. Finally, despite that the Prisons Act does not distinguish between convicted offenders and remand detainees in relevant sections, in practice, prisoners on remand are considered the responsibility of the Police, which has limited capacity to facilitate access to care.

WEPEP412
Organization of medical care for HIV-infected inmates in institutions of the State penitentiary service of Ukraine

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Background: HIV and AIDS prevalence among prison inmates and pre-trial detainees is about 15 and 14 times respectively higher than among adults of general population in Ukraine. The delivery of medical care should be closely cooperated with civil health. We aimed to analyze the providing of the timely access of HIV-infected prisoners and detainees to antiretroviral therapy (ART) in accordance with international standards.

Methods: We analyzed the ART coverage of HIV-infected convicts and detainees in the institutions of the State Penitentiary Service of Ukraine (SPSU) over the period of 2016-2017, according to the reporting form No. 55 „Report on the antiretroviral therapy delivery for HIV-infected persons in the ___ month of the 20__ year”, approved by Order of the Ministry of Health of Ukraine dated March 23, 2012 № 182.

Results: Based on the results of the analysis of official statistics data, 4,129 HIV-infected inmates were identified and 1995 patients among them were treated with ART. Thus, the rate of coverage of ART among prisoners and detainees has been increased from 48.3% to 66.4% during 2016-2017 years. However, taking into account the goals of the Fast Track “90-90-90” strategy, the rate of ART coverage of HIV-infected prisoners and detainees remains low caused by the lack of medical staff in SPSU and insufficient social work with the HIV-infected inmates.

Conclusions: Increased but low ART coverage of HIV-infected prisoners and detainees does not meet the requirements of international standards. In order to improve the quality of medical services in the SPSU there was established the state institution „Center of Health of SPSU”. One of the expected results is to provide continuous medical care to the prison inmates with HIV-infection, tuberculosis, drug addiction in accordance with current legislation and international recommendations.
Conclusions/Next steps: In the absence of an adequate legislative or regulatory framework, police officers do not assume responsibility for ensuring access to treatment for persons in police custody, nor are they enabled to do so with appropriate budgetary allocations. In addition, these legal and policy gaps, result in violations of privacy and confidentiality of HIV status for people in police custody who are forced to disclose their status to arresting officers in the presence of other detainees in order to request to access treatment. Once in prison facilities, the distinction between the law and practice creates disputes over mandate and constrains access to emergency medical care in particular. Legal and policy development is critical to enable treatment adherence in pre-trial detention.

**WEPE414**
Training family physicians to care for HIV infected men in very short-term jail setting

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**Background:** HIV screening, treatment, and linkage to care upon release is extremely difficult in jails given that some are incarcerated for as short as 24-48 hours. Even with an average length of incarceration of 30 to 40 days infected patients often don’t see an HIV specialist provider before they are release.

**Description:** The Los Angeles County Jail (LACJ) is the largest in the world averaging 18,000 to 20,000 incarcerated persons any given day. The LACJ averages about 500 known persons with HIV daily. Before intervention, most HIV infected men were not seen by an HIV specialist before release. The result was many were off their medications or put on a different regimen. To meet the challenge of the lack of HIV care while incarcerated in in the jail we began a HIV fellowship to train family physicians to provide care in the LACJ with the idea that these physicians would become experts in HIV treatment, learn how to provide care within a jail setting, and serve as agents to implement system changes to improve the overall HIV care. To learn HIV medicine these family physicians trained for a year at the major HIV clinic at the Los County-USC Medical Center and at selected community based HIV clinics (where incarcerated seek care). To learn to provide care in the jail, fellows spent 20-30% time working under the supervision of the fellowship director who provided HIV care both within the jail and at the medical center.

**Lessons learned:** All 7 of the family physicians have successfully completed this corrections HIV fellowship with 3 taking potions at various jail settings. The project wants every advertising agency in Africa to take the #EqualityChallenge pledge, to embrace and endorse these guidelines, and to work further to foster LGBTIQ equality. With the support of inspirational, committed, justice-oriented and talented creatives like our current ambassadors and the agencies they represent, this ambitious goal is reachable.

Conclusions/Next steps: Increase the number of family medicine physicians to provide HIV treatment, develop a system that links patients to care in the community upon release. Co-locate HIV providers both in the jails and the community.

**WEPE415**
The advertisers activists collective: #EqualityChallenge guidelines to improve accountability to LGBT in South African advertising

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**Background:** Advertisements (and those who create them and commission them) have the power to change norms and either reinforce or reverse stigma and discrimination. Whether advertisements feature women, mentally ill people, the disabled, LGBTIQ (Lesbian, Gay Bisexual, Transgender, Intersex or Queer people), or certain race groups, they can perpetuate harmful stereotypes or break them down. But the problem is that many advertisers, marketers and business do not know these commitments nor care to be leaders in human rights.

**Description:** The #EqualityChallenge advertisers’ guidelines are meant as a framework to help advertisers, marketers, businesses and SOGIE (sexual orientation and gender identity and expression) activists work together to make equality, dignity, freedom and security a reality for the millions of LGBT people living in South Africa and the rest of Africa. AAI offers trainings on the guidelines and they are being well received by staff at ad firms.

**Lessons learned:** The advertising industry has been very welcoming of our message and keen to use their influence for human rights. Marketers are more hesitant and less accessible due to fear of damaging their brand by association with stigmatised groups. The peer influence effect and competitive spirit to be the leader is a powerful one in this industry.

In 18 months we have 3 adverts with trans people in them that are ethically setting a new standard. Other media, such as print and radio have shown great interest in support this work.

If civil society can create positive feedback on inclusive adverts and drown out any phobic response, we have permanent allies in the advertising and marketers.

**Conclusions/Next steps:** The project wants every advertising agency in Africa to take the #EqualityChallenge pledge, to embrace and endorse these guidelines, and to work further to foster LGBTIQ equality. With the support of inspirational, committed, justice-oriented and talented creatives like our current ambassadors and the agencies they represent, this ambitious goal is reachable.

Conclusions/Next steps: Increase the number of family medicine physicians to provide HIV treatment, develop a system that links patients to care in the community upon release. Co-locate HIV providers both in the jails and the community.

Media, cultural and religious representations of HIV and of key populations
WEPEDE418

Signs of hope on ending stigma and discrimination in Brazil: Analyzing the impact of HIV outreach campaigns and initiatives on the news coverage of Brazilian media

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Background: Brazilian press has only recently started to recover from its almost decade-long silence on AIDS. Studies show that from 2007 to 2013, major media outlets have very rarely dedicated headlines and front pages to this subject, including on World AIDS Day. Stories on HIV and AIDS were almost always shoved in the middle of generic news desks, and stories had mostly scientific and medical approaches, focusing, at times, on tabloid-like stories, fueling stigma and discrimination. In 2015, UNAIDS office in Brazil started a daily monitoring of the national news on HIV and AIDS in Portuguese as part of its internal communications strategy to build messages and campaigns on prevention, treatment and zero discrimination.

Methods: Stories were systematically collected every morning from an average of 30 different credible news providers (TV/radio, digital and traditional print). Content analysis classified news either as negative (when discriminatory, pejorative, or disruptive) or as positive (when they contributed directly or indirectly to the HIV response, providing important service information and/or adequate terminology, or provided they were neutral and impartial). UNAIDS main outreach activities and campaigns were cross-checked with the Excel line graphics generated for the June 2015-December 2015 period to better understand its impacts on the media coverage of HIV in Brazil. Graphics for TV/radio, digital and traditional print results were compiled separately.

Results: Out of 1939 pieces analyzed from June 2015 to December 2017, 1442 were classified as positive and 497 as negative, with negative peaks occurring mostly around key local dates for HIV awareness, December 1 and Carnival.

Conclusions: Digital and traditional print media respond better to campaigns and key messages, producing more positive content on HIV and AIDS, even during key dates, such as WAD and Carnival, whereas TV/
radio outlets deliver peaks of negative news on key dates; ii) overall improvement of coverage, especially on digital and print, with a positive-negative ratio of 3.7 to 1 in print; 3.4 to 1 in digital; and 1.3 to 1 in TV/radio; iii) targeted media training for TV/radio before key dates could mitigate negative coverage.

### WEPE419

**Capacity building of media personnel for positive and unbiased portrayal of communities at-risk for HIV: Towards creation of an enabling social environment through media**

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**Background:** Media plays an important role in addressing stigma and discrimination faced by marginalized communities in India. Although there has been an increase in the media coverage of HIV over the years, due to lack of understanding on issues faced by hijras/transgender women, adequate and good coverage are sub optimal. Enhancing building the capacities of media/media personnel on issues faced by hijras/transgender women will not only correct misconceptions but also result in unbiased portrayal, stigma reduction and creation of supportive policies and programmes.

**Description:** Voluntary Health Services (VHS), with support from the Global Fund, is implementing a four-year project (2014-18) titled ‘Diversity in Action’ in India to reduce the impact of HIV on hijras/transgender women. One of the focus areas of the project is to sensitize and capacitate various stakeholders including media personnel on issues faced by hijras/transgender women. Through the project, one national and 4 sub regional level media sensitization workshops were organized for media personnel. More than 300 print and electronic media personnel were sensitized through these workshops. Some major outcomes from these workshops are increased knowledge and understanding among the media personnel on trans issues, which resulted in producing unbiased, clear, accurate and respectful materials. These workshops have also paved way for further strengthening partnerships between media professionals and trans community. Face-to-face interactions with trans people greatly helped media personnel in better understanding about trans communities and their issues.

**Lessons learned:** Sensitizing media on issues of hijras/transgender women will not only help in producing unbiased, non judgmental and respectful materials about communities but also help in promoting acceptance, and contributing to supportive policies and programmes. Involvement of trans communities in media sensitisation programs is of great importance as face-to-face interactions provide better understanding and human touch.

**Conclusions/Next steps:** The trainings for media personnel need to be scaled up in different states of India, especially where stigma and discrimination against hijras/transgender women are still rampant. Advocacy with the associations of media personnel is also a potentially high impactful activity that could be pursued.

### WEPE420

**Sexual sensation seeking and transmission risk in the era of HIV treatment as prevention**

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**Background:** Sexual sensation seeking is associated with multiple, co-occurring syndemic conditions such as methamphetamine use that could synergistically increase risk of onward HIV transmission. However, relatively little is known about how sexual sensation seeking may contribute to transmission risk in the era of HIV treatment as prevention.

**Methods:** HIV-positive, methamphetamine-using sexual minority men completed the baseline visit for a trial that included self-report measures and a blood draw for HIV viral load. We examined sexual sensation seeking as a correlate of: 1) serodiscordant condomless anal intercourse (ISCAI) on methamphetamine (insensitive and receptive) in the past three months; and 2) a composite index of difficulties with the HIV care continuum (i.e., any missed HIV primary care appointments, indices of anti-retroviral medication non-adherence, and HIV viral load > 200 copies/mL). Logistic and linear regression analyses adjusted for age, ethnicity, and addiction severity.

**Results:** The sample of 123 HIV-positive, methamphetamine-using sexual minority men was predominantly Caucasian (43%), middle-aged (Median = 45.1) and 16% had a potentially transmittable HIV viral load (> 200 copies/mL). Seven percent of participants with a potentially transmittable HIV viral load reported engaging in SCAI. Greater sexual sensation seeking was independently associated with receptive SCAI (Adjusted Odd Ratio [AOR] = 1.97; 95% CI = 1.09 - 3.55; p = 0.03) but not insensitive SCAI (AOR = 1.72; 95% CI = 0.87 - 3.39; p = 0.12). Greater sexual sensation seeking was also independently associated with fewer HIV care continuum difficulties (standardized Beta = -0.23, p < 0.03).

**Conclusions:** Sexual sensation seeking was associated with greater odds of receptive SCAI on methamphetamine, but also fewer HIV care continuum difficulties. Further research with HIV-positive sexual minority men should examine if those with higher levels of sexual sensation seeking are more motivated to engage in the HIV care continuum to mitigate risk of onward HIV transmission.

### WEPE421

**Innovative HIV prevention and testing campaigns for maximized regional reach in conservative settings**

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**Background:** HIV testing and Prevention awareness campaigns through social media are the new age method to reaching larger key populations to motivate MSM around sexual health. Yet in contexts such as the MENA region where homosexuality is criminalized by law, the challenge remains in reaching large number and familiarizing populations around HIV, testing, prevention and communication.

**Description:** In 2017, M-Coalition took on a new scope towards HIV-related messages to achieve increased HIV testing rates, reduce fear and stigma around HIV screening, educate around safer sex practices and debunk myths around HIV. The campaign consisted of 5 short videos each targeting only one message at a time to make learning easier, the themes were: Fear, Confidentiality, Safer Sex, Living with HIV and encouraging communication among peers. In a bold move the videos featured MSM in different settings, involved different physical features of gay and bisexual men and used humor as a way to encourage individuals to share social media content.
Lessons learned: In our findings more MSM related to the videos than previous video campaigns which have occurred in the region. Humor meant a broader audience watching the videos until the end. It also gave more weight to individuals sharing the videos on their personal profiles and pages as humor content is shared more frequently than other types of content. Interaction with viewers also increased as more people were reaching out to ask questions. A call to action at the end of each video linked viewers to the official website where they were able to locate MSM friendly HIV services in their countries. The use of single and simple messages made sure that viewers would watch the video only once and understand the content easily. The campaign also allowed MSM in conservative settings to view the videos through social media and receive information which encourages national NGOs in adapting similar methods. Simplicity of HIV messages helped reduce stigma around HIV within MSM communities identified through success stories.

WEPED422
My disclosure, our test: An egocentric network analysis examining disclosure of MSM behavior networks and their relationship to HIV testing in China

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Background: As men who have sex with men (MSM) disclose their same-sex behaviors, they create disclosure networks. Disclosure networks can provide peer support, promote care seeking, and spur HIV testing. However, some environments have greater homophobia and stigma, contributing to less disclosure and HIV testing. This study examined the characteristics of disclosure networks that are associated with HIV testing among MSM in China.

Methods: An online nationwide survey was conducted in January 2017 among Chinese MSM. We collected information on participants’ sociodemographic characteristics, MSM behavior disclosure to anyone, and HIV testing behavior. Name-generator questions were used to ask each participant (“ego”) to nominate up to five social network members (“alters”) with whom the ego had disclosed his MSM behaviors. We also asked the ego to report his relationship with the alters and the alters’ HIV testing behaviors.

Egocentric network analysis was used to examine the association between disclosure network characteristics and the ego’s HIV testing behaviors. Dyadic network analysis was used to examine the relationship between the ego and each alter’s HIV testing behaviors controlling for clustering of observations within an individual.

Results: Overall, 836 men completed the survey, and 806 (96.4%) who reported at least one alter were included in this analysis. Among these 806 men, 72.2% (582) had been tested for HIV. The average disclosure network size was 4.05 (SD=1.47), and 66.6% (537) named five alters to whom they disclosed their MSM behavior. Friends represented 45.1% of all alters in participants’ disclosure networks, 18.7% were sex partners and 25.2% of alters in the disclosure network were healthcare professionals. MSM who reported larger disclosure networks were more likely to have been tested for HIV (aOR=1.21, 95%CI: 1.08-1.34). The dyadic analysis showed that men with alters who tested for HIV were more likely to have tested for HIV (aOR=6.07, 95%CI: 4.28-8.59). Disclosure to healthcare professionals was associated with HIV testing (aOR=5.43, 95%CI: 2.11-14.04).

Conclusions: The composition of MSM disclosure networks suggests that a larger disclosure network size may improve HIV testing among MSM. Our findings may help inform disclosure network-based interventions to promote MSM HIV testing.

WEPED423

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Background: The objective of the survey was to examine PrEP knowledge, access and likelihood of future use, to provide evidence for advocacy and for the implementation of PrEP in Brazil. HIV epidemic has increased substantially during the last decade among MSM, especially young men - prevalence is estimated 19.8% among MSM 25 years and older, and 9.4% among those aged 18-24. In January 2018, Ministry of Health started offering PrEP free of charge through the public health system.

Methods: A questionnaire, adapted from the one implemented by Hornet in 2016 in partnership with ECDC, was distributed through the gay social networking app platform. Over three weeks (Sept/Oct 2017) app users were asked to participate in an anonymous survey about HIV prevention — 3,218 responses were collected.

Results: Previous knowledge about PrEP was high in general (85%). Meanwhile, 90% of respondents in the 31-40 age group said they had heard about PrEP, 24% in the 18-25 age group had never heard about it. 27.8% reported being HIV positive. Only 7% of HIV negative respondents were currently taking PrEP (through clinical trials/ordering online), 40% of respondents learned about PrEP via the internet, 20.4% from Hornet app, and 11.7% from friends. 20% reported not having tested for an STI in the last twelve months, and among those tested, 27% reported being diagnosed with an STI. 36.2% were likely to use PrEP in the following six months. 60% of respondents said they were happy with their sex lives, 22% were unsure, and 17% were unhappy.

(Results of the survey about knowledge, access and future use of PrEP among users of dating app Hornet in Brazil.)
Conclusions: MSM in Brazil are highly vulnerable to HIV and STI. Young MSM have less knowledge about PrEP than adults. A tailored communication strategy should be designed for them. Internet, including especially gay dating apps are an important source of health information for MSM and should be included in HIV prevention strategies. Willingness to use PrEP is high, so government and community should work together to ensure that MSM have the information they need to access PrEP. Gay dating apps can represent a fruitful space for the implementation of strategies of positive prevention for MSM living with HIV.

**WEPEd424**

Social media intervention exposure and its association with HIV testing: Secondary analyses from a randomized controlled trial in China

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**Background:** Social media interventions are known to be effective in promoting HIV testing among key populations. However, it is unclear how intervention materials distributed through social media are recognized and acknowledged by men who have sex with men (MSM).

This study examined the effect of exposure to different social media intervention components on HIV testing.

**Methods:** We conducted a stepped-wedge cluster randomized controlled trial from July 2016 to July 2017 in eight Chinese cities. Participants were recruited from a popular gay app (Blued). The social media interventions were implemented biweekly for three months, and included six different images or texts, information on local HIV testing sites, and information on a community contest to promote testing.

We collected data on socio-demographics, facility-based HIV testing behaviors, exposure to different intervention components (i.e., recalled different messages) and further propagation of intervention components (e.g., shared with others, forwarded to others) or engagement (e.g., participated in local community contest).

Multilevel logistic regression was conducted to examine the relationship between social media intervention exposure and HIV testing behaviors.

**Results:** Of the 1381 men who participated, 1069 men completed the entire survey and were included in this study. Among the six images or texts sent during the intervention, study participants recalled an average of 2.7 (SD = 1.6) images/texts and forwarded 1.2 (SD = 1.4) images/texts. 85.3% (n = 912) of men remembered receiving information on HIV testing sites and 46.2% (n = 481) of them forwarded HIV testing site information. 34.2% (n = 360) of men recalled information on the community contest and engaged in an average of 1.2 (SD = 1.5) contest-related activities. Recalling images or texts (aOR = 1.13, 95%CI: 1.02-1.25) and community contest information (aOR = 1.13, 95%CI: 1.13-1.24) were associated with HIV testing uptake.

**Conclusions:** This secondary analysis suggests that cognitive response to social media intervention messages can facilitate HIV testing. Our study disentangles different intervention components and may help specify effective social media intervention contents to promote HIV testing.

**WEPEd425**

Marijuana use predicts newly diagnosed HIV among Black men and transgender women who have male sex partners

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**Background:** Black men and transgender women who have male sex partners (BMTW) experience alarmingly high rates of HIV. In Atlanta, GA, USA, approximately one-third of BMTW are living with HIV and current estimates project that 60% of BMTW will be living with HIV by age 40 if incidence remains unchanged. Use of sex-drugs such as stimulants, amyl nitrates, and erectile dysfunction medications (EDM) predicts 3-6 fold faster rates of HIV seroconversion in predominantly White cohorts of sexual minority men. However, it is unclear whether and how substance use fuels the HIV epidemic in BMTW.

**Methods:** We enrolled 449 BMTW who tested HIV-negative into a cohort that included HIV testing at the 12-month follow-up. Multivariable logistic regression analyses examined if any use of marijuana, stimulants, amyl nitrates, and EDM predicts 3-6 fold faster rates of HIV seroconversion in predominantly White cohorts of sexual minority men. However, it is unclear whether and how substance use fuels the HIV epidemic in BMTW.

We enrolled 449 BMTW who tested HIV-negative into a cohort that included HIV testing at the 12-month follow-up. Multivariable logistic regression analyses examined if any use of marijuana, stimulants (i.e., powder cocaine, crack-cocaine, or methamphetamine), EDM, and amyl nitrates at baseline predicted greater odds of being newly diagnosed for HIV at 12 months.

Analyses adjusted for depressive symptoms, alcohol use, and sexual risk taking as possible confounders at baseline.

**Results:** At 12 months, 5.3% (N=24) of BMTW were newly diagnosed with HIV. Marijuana use independently predicted 2.5-fold greater odds of newly diagnosed HIV (OR=2.49, 95%CI:1.01-6.18), but other sex-drugs and alcohol use were not significantly associated with newly diagnosed HIV. Compared to marijuana non-users, marijuana users reported equal numbers of male sex partners and condomless sex acts, but had substantially higher odds of reporting any substance use during sex (OR=7.49, 95%CI:5.99-9.37), any alcohol use during sex (OR=2.23, 95%CI:1.85-2.80), and any sex in exchange for goods (OR=4.86, 95%CI:1.85-2.80).
Conclusions: Among our community-based sample, HIV annual incidence is alarmingly high. Further, in contrast to prior clinical research, marijuana use independently predicts greater odds of undiagnosed HIV and concomitant sexual risk-taking in BMTW. Expanded efforts to promote HIV testing in BMTW, who use marijuana could support the timely identification of new HIV infections to optimize the benefits of HIV treatment as prevention. Further research is warranted to determine the underlying mechanisms linking marijuana use and HIV seroconversion.

**WEPED426**

Structures of sexuality. Bisexual stigma and HIV risk with primary female partners among behaviorally bisexual Black men

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Background: Behaviorally bisexual Black men have been cast as the cause of HIV’s disproportionate presence among Blacks, yet their relationships remain understudied. This analysis explores the relationship between bisexual stigma and HIV risk among a sample of behaviorally bisexual Black men of mixed HIV status in the San Francisco Bay Area in the United States.

Methods: Quantitative data were collected between October 2015 and June 2017 as part of a mixed-methods HIV prevention study with bisexual Black men their female partners in the San Francisco Bay Area (N=238). Three separate multivariate analyses of men’s data (N=121) assessed the indirect effects of stigma on unprotected sex, utilizing discrete stigma measures of bisexual stigma, internalized homophobia, and bisexual identity. The controlling measures were education, age, participant’s HIV status, and partner’s HIV status. The mediator was difficulty of disclosure of sexual activity with men to their female partner, and the outcome was condom use when having vaginal sex with a primary female partner in the past six months.

Results: Men with higher levels of stigma had a higher level of difficulty with disclosure (β = 0.279, 0.033, 0.234, 0.011, 0.311, 0.001, respectively). When controlling for effects of each stigma measure along with the four covariates, higher levels of difficulty of disclosure had a negative effect on condom use (β = -0.223, 0.227, -0.283, 0.004, -0.227, 0.023, respectively). More importantly, bisexual stigma, internalized homophobia and difficulty with bisexual identity also had a negative impact on condom use when mediated by disclosure (Indirect Effect: 95% CI=0.073, -0.191 to 0.082, -0.240 to -0.024, -0.081, -0.193 to -0.006, respectively).

Conclusions: These findings indicate that bisexual stigma and internalized homophobia experienced by behaviorally bisexual Black men presents a barrier to condom use through constraining disclosure to female partners. Men who reported higher levels of bisexual stigma and internalized homophobia reported that it was harder to disclose having sex with men with their primary female partner, which was significantly related to lower levels of condom use. Structural barriers to HIV prevention must be addressed through developing anti-stigma prevention campaigns targeting both men and women to reduce bisexual stigma.

**WEPED427**

Digital media and sexual health promotion among MSM and transgender women in India: Exploring the contours of online interventions

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Background: The digital sphere now plays a major role in sexual networking, norms and practices among queer people in India. Digital media have become a significant means of information dissemination and community mobilization around queer health and rights concerns in the last two decades. But systematic and sustained sexual health interventions are largely absent from the digital sphere in India.

Description: Varta participated in a qualitative study to understand what digital sexual health interventions for MSM and transgender women could look like. The study was conducted in Kolkata with support from Wellcome Trust. Guided by digital ethnography and HIV intervention experience of the researchers, and learning from sexual health related content and interaction on Varta’s website, the study included literature review, participant observations, four focus groups (n = 101) and 10 semi-structured interviews with outreach workers, counselors, activists and media persons. Preliminary findings were fine-tuned through discussions in a symposium on digital media and health at Jadavpur University.

Lessons learned: The study was published as “Social Media, Sexual and Sexual Health Advocacy in Kolkata, India - A Working Report”. It explained how digital media had transformed and speeded up sexual networking (including sex work operations) among MSM and transgender women in Kolkata, often eliminating need for physical cruising or soliciting. Respondents recommended digital interventions that addressed hitherto neglected mental health, social exclusion and violence related drivers of HIV vulnerability. The study inspired two pilot interventions around respondent felt needs on Varta website with hyperlinks on Grindr app. A guide to tackle both online and offline gay blackmail, and a searchable database on queer-friendly sexual health, mental health and legal aid services were developed.

Conclusions/Next steps: Comprehensive digital interventions to match changes in sexual networking among MSM and transgender women are urgently needed. Additionally, digital interventions may help reach population sub-sections otherwise inaccessible through traditional physical outreach for sexual health promotion. Immediate reader responses to online pilots with diverse queries on tackling sexual abuse, blackmail and health concerns further underlined the potential for digital interventions. But these interventions may have their own set of challenges around digital literacy, smart phone ownership and trust in online information sources.

**WEPED428**

Latent classes of sexual positioning practices and sexual risk among men who have sex with men in Paris, France

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Background: In France, HIV incidence has declined among all groups except men who have sex with men (MSM). HIV/STI risk varies by sexual positioning practices; however, limited data have characterized the sexual risk profiles of this population. To fill this gap, this study utilized latent class analysis (LCA) to explore profiles regarding condomless sexual positioning and seroadaptive behaviors.

Methods: MSM were recruited on a geosocial networking smartphone application in Paris, France in October 2016 (n=566). LCA was used to classify sexual positioning, seroasorting, and serosorting profiles. Age, HIV status, relationship status, substance use, seropositioning, and PrEP use were used in a multinomial regression model predicting the likelihood of class membership.

Results: Three latent classes were identified: Majority Top Serosorters, Versatile Low Partners, and Majority Bottom Some Serosorters. Majority Top Serosorters had the highest mean number of partners for condomless insertive anal intercourse and the highest probability of seroasorting; Majority Bottom Some Serosorters had the highest mean number of partners for condomless receptive anal intercourse (r=1.3). MSM classified as Majority Bottom Some Serosorters were 7% more likely to be classified as such than Class 2 with each year increase in age (AOR 1.07; 95% CI 1.02-1.12). Compared to HIV-negative/status unknown MSM, HIV-positive MSM were more likely to be classified as Majority Bottom Some Serosorters than Versatile Low Partners (AOR 7.04; 95% CI 2.38-20.81). MSM who reported substance use before or during sex were more likely to be classified as Majority Bottom Some Serosorters than Versatile Low Partners.
WEPED429
Suicidal ideation and suicidal behaviour among men who have sex with men in Malaysia

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Background: Previous studies have shown that MSM tend to have higher suicidal ideation and attempt rates compared to the general population. The reported prevalence of suicidal ideation among MSM ranges from 13.1% to 55.8%. The prevalence of suicidal behaviour and ideation in Malaysia where MSM is highly stigmatised is unknown. We sought to estimate the prevalence of suicidal ideation and attempt rates in a cohort of MSM in Malaysia setting.

Methods: Men who had anal sex in the past 12 months were invited to an online survey which was advertised on social media and Grindr. The 4-item suicidal behaviours questionnaire-revised (SBQ-R) was used to examine suicidality, including suicidal thoughts, disclosure of such thoughts, and suicide attempt. Univariable and multivariable logistic regressions were conducted to determine demographic and psychosocial factors associated with suicidal behaviours.

Results: Of 539 participants who completed the survey, 32.1% reported suicidal behaviours. Specifically, 41% reported lifetime suicidal ideation and 8.2% ‘will attempt suicide in the future’. The sample also reported rates of depression (CES-D-20 > 16), intimate partner violence (IPV), and childhood sexual abuse (CSA) at 60.9%, 23.7%, and 21.9%, respectively. About 40% of self-reported HIV-positive MSM endorsed suicidal behaviours while the prevalence of suicidal behaviours was 30.3% among HIV-negative and 30.6% among those who never tested for HIV. Chinese ethnicity (unadjusted odds ratio (UOR)=1.78 95% CI=1.17-2.72, p=0.007), Malay ethnicity (UOR=0.62 95% CI=0.43-0.89, p=0.010), unemployment (UOR=1.57 95% CI=1.04-2.37, p=0.03), and involved in commercial sex (UOR=1.59 95% CI=1.04-2.39, p=0.03) were associated with suicidal behaviours. Consistent use condon was not associated with suicidal behaviours (UOR=0.97 95% CI=0.66-1.43, p=0.36). In the multivariable analysis, MSM who were depressed (adjusted odds ratio (AOR)=5.17 95% CI=3.17-8.42, p<0.001), victims of IPV (AOR=2.07 95% CI=1.32-3.23, p=0.001) and who experienced CSA (AOR=1.80 95% CI=1.12-2.91, p=0.015) were more likely to report suicidal behaviours.

Variables
Repression coefficients (b) Adjusted Odd Ratio (95% CI) Wald statistic p-value
Depressive symptoms 1.642 5.17 (3.17, 8.42) 43.375 <0.001
Victim of Intimate Partner Violence 0.725 2.07 (1.32, 3.23) 10.081 0.001
Experienced Childhood Sexual Abuse 0.590 1.80 (1.12, 2.91) 5.869 0.015

[Associated factors of men who have sex with men who have suicidal behaviour]

Conclusions: This was the first study to document high level of suicidal behaviours among MSM in Malaysia. A specific intervention and prevention program focusing on mental health in the MSM community should be integrated into the comprehensive HIV prevention programme and National Suicide Prevention Strategic Action Plan. Further qualitative studies are needed to understand the causes of suicidal behaviours.

WEPED430
Eliminating homophobia among healthcare providers to increase access to HIV-related services targeting men who have sex with men (MSM) and women who have sex with women (WSW) in Zimbabwe

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Background: Men who have Sex with Men (MSM) have always had a key role in the global HIV epidemic. Recent studies from Zimbabwe indicate disproportionately high HIV prevalence rates among MSM (23.5%) and WSW (32.6%) when compared to adults in the general population. Despite these high rates, MSM and WSW have been consistently excluded from national AIDS programming. They further report stigma, discrimination and denial of services as common experiences while accessing HIV-related services from health settings. In order to address this barrier and to increase healthcare access for MSM and WSW.

Description: GALZ implemented a two prong approach: One targeting Healthcare Professionals, Service Providers, and Workers (HCW), and one targeting MSM & WSW. HCWs were mobilised through forming strategic partnerships with HCW associations e.g. Doctors for Human Rights (Zimbabwe). HCWs were trained by GALZ and Anova Health staff using the John Hopkins and MSMGP curriculum. MSM and WSW were mobilised to make use of these services through direct service provision by GALZ, as well as through peer and referral programming. GALZ, provided a minimum service package targeting HIV-SRH health needs, as developed through community level research. The peer programming provided for peer-to-peer basic counselling and referral services around SRH using a voucher-based referral system.

Lessons learned: Through these two approaches, GALZ established a pool of 182 HCWs (Doctors, RNs, Pharmacists, Radiologists, Midwives etc) competent to provide MSM- and WSW- friendly services. The intervention also reached 2400 MSM and 360 WSW in uptake of HIV-SRH related services through the network of competent HCWs. The peer programme precipitated the formation of a peer-support group around treatment/ ART Adherence. Affiliated processes under the peer programme such as SMS and social media messaging, and group discussions have further served to promote prevention and treatment adherence and behaviours within the target MSM and WSW population.

Conclusions / Next steps: Continuous engagement with government to increase buy-in of HCW trainings and sensitization on Key Populations. Continuous monitoring and intensifying linkages of MSM and WSW needs. Demand creation and accessibility to be increased through public awareness within media and amongst the target group. Need to increase research and reach in WSW HIV-SRH service mobilisation.

WEPED431
How do gay serodiscordant couples in Sydney, Australia apply treatment as prevention to their relationships?

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Background: Treatment as Prevention (TasP) as safe sex holds considerable appeal for gay Australian serodiscordant couples, providing the enjoyment of condomless sex without the fear of HIV-transmission. Most Australian gay serodiscordant couples currently practise condomless sex, and often adopt a relational approach towards managing HIV, thus signifying the importance of ‘the couple’ in HIV prevention. However, they lack a formal strategy that helps them navigate TasP. We explored the importance of ‘the couple’ within such relationships with the aim of developing a serodiscordant-specific HIV prevention strategy based on TasP.

Methods: Semi-structured interviews were conducted in 2015 and 2016 with 10 HIV-positive and 11 HIV-negative gay men representing 15 serodiscordant couples in Sydney, Australia. Participants were recruited through the Opposites Attract study. Using thematic analysis, key themes were identified and a coding schedule was developed.

Conclusions: This was the first study to document high level of suicidal behaviours among MSM in Malaysia.
Results: Most couples relied on TasP as their primary prevention strategy, a few used condoms, and a few rarely practised anal sex. When relationships were new, couples often used condoms and were cautious during sex. As time passed, they decided to forego condoms and trial TasP, though they did this with trepidation initially. Most apprehensions about TasP faded as it was increasingly practised. Confidence in TasP was facilitated by repeated condomless sex, consistent test results, and being in a couple framed by trust, commitment, and familiarity. HIV-negative participants who preferred condoms referred to their partner’s HIV as infectious and thought of condoms as the right way to protect their own sexual health.

Conclusions: The couple is a crucial component of gay serodiscordant HIV prevention. We recommend that “Viral Load Agreements” (VLAs) be endorsed for serodiscordant couples who want to rely on TasP. Such agreements would include discussions about monogamy or otherwise, dispensing with condoms, regular viral load and HIV testing, excellent adherence to medication over time, and ongoing communication about these conditions. VLAs offer couples who have never used TasP a formal strategy to follow, and provide effective strategies for the maintenance of TasP for couples who already use it. However, condoms continue to play an important role for some couples and should continue to be promoted.

WEPED432
Sexual practices of men who have sex with men (MSM) in Madagascar

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Background: MSM are a vulnerable population with a high prevalence of HIV (14.8%) and low HIV testing coverage (16.5%) in Madagascar. This study aims to examine barriers and motivation to HIV prevention, specifically on HIV testing, and condom and lubricant use among MSM in order to refine behavior change communication and programmatic strategies.

Methods: We conducted semi-structured in-depth interviews with 81 MSM ages 15-57 in July 2017 in 6 urban areas with the largest populations of MSM. Study participants were purposely sampled with the assistance of MSM association leaders, who were asked to target individuals meeting the eligibility criteria. Respondents were eligible to participate if they self-identified as MSM, or were MSM who hide their sexual identity, and were between the ages of 15-23 or 24-57. All participants provided written consent. Discussions were audio-recorded, transcribed in Malagasy, and analyzed using thematic content analysis method.

Results: We interviewed 27 men who self-identify as MSM and 54 men who do not openly disclose their sexual identity (27 young people and 27 adults). The study found that there were no notable differences in their barriers and motivation to HIV prevention. Some participants did not use condoms because they had confidence in their partners’ health, or because their partners refused typically due to lack of pleasure, or they used lubricant as a condom substitute. Although some participants indicated using condoms with lubricants for protection and easy penetration, others had no knowledge of lubricants. Some did not use lubricants because some condoms were already lubricated, or they used saliva as an alternative. Although the majority of participants have been tested previously, many dealt with a variety of barriers to HIV testing including fear of doctors, injections, positive results, or stigmatization, and lack of time.

Conclusions: Our findings reveal that adopting healthy behaviors for HIV prevention still presents challenges. HIV prevention efforts for MSM should focus on providing MSM friendly services that provide privacy for MSM such as home and mobile testing and testing during MSM events. These can promote increased perception of risk, regular testing, and safer sex practices of condom and lubricant use.

WEPED434
Exploring alcohol and other drug use among men who have sex with men (MSM) in Nairobi, Kenya: Implications for HIV and health promotion interventions

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Background: High levels of risky behavior and HIV prevalence have been reported among MSM in Kenya. Research in other contexts has documented an association between alcohol and other substance use and sexual risk behavior among MSM, however there is extremely limited data relating to this population anywhere in Africa. With a view to informing HIV prevention/ care and harm reduction programs, this paper examines the social and sexual contexts of alcohol and drug use among MSM from Nairobi, Kenya.

Methods: Between April and July 2017, in-depth interviews were carried out with 30 MSM aged 19-59 recruited via purposive sampling. Semi-structured interviews examined the contexts and motivations for alcohol and other drug use generally, as well as the role and impact of substance use during sex. Data were subject to thematic analysis.

Results: Five men were living with diagnosed HIV and 13 had not tested within the previous 6 months. All but two participants reported use of alcohol or other drugs during sex with other men. A common narrative of alcohol facilitating social and sexual confidence was perpetuated, all the more significant in this context given significant societal pressures and internalized homophobia that they often had to overcome to engage with other MSM.

However, at the same time, many men expressed fear that when drunk they may be less attentive to their surroundings and risk exposing themselves as MSM to other community members.

Around a third of men engaged in sex work and alcohol helped them mitigate fears of meeting clients, but this also presented challenges in the negotiation of safe sex. Consuming alcohol or other substances also enabled more adventurous sexual activity, such as group sex or attempting different sex roles with other men.

Conclusions: Consuming alcohol or other substances is often considered necessary to have sufficient courage to meet other men for sex, particularly in the context of sex work. Excessive alcohol use can inhibit sexual negotiation and put men at risk for HIV/STIs and expose MSM to abuse or assault. Substance use harm reduction interventions operating in tandem with HIV prevention and care activities are required to mitigate such risks.

WEPED434
Quality of life among HIV-infected and HIV-uninfected men who have sex with men in Nigeria: A cross-sectional study

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Background: Being gay/bisexual and HIV positive in a culture where these are highly stigmatized may impact quality of life (QoL). This study assessed QoL measures among HIV positive and negative men who have Sex with Men (MSM) in Abuja, Nigeria.
Methods: Between June 2017 and January 2018, a cross-sectional study of 300 MSM recruited from the ongoing TRUST cohort in Abuja was conducted. Face-to-face interviews were done using the validated WHOQOL-BREF tool to assess QOL at four domains: physical, psychological, social relationship, environmental, and 2 stand-alone questions of respondent-rated QOL and health satisfaction. Raw scores from each domain were transformed to 0 and 100 accordingly. A t-test was used to compare mean QOL scores between HIV negative and positive participants and, among HIV positive participants, to compare those on treatment ≥1 year to those on treatment < 1 year.

Results: A total of 300 MSM enrolled with median age 25 (Interquartile range 22-29) years and 164 (54.7%) were HIV positive. Compared to HIV positive participants, QOL was significantly higher among HIV negative participants in physical, psychological, and social relationship domains as well as respondent-rated QOL and health satisfaction (Table). There was no statistically significant difference between HIV positive and negative participants in relation to the environmental domain. Among HIV positive participants, QOL was significantly higher among those on treatment for ≥1 year compared to those on treatment for < 1 year for physical and psychological domains (p < 0.01).

Table: Results of comparison between HIV positive and negative participants

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<thead>
<tr>
<th>Domain</th>
<th>HIV Positive Mean (SD)</th>
<th>HIV Negative Mean (SD)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Domain</td>
<td>72.9 (12.9)</td>
<td>78.0 (11.3)</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Psychological Domain</td>
<td>67.4 (15.5)</td>
<td>72.3 (12.1)</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Social relationship</td>
<td>59.5 (19.4)</td>
<td>66.0 (8.6)</td>
<td>&lt; 0.01</td>
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<tr>
<td>Environmental Domain</td>
<td>58.9 (12.8)</td>
<td>57.3 (13.3)</td>
<td>0.28</td>
</tr>
<tr>
<td>General QOL</td>
<td>57.9 (19.7)</td>
<td>67.4(23.6)</td>
<td>&lt; 0.01</td>
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</tbody>
</table>

Conclusions: These findings show that provision of HIV care within short term improves QOL of infected persons and other interventions should be emphasized in the assessment and management of HIV.

WEPED436
Substance use and psychosocial problems among Nigerian men who have sex with men (MSM): A qualitative study of motivation and consequences

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Background: Nigerian men who have sex with men (MSM) are disproportionately affected by the HIV epidemic. Various studies have found that substance use and psychosocial problems interact synergistically to potentiate sexual risk behavior and HIV psychosocial problems in Nigerian MSM remains unknown. Consequently, we carried out a qualitative study to explore the context of substance use and consequences of psychosocial problems among Nigerian MSM.

Methods: Semi-structured, in-depth qualitative interviews were conducted with 30 MSM in Lagos. Participants were recruited through referral from key informants and snowball sampling. The interviews were conducted in a private office at a local NGO that provides HIV prevention services to vulnerable populations. Using qualitative software (NVIVO 10), an inductive content analysis approach was used to identify context and function of substance use and consequences of psychosocial problems among Nigerian MSM.

Results: The average age of participants was 27.9 years (S.D. = 4.9) and More than half (N=20, 73.3%) of participants self-identified as gay/homosexual. Substance use and psychosocial problems were common among participants.

Conclusions: We should have focus prevention program for partners, spouses and children in our regular program. As we do not have any baseline for prevalence rate for them we should conduct research for HIV prevalence for partners and spouses of MSM/TG. If we didn’t focus on programme spouse of MSM/TG, 90-90-90 goal will be not reached.

WEPED435
Unreached group / risk of HIV and STI / spouse & partners of MSM/MSW/TG community / Far-western Region, Nepal

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Background: Nepal has concentrated epidemic. First-time IBBS study on HIV prevalence for MSM/TGs in Farwestern Region. Nepal also accepted the 90-90-90 goal. In the Far-western Region, 5.7% HIV prevalence and 13% STI prevalence has been revealed during IBBS study in 2016. Most of the program is focused on prevention for MSM/TG only. But there is lacking program for Spouse, partners, and children of MSM/TG. But in a scenario of spouse and Children, we are unknown about these problems as we do not have any study till date. So infection is spreading unknowingly.

Methods: A cross-sectional research design and Respondent Driven Sampling (RDS) method was applied for sample selection. The total sample size was 100. Respondents were interviewed after obtaining witnessed oral consent followed by pre-test counseling and blood, urine and anal swab sample collection. A structured questionnaire was used to collect background characteristics, knowledge on HIV and AIDS and STIs, sexual behavior, exposure and access to HIV services and stigma and discrimination. During the questioner with 100 respondents 71 MSM/TG was accepted they were married with women.

Results: As we have no program for Spouse, partners, and children, infection rate might be high. National Guideline also not to accept the spouse of MSM/MSW and TG in High-risk population. But we are unaware of these problems as we do not have any study till date. So infection is spreading unknowingly.
WEPE437
A serial, cross-sectional comparison of condomless anal sex and HIV testing among young men who have sex with men (YMSM) in Beirut, Lebanon

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*California State University, Dominguez Hills, Carson, United States, 1APLA, Los Angeles, United States, 2Lebanese AIDS Society, Beirut, Lebanon. 3UCSF, San Francisco, United States

Background: In 2012, our research in Beirut with young men who have sex with men (YMSM) showed high rates of recent condomless anal sex, and low rates of recent HIV testing. In 2017 we used the same methods to collect data from YMSM, enabling us to assess for temporal changes in these behaviors, in addition to sociodemographic correlates.

Methods: Long-chain referral sampling was used to recruit 164 YMSM (age 18-29) in 2012 and 226 in 2017, with most having some university education and being gay-identified. Multivariate regression analysis was used to examine sociodemographic correlates of any condomless anal sex in the past 3 months and HIV testing in the past 6 months using the 2017 sample, and whether these behaviors differed between the two study samples. Propensity score weighting was used to eliminate any differences between the samples on all sociodemographics, increasing the likelihood that observed differences were due to temporal changes in the environment.

Results: Compared to the 2012 sample, the 2012 sample had significantly higher levels of any condomless anal sex in the past 3 months (68% vs. 51% OR 95% CI - 2.11 (1.30, 3.41)) and in last anal sex encounter (63% vs. 37% OR 95% CI - 2.93 (1.72, 4.98)). Master of Public Health and being a committed relationship, were all independent correlates of having recent condomless anal sex, regardless of partner HIV status; any recent condomless anal sex with partners whose HIV status was positive or unknown was associated with employment and any history of having an STI. There were no correlates of HIV testing in the regression analysis.

Conclusions: These findings suggest a temporal trend towards increased HIV protective behaviors (condom use; HIV testing) among YMSM in Beirut over the past 5 years, implying that increased grass roots, community-based efforts, to combat HIV are working. Further interventions could be secured if HIV prevention programming target relational and economic influences.

WEPE438
LINX LA: Developing a web-based mobile app to improve treatment outcomes among HIV-positive sexual minority-identified young Black men

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Background: Young Black men who have sex with men (BYMSM) living with HIV experience disparities in treatment outcomes across the HIV Care Continuum (HCC) in the US. While mobile application (app) interventions to improve HIV treatment outcomes exist, few have been culturally tailored for and designed by BYMSM to address social determinants of health. We sought to develop and test an app (LINX LA) to improve HIV treatment outcomes among BYMSM by addressing their social work and legal needs.

Methods: In partnership with community partners and BYMSM themselves, we sought to:

1. Identify social service and legal barriers to engagement in care for BYMSM, and
2. Iteratively develop and test an app to address those barriers.

Phase 1 consisted of interviews with BYMSM (N=13) to identify technology use patterns, experiences of HIV diagnosis and engagement in care, and social service/legal needs to create a user persona and app prototype.

Phase 2 consisted of moderated interviews with BYMSM (N=20) and providers (N=11) to refine the Phase 1 prototype. Phase 3 consisted of a one week test of LINX LA with BYMSM (N=14).

Results: Social service and legal needs identified included homelessness, debt, and HIV-based discrimination. Lack of social support and HIV stigma were also major barriers to engagement in care. Three core app functions were developed:

1. Community forum;
2. Informational posting; and
3. Text-based peer health navigation.

Key adjecives used to describe the app were “engaging” “private” and “useful.” In Phase 3, participants initiated 31 distinct chats, posted 76 comments and 20 “likes.” Participants agreed that the app was a “safe setting” where they could get “social support.”

Conclusions: Mobile apps have the potential to engage BYMSM and improve treatment outcomes across the HIV CC. Iterative user-centered mobile app development resulted in the app LINX LA which will undergo efficacy testing in a randomized controlled trial. Open-source technology will enable LINX LA to be adapted for other practice settings and populations. We attribute positive feedback regarding LINX LA to our community-based participatory design process. Mobile health interventions to address HIV CC outcomes must be developed in partnership with end-users and key community stakeholders.

WEPE439
Sexual initiation and quality of life among gay, bisexual and other men who have sex with men worldwide

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Background: Gay, bisexual and other men who have sex with men (GBMSM) have a high prevalence of childhood sexual abuse (CSA) associated with negative health outcomes linked to HIV-risk. However, it is unclear how different categories of sexual initiation, including CSA (forced sex before 16 with someone >5 years older), relate to a broader range of quality of life (QoL) domains. This study examined the differential associations between sexual initiation (None < age 16; Consensual < age 16; Forced < age 16; Forced x age 16) and QoL.

Methods: We analyzed data from a global sample of 2,481 GBMSM, in 7 languages, collected between 2014 and 2015 from the Global Men’s Health and Rights Survey. Participants were recruited through online convenience sampling (e.g. via organizational networks, email listservs and websites). We used World Health Organization’s (WHO) standardized QoL measures (Physical, Psychological, Social and Environmental). T-tests and Chi Squared tests to assess associations between four sexual initiation categories and all Quality of Life domains.

Results: Table 1. shows consensual sex before age 16 had higher psychological, social, environmental and overall QoL and lower suicidality than men who initiated sex at/after age 16, whereas before age 16, men who had forced-sex had worse QoL and suicidality than either those who had none (physical, psychological, environmental and overall) or consensual sex (all domains). This pattern held comparing forced and consensual sex at/after age 16; forced had poorer physical, psychological, social, and environmental QoL, and suicidality than consensual.

Conclusions: This study is the first to differentiate the impact of four categories of sexual initiation on four QoL domains among a global sample of GBMSM. Consistent with previous findings, forced sexual initiation had the most negative QoL outcomes. Results also indicate that consensual sexual initiation before age 16 was not necessarily associated with negative QoL, suggesting that subjective experience of sexual initiation is as important as age of initiation when assessing for CSA. Therefore, it is important to differentiate both childhood and adult sexual initiation differentially for forced versus consensual experiences so that interventions may be tailored to specific trajectories related to each.
WEPED440

Correlates of stages in the HIV care continuum among HIV-positive young men who have sex with men

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Background: Young men who have sex with men (YMSM) continue to be overrepresented in the HIV epidemic. Compared to adult populations, YMSM living with HIV (HIV+ YMSM) experience significant disparities at each stage of the HIV care continuum. The current study aimed to identify demographic and behavioral characteristics associated with care continuum stages among HIV+ YMSM.

Methods: We examined demographic, behavioral, and clinical data of 991 HIV+ YMSM enrolled in ATN086-106, a multisite cross-sectional study within the Adolescent Trials Network for HIV/AIDS Interventions (ATNI). Demographic and behavioral variables that demonstrated significance in bivariate analyses were entered into multivariate logistic regression models to assess correlates of a range of care continuum markers.

Results: Prevalence of care continuum markers across the sample were: 63.8% reported consistent HIV care, defined as missing < 1 appointment in past 12 months; 52.3% were currently on antiretroviral therapy (ART); 36.8% were on ART >6 months; 33.2% reported >90% adherence; and 28.9% were virally suppressed. Multivariate results indicated that methamphetamine use during the past 90 days was negatively associated with adherence (OR=0.54, 95%CI: 0.36, 0.82). No demographic or other behavioral correlates were associated with viral suppression after controlling for adherence and being on ART ≥6 months.

Conclusions: Methamphetamine use appears to have negative effects on HIV care among HIV+ YMSM across the care continuum, while marijuana use frequency may have differential effects. Efforts to improve treatment as prevention approaches and the HIV care continuum among HIV+ YMSM should emphasize substance use assessment and intervention.

WEPED441

‘How come you are a refugee, yet in Uganda there is no war?’ Social, sexual and psychological wellbeing of East African MSM and transgender (MSM/TG) migrants in Nairobi

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Background: East African LGBT migrants seeking asylum in Kenya report harrowing accounts of sexuality-related discrimination precipitating migration. UNHCR estimates over 400 LGBTI migrants have registered for refugee status in Nairobi - the number of illegal migrants is unknown. We explored sexual, social and psychological wellbeing of non-Kenyanys enrolling in a study of MSM/TG resident in Nairobi.

Methods: 618 MSM/TG enrolled via respondent-driven sampling in 2017. Eligibility criteria were age 18+, male gender at birth/currently, Nairobi residence and consensual oral or anal intercourse with a man during the last year. Participants completed a computer-assisted survey including knowledge and access to HIV prevention/care resources, experience of discrimination and violence, and measures of social support (MSPSS) and depression (PHQ-9). MSM/TG born outside and arriving in Nairobi since 2012 were considered international migrants (asylum or refugee status was not assessed directly). Analysis was RDS-II weighted.

Results: 100/618(15.3%) MSM/TG were born outside Kenya of whom 43(4.3%) arrived in Nairobi in the last year (recent migrants) and 56(9.1%) 1-5 years ago (established migrants). Migrants originated from Uganda 82(13%), DR Congo 11(1.9%), Rwanda, 46(7%) and Tanzania 0.8% (n=1). HIV prevalence was lower among migrants than Kenyan MSM (9.0 vs 30.1%, p<0.001). Recent migrants more often reported problems accessing condoms (OR 2.721,4.0-5.16) p<0.002, and lubricants (OR 1.650.88-3.10) p<0.17), and were less likely to have HIV tested in the past 12 months (OR 0.810.32-2.11) p=0.056. 31.8% recent and 25.3% established migrants had moderate to severe depression (PHQ-9) versus 15.5% Kenyan MSM/TG (p=0.025). Perceived social support was also lower (mean MSPSS: recent 4.1; established 4.0). Kenyan MSM/TG 0.0, p<0.01). Violence and discrimination from family, police and health care were more frequently reported by both recent and established migrants (table).

(migration and violence attributed to sexual orientation reported by recent and established international migrants to Nairobi, Kenya 2017)
Conclusions: MSM/TG migrants experience alarming levels of discrimination, assault, depression and poor social support in Nairobi. There is no coordinated response at a time when financial support for LGBT migrants has been withdrawn. Provisions for security and wellbeing of registered migrants should be urgently reviewed and addressed. Access to and information about Kenyan HIV prevention services should be made available to migrants on entry. Measurement of refugee/migrant status in future research is recommended.

**WEPEDE442**

Stigma/discrimination faced by men who have sex with men in India: Correlates and association with risk behaviours (alcohol/drug use and inconsistent condom use), and access to HIV services

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**Background:** The high prevalence of stigma and discrimination faced by MSM, globally and in India, has been well documented. However, from India, limited information is available on the correlates of stigma/discrimination faced by MSM and its effect on various risk behaviours and uptake of HIV prevention-related services.

**Hence, this analysis aims:**

1. to identify correlates of factors associated with stigma/discrimination; and
2. examine whether stigma is associated with alcohol and drug use, sexual risk, and access to HIV prevention services.

**Methods:** We used data from a probability-based sample of 23,081 MSM who participated in Integrated Bio-Behavioural Surveillance (IBBIS) conducted in 24 states in India. Stigma/discrimination composite score was computed using 4 items:

1. physical violence;
2. sexual violence;
3. disrespectful treatment by friends, family or neighbours;
4. disrespectful treatment in health facilities.

Negative binomial regression was used with stigma composite score as the outcome variable. Multivariate logistic regression was conducted in 24 states in India. Stigma/discrimination composite score was computed using 4 items:

- 1 to 2 items
- 3 to 4 items
- 5 to 6 items
- 7 to 8 items
- 9 to 10 items
- 11 to 12 items

**Results:** The mean age of the participants was 27.5 years (SD 7.4 years). About two-thirds were single, reporting having about 6-12 years of education and had diverse sexual identities: kothi (feminine/receptive) - 44%, double-deckers (insertive/receptive) - 31% and panthis (masculine/receptive) - 25%. MSM who were in the age group of 25-39 years (vs. 15-24 years age group), single, and relatively more educated and kothi-identified persons had higher levels of stigma scores. HIV knowledge or HIV status did not significantly predict stigma. Stigma/discrimination scores significantly predicted alcohol use (aOR=1.19, p < .001), drug use (aOR=1.80, p < .001) and inconsistent condom use (aOR=1.12, p < .01) (Table-1). Those who had experienced high levels of stigma had lower odds of exposure to HIV programme, and thus less access to HIV prevention services.

**Conclusions:** Experiencing high levels of stigma is associated with HIV-related risk behaviours (alcohol/drug use and inconsistent condom use), and decreased access to HIV prevention services. Stigma reduction and mitigation programmes could help in decreasing HIV risk among MSM and improve their access to HIV-related services.

**WEPEDE443**

PreP Uptake and Persistence in a Sample of Trans MSM in the United States

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**Background:** Transgender people are highly burdened by HIV infection, and trans masculine adults who have sex with cisgender males (trans MSM) may be at particularly high risks for HIV. Despite documented HIV acquisition risk, data on PrEP uptake and persistence in trans MSM are scarce to guide HIV prevention.

**Methods:** A national sample of U.S. trans MSM recruited via peer referral, dating apps and other social media completed an online survey between November-December 2017. Trans MSM self-reporting receptive anal or frontal/vaginal sex with a cisgender male sex partner in the past 6 months were eligible: HIV-uninfected TMSM who had heard of PrEP and reported on PrEP use were included in this data analysis (n=622). A multivariable logistic regression model was fit analyzing PrEP uptake over 6 months age group (15-24), 25-39, 40-49 years; single, partnered, and married; and sexual orientation (heterosexual, bisexual, and gay).

**Results:** Sociodemographic and clinical data from all the respondents found that mean age was 28; 10% were Black; 22% Latinx; 68% endorsed masculine identity; 33% identified as gay, 78% used testosterone. Over the prior 6 months, 68% reported anal, and 64% frontal/vaginal, condomless receptive sex (CRS) with a cisgender male; 23% were currently on PrEP and 12% who had previously taken PrEP. Adjusting for age, race, education, health insurance, HIV testing, testosterone use, and stigma, factors significantly associated with PrEP uptake were: identifying as Latinx (aOR=2.55; 95%CI=1.29-5.03), female sex identity (aOR=2.03; 95%CI=1.30-3.16), gay sexual orientation (aOR=2.71; 95% CI=1.14-7.16), polyamorous relationship (aOR=2.8); 95% CI=1.14-7.16), higher number of sexual partners (aOR=1.11; 95%CI=1.05-1.17), social media as preferred health information source (aOR=1.09; 95%CI=1.03-1.14), and higher perceived HIV risk (aOR=1.17; 95%CI=1.04-1.31), and CRS (aOR=2.19; 95% CI=1.17-4.21). PrEP was most commonly obtained via primary care providers (60%), sexual partners (21%), STI clinics (12%), or OG/BYN providers (12%).

**Conclusions:** PrEP use was common in this trans MSM sample, which may partly be a function of recruitment methods (e.g., included outreach to HIV prevention listservs). PrEP uptake was modest, given their prevalence of HIV risk behaviors. Although 68% of the trans MSM reported sexual risk, the majority were not using PrEP, suggesting further study and community education are needed to enhance uptake among trans MSM.

**Table 1:** Factors associated with stigma and discrimination and its association with various health outcomes among men having sex with men in India

<table>
<thead>
<tr>
<th>Variables associated with stigma/discrimination</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
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<td>Age</td>
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</tr>
<tr>
<td>&lt; 30 years</td>
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<tr>
<td>30-39 years</td>
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<td>&gt; 39 years</td>
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<td>Years of Education</td>
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<tr>
<td>3-5 years</td>
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<td>&lt; .001</td>
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<td>&gt; 9 years</td>
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Health-related outcomes associated with stigma/discrimination

<table>
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<tr>
<td>Drug Use</td>
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<tr>
<td>Preparative Compounds Use</td>
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<tr>
<td>No exposure to HIV</td>
<td>.0108</td>
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<tr>
<td>Prevention Programme</td>
<td>.0108</td>
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</table>

*Adjusted for all other variables of demographics, current status, identity, substance use and HIV status.
People who use drugs (including by injection)

**WEPED444**

Rapid scale up of takeaway practices for opioid substitution therapy in Ukraine: Exploring possibilities of new legislation

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**Background:** In order to improve retention, patients resocialization, decrease financial and HR burden on healthcare facilities, providing OST, regulatory framework, allowing patients, falling under certain criteria (“patient stability”) to receive up to 10 days takeaway dose, which was previously only available due to clinical conditions, has been introduced.

**Description:** Legislation came into force in early 2016, setting common regulations for all facilities and regions of Ukraine. As of 01.01.2018, share of OST patients receiving takeaway dosage for further self-administration has grown up to 32.6% (3325 out of 10189) (not including 354, receiving takeaway dosage due to the clinical conditions). 65.1% of them (2164) receive drugs directly from the clinic, keeping patients tied to the single facility, while 34.9% (1165) receive prescription blank, which can be presented at any eligible pharmacy. Since, regions have shown their own approach, from total disregard to the practice (10, out of 174 patients) to rapid implementation on all levels (85.4%, 146 out of 169 patients) with no specific interventions from the national level, excluding providing explanations on new legislation. Takeaway share is different in terms of drugs as well, varying from 26% for methadone tablets (2648 out of 8901 patients) to 63% for buprenorphine (672 out of 1075).

Lessons learned: Given the differences in implementation of new model, it’s important to provide additional tailored recommendations, depending on drug misuse and overdose risks. Assessment on recommended ratio of patients receiving OST on a daily basis under direct supervision and those, receiving takeaway dosage, based on existing evidence and considering country context, should be carried out. Implementation of the takeaway practice has significantly increased attractiveness of the program for the clients (locale up for 1677 patients within 2 years), though long-term impact on HIV epidemic, as well as illicit drug use and additional risks for the patient and PWID population remains unclear.

**Conclusions/next steps:** Though takeaway model is crucial both for sustainability of OST programs in terms of limited resources and as a approach of patients encouragement, additional regulations and recommendations to mitigate possible risks and balance out with benefits is needed throughout of program scale up.

**WEPED445**

Will gay and bisexual men who use methamphetamine participate in PrEP services?

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**Background:** New Zealand is launching a fully funded and targeted PrEP programme in March 2018. Methamphetamine use by gay and bisexual men (GBM) is listed as an eligibility criterion for PrEP; but we don’t know whether GBM who use methamphetamine will disclose their use to physicians or engage with PrEP services. We aim to examine methamphetamine use among GBM in the NZPrEP demonstration project.

**Methods:** We used an open-label single-arm trial evaluation study design in 2017 (“NZPrEP”). The settings were four public-funded sexual health clinics in Auckland. The study population was 105 GBM at elevated HIV risk recruited from clinics, community sources and social media. The study medication emtricitabine/tenofovir was fully funded. At baseline, participants self-completed an online questionnaire about PrEP motivations, sexual and risk behaviours. We examined drug use (cannabis, amyl, GHB, ecstasy, amphetamine, methamphetamine, cocaine, ketamine, LSD and mephedrone) and alcohol use in conjunction with sex in the previous three months. We defined “heavy users” as participants using:

1. any of these drugs; or
2. alcohol ‘most of the time’ or “always” before sex respectively.

We compared participants using substances against non-users on the following outcomes:

1. self-reported STI in the last 12 months;
2. self-reported rectal STI in the last 12 months;
3. diagnosed prevalent rectal chlamydia or gonorrhoea;
4. 10 or more receptive condomless anal intercourse partners in the last three months.

**Results:** We enrolled 150 GBM with a median age of 32 (range 19-51). One in 20 (5%) reported injecting drugs in the previous year. 61%, 48% and 8% reported any alcohol, drug and methamphetamine use respectively in the previous three months, and 13% and 10% engaged in heavy alcohol and drug use respectively. Participants reporting any alcohol use before sex were more likely than non-drinkers to report 10 or more receptive condomless anal intercourse partners (OR1.16 vs 3.6, 95% CI: 1.0-3.4), but were less likely to be diagnosed with a rectal bacterial STI at baseline (13.2% vs 26.3%, p=0.044). No other significant differences between users and non-users were detected.

**Conclusions:** HIV-negative GBM using methamphetamine are engaging in PrEP demonstration projects. Their HIV acquisition risk is similar to other GBM participating.
Methods: The quantitative survey was conducted using the PAPI method (the original questionnaire) from 17th August to 15th December 2017. The amount of clients of the Mobile Testing Point and Harm Reduction service was 234 in Warsaw and the surrounding areas.

Results: The percentage of HIV infections and HCV among those who performed the test is 14.6% for HIV and 56.6% for HCV. 93.1% of people infected with HIV were also infected with HCV. In 3% of people performing the test, syphilis was detected. Only 9% of people infected with HIV and 29% of people infected with HCV knew about the infection earlier. 56.8% of people with HIV and 61.5% with HCV had sexual contact without any protection. 68.4% of all respondents and 87.4% of people with a positive test received psychoactive substances in the last 30 days. Among those receiving psychoactive substances in the last 30 days the most popular were mephedrone (33.2%), heroin (23.8%) and amphetamine (9.8%). 86.5% of people infected with HIV and 74.3% of people infected with HCV reported having knowledge about the ways of infection.

Conclusions: People with addiction of drugs are particularly vulnerable to HIV and HCV. These people are willing to use the Mobile Harm Reduction Service offer. The activity of the Mobile Testing Point service contributes to limiting the spread of HIV and HCV infections. Moreover increases the level of knowledge about the ways of infection, and also allows to estimate the scale of occurrence of the problem among the most exposed groups.

WEPE447

High burden of psychosocial stress among opioid-dependent persons on medically assisted therapy in Kwale County, Kenya

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Background: While it is widely acknowledged that illicit substance use is associated with numerous psychosocial problems, knowledge of the magnitude of this problem among people who use drugs in Kenya is limited. Since psychosocial interventions comprise 70% of recovery process from drug use, Kwale County introduced Medically Assisted Therapy (MAT) in October 2017 to increase access to clinical, behavioural and structural interventions for over 3,000 estimated opioid dependent persons. We conducted a simple study to assess the psychosocial well-being of clients on MAT in order to better address prevailing gaps in psychosocial interventions.

Methods: Retrospective review of psychosocial interventions registries eligible client: all enrolled between October -December 2017, with documented indepth assessment by medical social worker, an individualised treatment plan, and brief follow up consultations. Key study variables abstracted include: socio-demographic characteristics, drug use history, self-reported psychosocial issues and interventions.

Results: Of 213 MAT clients enrolled, females comprised 8%. Due to economic constraints compounded by family breakdown, < 40% attained secondary level education or higher (27.8% for females). This limited their employment opportunities, with 40% of females unemployed versus 27.6% males, and 28% of all clients engaging in unskilled labour. At baseline, over 70% clients used heroin concurrently with cannabis, benzodiazepines or alcohol. Several clients complained of low self-esteem and stress at baseline, with one harboring suicidal thoughts. Despite agonizing over relationship issues with sexual partner or other family members, many clients maintain contact with at least one family for emotional or financial support, with mother as chief supporter for 45% clients, followed by siblings. Common treatment goals: reduce/stop illicit drug use; family reunification and secure jobs.

Conclusions: Findings confirm major psychosocial problems among Kwale’s MAT clients, especially females. Neglect of these issues may compromise MAT service uptake and effectiveness of methadone treatment. Underlying psychosocial issues may have either triggered or aggravated illicit substance use behaviour. In addition to more client and family-centered approach to psychosocial interventions, further implementation science research urgently needed to determine which interventions work, in order to enhance MAT treatment outcomes, reduce HIV-related risks and assure durable recovery from drug use among male and female clients.
WEPED450
Barriers to accessing quality care for HIV and substance use in the Philippines: In-depth interviews with PLHIV who use drugs
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Background: The Philippines’ HIV epidemic is one of the fastest-growing globally. Drug use is one driver of growing infection rates. Among people who inject drugs in Cebu city in 2015, HIV prevalence was 43%. With government’s “war on drugs” launched in 2016, accessing care has become more challenging because of fear of legal implications, stigma/discrimination, and at worst, being killed. This study explores the underlying personal and structural factors affecting access to healthcare for PLHIVs who use drugs.

Methods: Key informant interviews were conducted with 13 respondents from 4 provinces/regions. Respondents were 11 males, 2 females. HIV, used recreational drugs, and were recruited via local NGOs. The interview guide asked about drug use history, healthcare seeking behavior, and access to care. The interviews were recorded, transcribed, translated to English, and a qualitative thematic analysis was done.

Results: Shabu (methamphetamine) is the most common drug used by the informants. Among those injecting, 100% reported sharing needles. Eight informants did not disclose their drug use to their HIV doctors and did not plan to due to fear of being judged, scolded or taken to rehabilitation centers. This reluctance to disclose impacts ART adherence – only 4 informants reported good adherence. Other informants missed doses regularly, one reported stopping ART for six months, and another for three years. Fear of the war on drugs is a barrier to healthcare, especially for overdose. The majority of respondents had experienced overdose, and most stated that they were reluctant to or certainly did not want to be brought to hospital if they overdose.

Conclusions: Lack of trust in healthcare providers is a key barrier for PLHIVs who use drugs in accessing quality care. Therefore, it is important to build capacity and create policies in healthcare settings to ensure that they are safe, stigma-free spaces for PLHIV who use drugs.
**WEPE453**

**Barriers to effective HIV prevention and Service delivery among people who inject drugs in Nigeria**

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**Background:** According to the Nigeria 2014 Integrated Bio-behavioral Surveillance Survey (IBBSS), the HIV prevalence among people who inject drugs (PWID) is 3.4%. The HIV prevalence however varies from state to state with some as high as 7%. Female injecting drug users have also recorded higher prevalence rate than their male counterparts - seven times higher. Despite the HIV prevalence and increasing report of injecting drug use in the country, core harm reduction programs such as Opioid substitution therapy and Needle and Syringe programs are still lacking. However, HIV testing and antiretroviral services are provided for the group alongside the general population. This study examines the barriers to HIV prevention and service delivery among PWID in Nigeria from the service recipient perspectives.

**Methods:** Series of focus group discussions and key informant interviews involving PWID, gatekeepers at drug using locations and community outreach workers in the Federal Capital territory were conducted. A total of 40 interviews were documented.

**Results:** The study showed a critical interplay of how behavioral and structural barriers affect uptake of services and availability of evidence-based HIV prevention tools for PWID in Nigeria. Behavioral factors such as low risk perception, HIV-related stigma and confidentiality of HIV test result are key barriers to uptake of available services. Structural barriers such as non-implementation of NSP and criminalization of drug users increases the risk of HIV acquisition with many HIV positive PWID reporting needle & syringe sharing. Also identified are gender related issues that increases the HIV risk among females who inject drugs. In relation to service delivery, peer-driven HIV testing services and community-based ART model of care were identified as critical strategy to improve service uptake.

**Conclusions:** Effectiveness of HIV prevention services among PWID is not limited to just availability of the services but also how the services are delivered in ensuring utilization. Addressing structural barriers are key in reducing the HIV burden among PWID.

**WEPE454**

**Patterns of substance use and substance use treatment predict viral suppression over time among HIV-positive women in the Women’s Inter-agency HIV Study (WIHS): A cross-classified repeated measures latent-class analysis**

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**Background:** HIV viral suppression is an important indicator of effective HIV treatment, and decreases the likelihood of transmission. Substance use (SU) can negatively impact HIV-positive individuals’ care engagement, including a higher likelihood of viremia and transmission. Therefore, it is important to understand the relationship between SU, SU treatment, and viral suppression.

**Methods:** Data from 2512 women were collected during six semi-annual visits (10/2013-09/2016) at nine Women’s Interagency HIV Study (WIHS) sites-WIHS is the largest U.S. cohort study of HIV-positive and HIV-negative women. We compared the use of single substances and SU treatment indicators to viral suppression, and then used latent class analyses of these domains to predict viral suppression.

**Results:** Substance use patterns were similar across HIV-positive and HIV-negative women. Among HIV-positive women, bivariate models by substance type found that stimulant users had the largest difference in viral suppression between users and non-users (14% versus 8%). In latent class analysis, individuals with consistent use of stimulants, marijuana and binge drinking had the lowest percentage of suppression (62%), with those consistently using all substances with the next lowest percentage (69%). The class that predominately used marijuana (82% vi- rally suppressed) and the class with very low use of any substance (85% virally suppressed) had the highest rates. The interaction of SU and SU treatment classes showed that the rate of virally suppressed individuals in the Low-SU and No-SU-Treatment classes increased from 81% to 88% (baseline to 30 months), whereas the Declining-Lose class and all classes including stimulants who were also in the No-SU treatment class had a decreased likelihood of viral suppression from baseline to 30 months. Individuals in Increasing-Professional-Treatment who used stimulants and other substances had the lowest viral suppression at baseline (96%) but also greater increases (13%) than the Low-Use/No-SU-Treatment individuals. Consistent Alcoholics/Narcotics Anonymous (AA/NA) attendance was associated with higher rates of viral suppression across all substance use classes.
WEPED455
Rapid assessment of the quantity, quality and effectiveness of services for the young women using drugs in the Kyrgyz Republic

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Background: Young women using drugs (YWUD) are often „invisible“ to harm reduction and HIV prevention programs. YWUD often face violence, stigma, and discrimination. Discrimination and violence from close associates, older people using drugs, and police make the group more closed. YWUD often feel that they cannot seek help and therefore remain exposed to risk of HIV infection and without adequate protection of their human rights. YWUD continue to be underserved, with little information and few services targeted to them. In this regard Community based organization “Ganesha” conducted an express assessment of the quantity, quality and efficiency of services provided by state and non-governmental institutions for YWUD.

Methods: The rapid assessment conducted January -April 2017 in the city of Bishkek and Chui oblast. The evaluation methods were selected in accordance with objectives of the rapid assessment - quantitative data collection and analysis. Two questionnaires were developed for service providers and clients. Data collection and analysis was carried out by the community, individually with each respondent.

Results: 50 YWUD (18-32 years) participated in rapid assessment. Rapid assessment showed that Harm Reduction programs are not gender sensitive and are not designed to provide services to YWUD. The rapid assessment showed that YWUD do not know about the services provided in Harm Reduction and Guaranteed State Assistance programs. Low involvement in prevention programs is also resulted from a general lack of services targeting YWUD. Medical services in the field of HIV, SRHR are only available for adolescents with consent of official representatives, which is the main barrier to receiving medical services. A rapid assessment among service providers has shown that separate programs are needed to provide services targeted at the needs of YWUD. The country lacks interest and funding from donors and the state for HIV prevention among YWUD.

Conclusions: Substance using women who attended treatment showed improvement in HIV viral suppression rates relative to those not in treatment. Latent class analysis provides a sharper picture of how specific patterns of SU and SU treatment affect HIV-positive women’s maintenance of viral suppression.

WEPED466
Engaging community-based model of care for differentiated anti-retroviral therapy (ART) service delivery for people who inject drugs (PWIDs) in Nigeria: Lessons and challenges

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Background: Current models of providing HIV services for prevention, testing, care and treatment are being stretched to the limit. To reach the UNAIDS go-go-go targets, there is call for new and differentiated approaches needed to meet the diverse needs and expectations of all people living with HIV (PLHIV). The purpose of this study is to show the effectiveness of a community-based model in ART service uptake for People Who Inject Drugs (PWIDs).

Description: Between January to December of 2017, YouthRISE piloted a Mobile Community-based ART (MCA) program that provided real time service enrollment for PWIDs, from the point of HIV testing through to linkage to holistic care. Services are provided by a mobile team of social and health workers and include HIV testing, ART initiation, ARV refill, adherence counseling, nutritional support and home-based care. Clients who are willing to go to the facility are encouraged to do so for continuation of services but those who are unable are counselled and still provided treatment services by the mobile team till a point they could go to the facility on their own.

Lessons learned: The use of the community-based model has contributed to a high rate in ART enrollment for PWIDs within the facility. Before January 2017, the ART enrollment rate for PWIDs who were HIV-positive was 18%. Between January to December 2017, after the MCA was introduced, 1592 (1023 Males, 571 Females) PWID were tested for HIV out of which 1023 (56, 66 Females) tested positive. Of these, 72 were initiated into ART representing 70.5% enrolment rate. After 12 months, 87% were retained in care with only 13% dropping out after staying on treatment for an average of 6 months. The establishment of HIV support group for the PWID community has also improved retention in care.

Using this model of care in YouthRISE has facilitated ART initiation, provide access to proximate HIV care and minimizing structural barriers to retention.

Conclusions/Next steps: Adaptation of ART service delivery model for PWIDs is critical to ensuring PWIDs are reached with HIV testing services, enrolled and retained in treatment and care services.

WEPED457
Social-structural influences on access and adherence to antiretroviral therapy among people living with HIV/AIDS who use drugs: A qualitative meta-synthesis

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Background: Although social and structural forces, such as drug law enforcement and economic marginalization, have been identified as critical determinants of access and adherence to highly active antiretroviral therapy (HAART) among people living with HIV (PLWHV) who use drugs, there remain significant knowledge gaps in relation to how these forces intersect to produce sub-optimal HAART outcomes across settings. This qualitative meta-synthesis was undertaken to address this research gap and examine the social-structural contexts of HAART access and adherence globally to inform structural and programmatic interventions to improve HAART outcomes.

Conclusions: Substance using women who attended treatment showed improvement in HIV viral suppression rates relative to those not in treatment. Latent class analysis provides a sharper picture of how specific patterns of SU and SU treatment affect HIV-positive women’s maintenance of viral suppression.

WEPED457
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Conclusions: Substance using women who attended treatment showed improvement in HIV viral suppression rates relative to those not in treatment. Latent class analysis provides a sharper picture of how specific patterns of SU and SU treatment affect HIV-positive women’s maintenance of viral suppression.
Methods: A systematic literature search of the English-language peer-reviewed qualitative literature on HAART access and adherence among PLHIV who use drugs yielded 33 articles meeting the eligibility criteria for this analysis. Eligibility criteria included articles published since 1998 focusing on HAART access and adherence among which 75% of their sample identifying as PLHIV who use drugs. Three team members analyzed the included articles using a qualitative meta-synthesis approach.

Results: Studies included in this meta-synthesis represented an aggregate of more than 1200 HIV-positive PWUD across 15 countries. This analysis of the included articles revealed how social-structural conditions stemming from drug criminalization and socio-economic marginalization produced sub-optimal HAART outcomes. Specifically, this analysis found that: (i) drug criminalization resulted in law enforcement strategies (e.g., policing near clinics) that interrupted access to HAART and disrupted adherence routines; (ii) structural and interpersonal stigma associated with drug use constrained access to HAART and undermined patient-provider relationships; and (iii) structural vulnerabilities (e.g., residential instability, incarceration) were barriers to HAART initiation and produced HAART interruptions.

Conclusions: The findings of this meta-synthesis shed light on the ways in which social-structural forces converge to undermine HAART access and adherence among PLHIV who use drugs. Findings demonstrate that complementary drug policy reforms (e.g., drug decriminalization) and structural interventions (e.g., expansion of social housing) will be necessary to optimize HAART-related outcomes among this population. These complementary approaches may prove necessary to achieve 90-90-90 targets among PLHIV who use drugs.

WEPED458
Norms on drug injection in Athens, Greece (2013-2015)


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Background: Norms on injection practices can influence drug injection-related behavior and therefore HIV outcomes. This work describes norms among people who inject drugs (PWID) in Athens, Greece in the context of an HIV outbreak during years of serious economic crisis.

Methods: The Transmission Reduction Intervention Project (TRIP) used a social network-based contact tracing approach to detect recent HIV infections (June 2013-July 2015). TRIP also collected data on injection norms, using a structured questionnaire, from 310 PWID (females 1%). Of these, 21 served as recently HIV-infected seeds to recruit 140 people from their social networks. 16 were longer-term HIV-infected seeds who recruited 59 people from their networks; and 74 people served as HIV-negative controls.

Results: Around a third of the participants (35%) reported that people they use drugs with encouraged them to share syringes and more than half (52%) said that they were encouraged by those people to share other injecting equipment. The proportions were much higher for unsafe injection norms at drug-using venues. Between 60% and 70% of the participants said that they saw people at drug-using venues encouraging others to share other syringes/needles or cookers, rinse water, and other injecting equipment. The results did not significantly differ by gender or HIV status or across groups of seeds (recent vs. long-term-infected) and their networks.

Conclusions: Norms on drug injection in Athens, Greece in the months following the peak of the outbreak favored risky behaviors. These findings raise concerns. Future work should seek to understand whether these norms are a potential pathway through which macro-level processes, such as economic crises, affect HIV risk and result in HIV transmission.

WEPED459
Young and High - a rising reality: A qualitative analysis of drug use among young gay, bisexual and MSM in sexualized settings in Bangkok, Hanoi and Jakarta

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Background: Methamphetamine drug use among gay, bisexual and MSM in sexualized settings is increasing in the ASEAN region. Young gay, bisexual and MSM are more engaged in this behavior as per anecdotal data. There is very less information in this region about drug use in sexualized settings which hampers targeted interventions.

Methods: For the first time in ASEAN region, Youth Voices Count launched an online survey in Bangkok, Jakarta and Ho Chi Minh targeting young gay, bisexual and MSM who use drugs in sexualized settings. The survey was launched in 4 languages and aimed to collect information on types of drugs used, motivation for drug-use initiation and continuation, safer sex practices, access to HIV services and harm reduction services. The data was collected between October-November 2017. 3 Kils with young gay, bisexual and MSM were conducted in each country with a total of 9 Kils.

Results: The initiation of drug use among young gay, bisexual and MSM has taken place as a result of psycho social issues such as anxiety with ‘coming out’, need to be in relationships or to engage in sex work for a higher pay. Majority of respondents who have used drugs in last sexual contact have also not used condoms or visited and sexual health service during past 6 months. Majority of respondents who used drugs in sexualized settings were unaware of any harm reduction services that they could access in their cities. They are also unaware of PreP and PrEP and due to stigma and discrimination are unwilling to access sexual health services.

Conclusions: Comprehensive interventions should be implemented to address the psychosocial issues of young gay, bisexual MSM in general. More effective partnerships should be developed between organizations working on gay, bisexual. MSM communities and communities of people who use drugs to create service provision, care and harm reduction service linkages. More research needs to be done to gather strategic information to develop targeted interventions for young gay, bisexual. MSM who use drugs in sexualized settings.

WEPED460
Chemsex among men who have sex with men in Singapore and the challenges ahead: A qualitative study


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Background: Sexualized substance use, or ‘chemsex’ has been shown to be a major factor driving the syndemic of HIV/AIDS in communities of gay and bisexual men around the world. However, there is a paucity of research on chemsex among men who have sex with men (MSM) in Singapore due to punitive drug laws and the criminalization of sexual behavior between men. This qualitative descriptive study is the first to explore perceptions towards, motivators to engaging in, and the barriers to addressing chemsex among MSM in Singapore.

Methods: We conducted 30 semi-structured in-depth interviews with a purposively recruited sample of self-identified MSM between the ages of 18 to 39 in Singapore. Maximum variation sampling was employed to ensure a diversity of responses from MSM of varying socioeconomic backgrounds, relationship status, and HIV/STI status. Topics included participants’ perceptions of drug use in the community, perceptions towards chemsex, reasons for drug use and chemsex, the impact of drug
use on the MSM community, and recommendations to help address chemsex among MSM in Singapore. Interviews were audio-recorded, transcribed, coded, and analyzed through an inductive analytical approach.

Results: Participants reported that it was common to encounter chemsex within the Singaporean gay scene as it could be easily accessed or initiated using social networking phone apps, but is often a surreptitious act that takes place overseas or away from the community’s view. Enhancement and prolongation of sexual experiences, fear of rejection from sexual partners and peers, and its use as a coping mechanism were three main reasons cited for engaging in chemsex, while the impact of punitive drug laws on disclosure and stigmatization of drug users within the community were thought to be key barriers towards addressing chemsex. Participants suggested using MSM-specific commercial venues as avenues for awareness and educational campaigns, and social media to reach out to younger MSM.

Conclusions: This study highlights the complexities behind chemsex use in the MSM community, and the range of individual to institutional factors to be addressed. We recommend that community-based organizations and policy-makers find ways to destigmatize discussion of chemsex and provide safe spaces to seek help for drug use.

Lessons learned: Our previous intervention projects have demonstrated the efficacy of using communication tools such as “motivational role” and “decisional balance sheet” to improve communication skills of CHW. The current study will take full advantages of these tools and combine them with Facebook groups. The Facebook network approach has shown to be an effective tool to enhance communications between treatment providers in this study. To involve CHW in the treatment providers’ network will present opportunities for CHW to communicate directly with MMT and ART treatment providers and to strengthen their roles in treatment initiation and adherence for PLHUD. Several proven effective monitoring strategies are used to address implementation challenges in intervention delivery and evaluation.

Conclusions/Next steps: Our program combines proven effective communication tools with new social media platform for CHW’s capacity building. We still need to explore ways on how to translate enhanced communications within the providers’ network to maximize referrals in practice for the HIV care continuum.

WEPE462
Building workforce capacity to address HIV and substance misuse in rural areas

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Background: The US HIV epidemic has been negatively impacted by the increase in substance use and misuse particularly in rural areas. Rural areas are a distinct disadvantage due to fewer health professionals, lack of transportation, funding for services, stigma, and service coordination. These gaps were assessed through a needs assessment conducted by federally funded training centers to identify priorities for training, technical assistance for capacity development.

Description: The survey instrument (PRO14030407) was sent via email to 15,000 health professionals who attended HIV, substance use, and STI training in 2014. The instrument has been previously piloted in 2012 and revisions made to improve the domains of survey questions that included: HIV clinical management, behavior change, psychosocial issues, STIs, hepatitis, substance treatment. Respondents across all disciplines and domains rated the need for training on substance use and misuse (41%) and psychiatric illness (40%) in HIV patients as priorities. Across all disciplines, triple diagnosis of HIV, substance use and mental illness was ranked first in education and technical assistance need. Rural health professionals of which nurses were the largest number (28%) indicated significant need in increasing knowledge and skills for treating triply diagnosed patients.

Lessons learned: Health professionals continue to remain in acute need of education and training related to substance use, misuse, and mental illness treatment and intervention. This study demonstrates the need is equal to education related to treatment of HIV, hepatitis, and STIs. The study demonstrates that this need is particularly acute for nurses, nurse practitioners and social service providers who comprise important members of the HIV treatment team which is essential to improving the HIV care continuum. Prioritization of training and technical assistance curriculum is needed for practicing health professionals as well as educational curriculums for medical, nursing, and allied health professions schools.

Conclusions/Next steps: The need for capacity building within health professions is critical to address the co-morbidities of substance use/misuse and mental illness is critical. In the US and around the world, substance use and mental illness is contributing to increases in HIV, hepatitis, and STIs. Research indicates that both of these disorders put individuals at risk; interfere with treatment adherence, and impede engagement and maintenance in care and treatment.
WEPE463
Risky injection practices and knowledge regarding HCV: A respondent-driven sampling study among people who inject drugs in the Chiang Mai Province, Thailand

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Background: In Thailand as in most countries, people who inject drugs (PWID) are the most exposed group to HCV and HIV/HCV coinfection. Drug use remains highly criminalized and PWID have limited access to care due to their marginalization. Harm reduction services are still scarce and are mainly provided by civil society organizations supporting drug users. The objective of our study was to inform a future national HCV policy aiming to control the epidemic in Thailand.

Methods: We used a respondent-driven sampling (RDS) methodology, adapted to hard-to-reach populations. Social and behavioral data were collected with a face-to-face questionnaire. Results were weighted in the analysis using the ‘Successive Sampling’ estimator to limit biases related to the non-random sampling method.

Results: 171 PWID were recruited between April 2016 and January 2017. The average age was 34 years old (range 18-62 years old); 11% were women; 49% belonged to a minority ethnic group. The most frequently injected drugs were heroin (77% of participants), methadone (21%) and methamphetamine (21%). 22% [95%CI 16-29] of participants shared their needles in the last 6 months and 32% [95%CI 24-40] their injection material. Only 27% [95%CI 18-35] of PWID had heard of HCV; factors independently associated were membership in a support group for drug users (aOR = 5.1 [95% CI 1.8-14.3]), ethnic group (Lahu aOR = 0.3 [95% CI 0.1-0.9]) and voluntary participation in a drug rehabilitation program (aOR = 4.9 [95% CI 1.5-16.7]).

Conclusions: The PWID population is poorly informed and screened for HCV despite widespread risky injection practices. A public health approach aimed at reducing the incidence of HCV will need to target this population by combining rapid diagnosis, direct-diagnosis program (aOR = 4.9 [95% CI 1.5-16.7]).

WEPE464
Community mobilisation approach: A method for linking drug users to HIV, STI and harm reduction services

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Background: Injecting-drug users (IDUs) are a hidden community who are unable to access HIV and harm reduction services. These populations rarely access social and health services where they can be identified and documented due to fear of stigma and/or arrest by law enforcers. As a result, there is a high prevalence of HIV and STIs among this network. The 2013 mapping and size estimation of IDUs in Kampala (AMICALL et al, 2013) indicated that there were 46 IDUs found in three divisions of Kampala. Another similar study in 2012/13 by Crane survey of high-risk populations found 1,170 habitual consumers of drugs in greater Kampala, suggesting the possible existence of a large number of IDUs in Uganda (Moht et al., 2013).

Description: UHRN uses community mobilization approach to reach this hidden population. This bottom-up approach has proved effective in addressing local needs of IDUs and linking them to HIV services. This has been made possible through interaction, integration and coordination with peers, other stakeholders and implementing partners. Peers have been trained on HIV and harm reduction services and are able to identify drug users and link them to various service providers. This approach has enabled UHRN to reach a wide number of IDUs and as a result the approach has contributed to adherence of IDUs to health services. However, this approach has worked in a few communities yet there are a number of drug users with health risks across the nation.

Lessons learned: Since January 2017, the approach has helped over 200 PWUDs to access HIV services from UHRN and partner organizations. In order for the approach to be sustainable, peers need to be motivated financially to reach the hidden communities, improve visibility and build their capacity on human rights. There is still a big gap to be filled by research in order to establish the magnitude of the drug users country wide.

Conclusions/Next steps: The approach has worked in the mobilization and engagement of PWUDs in outreach programs and thus helped to realize increased uptake of HIV and harm reduction services by IDUs. UHRN recommends scale up of this approach to other areas.

WEPE465
Satellite centers for women using drugs (WUD): Innovation to address neglect in drug-related treatment management programs in Northeast India

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Background: Opioid Substitution Therapy (OST) with buprenorphine is part of India’s harm reduction strategy for people who inject drugs (PWID). Buprenorphine is dispensed at government-accredited non-government organization (NGO) and government facility-based OST centers. The majority of PWID clients accessing OST are men, and women who use drugs (WUD) are uncomfortable attending OST centers. Often, services are not women-friendly and apprehension persist on disclosure of status as drug users. Although there are no exclusive OST centers for WUD, NGOs do provide harm reduction services for them in drop-in centers (DIC).

Description: In 2017, Project Sunrise, implemented by FHI 360 and funded by Centers for Disease Control and Prevention (CDC), in the Northeast state of Manipur, consulted WUD to ascertain reasons for low OST enrolment. Perceptions that services are men-centric, and fear of disclosure,
were cited as reasons for poor enrollment in OST. Thus, Satellite OST Centers were established in two DICs for WUD. OST medication was transported every two weeks from the nearest government-accredited OST center, and doctors/nurses visited these DICs every week for induction of WUD and dose management. The pre-established/accredited center is referred to as a "base" center, and the DIC for WUD is termed a "satellite" of the government center that is linked to the base for medication and personnel.

Lessons learned: Enrollment of WUD to OST increased after establishment of satellite OST centers. Within three months, nearly 100 WUD not accessing OST previously registered for OST. Presently 56% of these WUD (90) are taking OST daily for at least 35 days in a month.

Conclusions/Next steps: A collaboration of NGOs and government can ensure OST access to sub-populations who do not visit "mainstream" facilities. The OST satellite model could be applied to other sub-populations at risk such as young/adolescent PWID, and hard to reach PWID in remote locations. For WUD, the linkage to OST should be treated as an entry point for other services such as HIV testing, ART, sexual and reproductive health services, hepatitis C management, and re-integration into society.

WEPED466 Effect measure modification of association between HIV status and recent overdose among OAT patient in Ukraine

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Background: Research results suggest that HIV positive people who inject drugs may be at heightened risk for opioid overdose. Demonstrated estimates of associations between HIV and overdose, however, have high heterogeneity suggesting potential interactions with individual and context-specific factors. Opioid agonist therapy (OAT) has been shown to reduce overdose and increase HIV outcomes among PWID, however, its role in the association of HIV infection and overdose remain a research gap. This study aims to investigate whether OAT modifies association between HIV status and risk of recent non-fatal overdose.

Methods: We conducted a stratified survey of opioid dependent PWID followed by HIV testing in five Ukrainian cities. Opioid dependent PWID (N=1,357) were sampled from January 2014 to March 2015. Using weighted log-binomial regression model we estimated independent and interactive association between HIV status and recent overdose.

Results: The data for this investigation come from cross-sectional stratified survey of opioid dependent PWID followed by HIV testing in five Ukrainian cities. Opioid dependent PWID (N=1,357) were sampled from January 2014 to March 2015. Using weighted log-binomial regression model we estimated independent and interactive association between HIV status and recent overdose. By survey design 31% of the sample were on OAT. Forty four percent of the sample reported hazardous drinking while 60% reported being depressed. In the adjusted multivariable model HIV positive compared to HIV negative status has been independently associated with 26% increase in prevalence of recent overdose (prevalence ratioPR=1.26, 95% CI 0.79-1.89) among those not on OAT. Being on OAT independently was associated with 60% decrease in prevalence of recent overdose (PR 0.44, 95%CI 0.18 - 0.66) compared to those who were not on OAT among HIV negative. Testing HIV positive and receiving OAT, however, were associated with a 2.4-fold increase in reported prevalence of recent overdose (PR 2.29, 95% CI 1.18 - 4.84), suggesting that OAT modifies the association between HIV status and recent overdose.

Conclusions: These results suggest that factors contributing to heightened prevalence of non-fatal overdose among HIV positive OAT patients should be further investigated and addressed.

WEPED467 Under multiple oppressions: Identifying the main trends in violence against women who use drugs in Georgia

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Background: Violence against Women (VAW) is a global issue. Women using drugs become victims of structural violence produced by punitive and repressive drug policy that maximizes the harms caused by drug addiction. Evidence is lacking that would enable the state to implement targeted interventions and monitoring of situation. To fill this gap, Aceso carried out a qualitative research, which focused on identifying the main trends of rights violation in relation to systemic, domestic, sexual and other types of violence.

Methods: A qualitative research using focus group discussions were carried out by a research team, which made in-depth analysis of complex issue of violence. Each of 6 focus groups had 6-8 (46 in total) women, aged 27-54. Participants were selected among recipients of Opiate Substitution Treatment. Needle Exchange Program, convicted for drug use and possession. All participants were residents of the capital city Tbilisi.

Results: The respondents believe that violence against them is expressed not only in physical and verbal abuse, but also in total control and harassment they have experienced from their families. Most of the cases of domestic violence were associated with spouses or former spouses. All of the respondents with this experience mentioned that they have never approached to law enforcement agencies for the help as it was the same structures who were violating their rights systematically. In this sense, drug user and commercial sex worker women are the most vulnerable. The respondents of the study had been jailed mainly for drug use, possession and other non-violent crimes. Most of the respondents who had previous imprisonment experience mentioned that their rights were violated during the incarceration episode. Non-informing about their rights, physical violence, threatening, verbal abuse were some of the examples recalled by respondents.

Conclusions: Violence against women who use drugs is expressed in physical or verbal abuse, as well as in excretion of a total control and threats from different members of their families. Most frequently abusers are current or former husbands or parents. Furthermore seeking protection, such as from police or relatives, seeking shelter, disclosing facts of violence via media/social media proves to be impossible.

Sex workers

WEPED468 Political impunity and HIV vulnerability among Haitian female sex workers in the Dominican Republic

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Background: In the Dominican Republic (DR), Haitian female sex workers (FSWs) are at increased risk for HIV (5.4% HIV prevalence vs. 0.7% national HIV prevalence). Haitian FSWs in the DR exist in a context of political impunity resulting from lack of citizenship and the liminal criminality of sex work. Exploratory research was conducted to understand the vulnerability of Haitian FSWs to HIV in the DR.

Methods: In-depth interviews were conducted with 40 FSWs of Haitian descent (two interviews each) in Puerto Plata (n=20) and Santo Domingo (n=20). Semi-structured guides asked about sex work, family and social networks, HIV risk behavior, gender and ethnic identity following an intersectional framework. Interviews were recorded and transcribed for thematic analysis.
Results: Participants reported high risk for HIV including low HIV knowledge, alcohol use prior to sex, and challenges in negotiating condom use with clients. Relative to Dominicans, participants reported that they were more likely to be street-based (versus venue), charged less per client, and were more often threatened by the client for deportation. While described as not ideal, sex work was noted as one of the few economic opportunities available to Haitian women. Participants described both spiritual and biomedical illness narratives related to HIV. Discrimination in the healthcare setting was reported, but access to HIV testing and care was seen as feasible. Participants reported experience with and fear of violence from male clients.

Conclusions: Haitian FSWs, similar to other stateless populations globally, are doubly at risk for HIV and in need of increased access to HIV education, substance use services, and condom negotiation skills. Street-based sex work combined with the threat of deportation increases their risk of violence and lowers their ability for condom negotiation. Health services targeted to this population should accommodate their belief in both spiritual and biomedical causes of HIV.

WEPED469
Overcoming challenges in developing a sustainable cervical cancer screening program in Limpopo Province, South Africa: Training of health workers and sex worker advocates

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Background: A major challenge to successful cervical cancer screening is lack of knowledge about the disease. To prepare for integrating screening into current HIV care, a teaching program was designed. The objective was to close the gaps in knowledge for HIV advocates and deliver training in “see and treat” skills to local providers.

Description: Institutional review board approval was obtained from within the United States and South Africa. Workshops were hosted at an HIV clinic in rural South Africa. Fifteen sex worker advocates who function as lay health workers for HIV awareness participated in a one-day cervical cancer awareness program. Five nurses underwent a 4-day workshop in cervical cancer screening using pre-/post- knowledge study design. Four didactic modules were presented with additional visual aids and model demonstrations where appropriate. Nurses were then evaluated one year after initial training to assess for quality and performance in cervical screening technique.

Lessons learned: Advocates completed a questionnaire on demographics and knowledge of risk factors for cervical cancer. None of the 13 sex worker advocates had previous knowledge of cervical cancer and all reported acquiring new knowledge that would benefit their community. Sex worker advocates reached out to co-workers and encouraged all reported acquiring new knowledge that would benefit their community. Sex worker advocates reached out to co-workers and encouraged all.

Conclusions/Next steps: We demonstrate successful teaching of cervical cancer screening using VIA for HIV+ farm workers and sex workers into an existing HIV treatment and prevention clinic in rural South Africa. Using the see-and-treat approach and following guidelines for triaging of positive screens, abnormal results can be readily addressed and treated promptly.

WEPED470
Cervical cancer screening in rural South Africa among HIV-infected Migrant farm workers and sex workers

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Background: National Policy for cervical cancer screening in South Africa is 3 lifetime pap smears; however some services screen more frequently for high risk women with annual pap smears. At an HIV clinic in the Limpopo province, chart reviews revealed long delays in addressing abnormal Pap smears, difficulty in referrals, poor quality and lost results. To address these barriers, a “see and treat” approach to screening was proposed. The objective was to integrate this method into current HIV care offered by local providers and to obtain demographic and risk factor data for use in future educational and intervention programs in the region.

Description: Institutional review board approval was obtained from within the United States and South Africa for a cross sectional study of HIV farm workers and at-risk sex workers attending an HIV clinic. Five local nurses who had undergone training in see-and-treat screening were the primary providers, administering interview questionnaires and performing visual inspection with acetic acid (VIA) on all consenting participants. Those with positive screens were offered cryotherapy. Clinic charts were reviewed retrospectively for Pap smear results for the previous year. SPSS was used for analysis of all data.

Lessons learned: A total of 430 participants consented and underwent screening with VIA (306 Farm workers and 97 sex workers participated). 83.9% of participants (32.9% sex workers and 100% farm workers) were HIV+. VIA was positive in 30.5% of participants. Cryotherapy was performed on 114 participants; 5 women failed to return for treatment and 4 women were referred for suspicion of cancer. There was no significant difference in VIA positivity between HIV+ farm workers and sex workers (Table 1). Pap smear results were available on 54.8% of participants, of which 26.7% were abnormal. There was a positive correlation between Pap smears and VIA results (Table 2).

Conclusions/Next steps: We demonstrate successful integration of cervical cancer screening using VIA for HIV+ farm workers and sex workers into an existing HIV treatment and prevention clinic in rural South Africa. Using the see-and-treat approach and following guidelines for triaging of positive screens, abnormal results can be readily addressed and treated promptly.

WEPED471
Need for intensified interventions among brothel-based female sex workers in Mumbai, India

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Background: Female sex workers (FSWs) have been the focus of targeted interventions (TI) for a long time in India. However, there has been a reduction in brothel based sex work, and a higher proportion of female sex workers are now home based, street based, or bar based. We compared sexual behaviour and infections (HIV positivity and VDRL reactivity) among different types of FSWs.

Description: We used programmatic data from 19,547 FSWs collected as a part of the Individual Tracking System. We used data on age, type of sex work, risk assessment, condom use, and STI positivity (including syphilis and HIV). We used poisson regression models to estimate incidence ratios (IR) and 95% confidence intervals (CI).

Lessons learned: Overall, the proportion of syphilis positivity was 0.19% (95% CI: 0.13%, 0.25%). HIV prevalence was 0.31% (95% CI: 0.23%, 0.39%), and HIV incidence was 0.14% (95% CI: 0.10%, 0.21%). Demographic, risk, and health data are presented in Table 1. Street based (IR: 1.44, 95% CI: 1.35, 1.53) and home based (IR: 1.40, 95% CI: 1.39, 1.53) FSWs were more likely to get tested for syphilis compared with brothel based sex workers. Bar
Background: Female Sex Workers (FSW) are disproportionately affected by HIV, even in the most generalized HIV epidemics. While structural HIV risks have been understand to mediate condom negotiation among FSW globally, there remains limited data on the relationship between structural determinants of HIV risk including violence and socio-economic-status and condom use among sex workers across Sub-Saharan Africa. Here, we describe the prevalence of structural determinants and their associations with condom use among FSW in Senegal.

Methods: In 2016, 75 FSW ≥18 years of age were recruited by Respondent Driven Sampling (RDS) in Senegal. Information on individual, community, and network-level risks were collected through an interviewer-administered questionnaire. Poisson regression with robust variance estimation was used to model the associations of consistent condom use (CCU) and selected structural determinants.

Results: The RDS-adjusted prevalence of CCU in the last 10 sexual acts was 76.8% (95% CI: 70.8-82.8%). In the bivariate analysis, CCU was associated with being legally registered (IR: 0.22, 95% CI: 0.12-0.39) compared with brothel based FSWs. However, there were no significant differences in the strata based (IR: 0.32, 95% CI: 0.21-0.46) and brothel based FSWs. FSWs who had used a condom in the last sex act were less likely to become HIV infected (IR: 0.15, 95% CI: 0.06, 0.34).

Conclusions: Even though, brothel based FSWs have high risk behavior and high incidence of STIs including HIV; they are less likely to get tested for syphilis and HIV. Thus, they should remain the focus of prevention programs and targeted intervention programs should be intensify in this vulnerable group.

WEPED473

“1 would like not to answer this question” Violence, police and sex work in Ukraine

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Background: Currently in Ukraine, sex work is prosecuted by administrative and criminal laws fuel stigmatization of sex workers (SWs) and lead to a violation of their human rights. Prohibition of sex work results in stigma and discrimination, social exclusion, unsafe working conditions, poor occupational health, low self-esteem, restriction on housing, travel and parenting. Thus, we aimed to examine experience of violence among SWs in Ukraine.

Methods: During July-August 2017, 175 structured interviews, 3 focus group discussions (N=24) with SWs and 14 in-depth interviews with stakeholders (representatives of non-governmental organizations, health care providers, SWs’ managers, etc.) were conducted in 8 regions of Ukraine: Donetsk, Kyiv, Kirovivtskyy, Kryvyi Rig, Nikolaev, Odessa, Zhytmor, Vintsytsya. Convenient sampling strategy was applied. Structured interviews were analyzed using SPSS software; all qualitative data was transcribed and then hand coded using inductive technique. Ethical approval was obtained from the Research Ethics Boards of the Committee on Medical Ethics of the Gromachevsky Institute of Epidemiology and Infectious diseases.

Results: In total we recruited 165 females, 7 males and 3 transgenders, aged 17-50 years old. The majority started working between 15-22 years old and was engaged in SW for 5-10 years, had full secondary education. The majority of SWs experienced violence (80%) during last year, with psychological violence (75%) being the dominant form. Half of respondents experienced sexual violence. Chances to experience violence increased with years of engagement in sex work (Table 1). Clients and police were two most commonly named sources of violence. Only 15% of victims applied for help, and only few applied to the governmental structures. During in-depth interviews most SW managers were not willing to respond on questions regarding police; still, bribes was the most common ways to deal with police raids. SWs and stakeholders were arguing for decriminalization or legalization of SW as an effective strategy to decrease abuse by the police and to promote utilization of health care services.

Conclusions: Most SWs in Ukraine face violence regularly with clients and police have been most common sources of it. Changes of current SW-related policies might decrease level of violence and support basic human rights of SWs.
**WEPE4D74**

A randomized controlled trial to test a cognitive behavioral and structural HIV prevention intervention for Ugandan sex workers 15- to 24-years old

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**Background:** Women 15-24-years old engaging in high-risk sexual behavior, young sex workers (YSW) are a key population in sub-Saharan Africa. HIV prevalence is estimated at 26% compared to 4.6% national prevalence among this group. YSW are especially vulnerable to HIV due to male partner dominance. Difficulties negotiating safe sex with clients. HIV-negative YSW are particularly at risk for sexually transmitted infections, including HIV, and unplanned pregnancies. Services are limited for YSW due to stigma and discrimination.

We are currently conducting a randomized controlled trial to test the effectiveness of a combination cognitive-behavioral and structural HIV prevention intervention in Uganda. Our conceptual framework was built on individual, dyadic and structural constructs that formed risk profiles of our population. We developed an intervention to address multi-level risks and vulnerabilities and present on baseline findings.

**Methods:** Audio Computer Assisted Self Interview was used to administer questions about sexual activity and unprotected sexual exposures. To validate self-reported sexual behavior, a vaginal swab is collected to assess Y-chromosome sequences, a biomarker for unprotected vaginal intercourse. We describe two levels of descriptive and bivariate analysis to assess an association between empowerment variables as a mediator and baseline socio-demographic variables. We present percentages of key variables. At bivariate analysis, Chi-square distributions and Fisher’s exact were used to assess associations.

**Results:** By 1 February, 277 of planned 450 participants have been enrolled. Forty-two percent of participants are between 15-19 years old and 58% are between 20-24 years old. Six percent have completed secondary school, 50% stated that they had a history of intimate partner violence, and 44% reported having used drugs or alcohol. There was a statistically significant association between education and key empowerment variables (p < 0.05), history of violence and empowerment (p < 0.05), those more educated being more likely to be empowered. The older age group was consistently more empowered, and more likely to use condoms; associations did not always reach significance.

**Conclusions:** A high level of vulnerability among young sex workers is related to a complex web of personal, relational, structural/environmental factors including education, alcohol use, violence, empowerment and ability to negotiate safer sex and a safer work environment.

**WEPE4D75**

Examining accessibility of health care services among sex workers across 8 regions of Ukraine: A mixed methods study

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**Background:** Ukraine has been experiencing one of the fastest growing and largest HIV epidemics in Europe. With HIV prevalence to be around 7% among sex workers (SWs). Despite a widespread testing and free of charge treatment program, early diagnosis of HIV followed by the immediate start of antiretroviral therapy (ART) remains low. The majority started working between 15-22 years old and was engaged in SW for 5-10 years, had full secondary education, was unmarried.

66% of respondents have applied for medical health care service during the last 12 months. 26% had no need, and 8% (n=14) did not apply to any health service. The key reasons were: no money (17%), no time (14%), attitudes of health care workers (12%), and absence of trust (10%). Most SWs were prescribed ART, and only 5 received it. The key barriers to start ART were: low trust in health care workers, low self-perceived risk, rejection to accept own HIV positive status.

**Conclusions:** Even though uptake of HIV testing is close to reach 90-90-90 goals, treatment level remains low. Current HIV treatment programs should urgently incorporate strategies to address persistent barriers and increase ART uptake among SWs.

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**WEPE4D76**

A landmark ruling: A Zimbabwean sex worker-led success for human rights and health

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**Background:** Sex workers face unacceptable levels of violence, stigma and discrimination. It puts them in situations that make them considerably more vulnerable to HIV. Through advocacy work of SRC and ZLHR, the law on soliciting for the purposes of prostitution or loitering was correctly interpreted by the High Court of Zimbabwe, which saw an end to the arbitrary arrest and detention of sex workers in 2016. This abstract shows litigation has a positive effect to reduce violence and HIV risk.

**Description:** In Zimbabwe, selling sex is officially not a crime. However it is illegal to solicit clients, live on the earnings of sex work or to facilitate access to healthcare are higher when sex work is criminalized. In 2016, SRC and Aidsfonds conducted a mixed-method study among sex workers (N=453 sex workers) that showed that 63% of sex workers in Zimbabwe experienced violence in the past year. In total, 32% of the cases were perpetrated by police. When arrested, sex workers were often denied access to ART and condoms were confiscated as evidence.

**Lessons learned:** Through an evaluation (N=50 sex workers), strategic litigation has proven to be effective, because the number of sex workers arrested dropped immensely. Consequently, sex workers are experiencing less violence by police. In addition, it resulted in increased respect of sex workers’ rights among law enforcement staff. However, there were also unexpected outcomes, for example there was confusion about sex work being legalized. A negative outcome of the ruling is that sex workers are experiencing more violence perpetrated by clients, because law enforcement staff is no longer frequently patrolling the areas where sex workers work.

**Conclusions/Next steps:** Firstly, strategic litigation is an effective approach to reduce number of sex workers being arrested. Secondly, to reduce violence a holistic approach is needed that includes:...
WEPEP477
Empowering female sex workers to advocate for integrated/comprehensive SRHR/HIV so as to reduce the negative effects of the HIV epidemic among female sex workers in Uganda

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Background: Uganda has several Most At Risk Populations (MARPs) that are the leading sources of new HIV infections (UAC MARPs Review 2014, page 6 and 6). and have challenges accessing HIV and TB services. A systematic review conducted in over 25 countries with medium and high HIV prevalence indicated that 37.5% of sex workers in Sub-Saharan Africa (Uganda included) were HIV positive with some countries having HIV prevalence as high as 70.7%. Female sex workers (FSWs) are at high risk of HIV infection and transmission by 24% among the youth.

Description: The International community of women living with HIV Eastern Africa with financial support from TASO (U) implemented a three month project in Mukono, Wakiso and Kampala districts. The purpose was to build capacity of selected health care providers from different health facilities in Kampala, MuKono and Wakiso Districts to deliver friendly services to female sex workers. ICWEA trained 73 peer leaders of female sex workers on SRHR/HIV and 70 health workers from 12 healthcare facilities across the three districts.

Lessons learned:
- There was a knowledge gap on PREP. Amongst the sex workers but the training enlightened them and created demand for PREP across the three districts.
- 1063 sex workers were referred by the peer mobilisers to health centres in the three districts over the three months. 81 of these were below the age of 19. 233 in the age of 24 and 789 were 25 years and above. Services accessed included HIV testing and counselling, ARVs, family planning and STI services.
- Attitude of the trained health workers towards provision of services to sex workers improved. The project has been able to strengthen outreach by health facilities to the hotspots in the three districts.
- While there was demand created for the SRHR/HIV services amongst sex workers, the biggest challenge was the stock out of essential drugs such as those used to treat STIs in the various health facilities.

Conclusions/Next steps:
- Follow up peer mobilisers to support sensitisation and referral of peers the health facilities.
- Replicate the work in other districts.
- Work closely with health workers to extend services to more hot spots.

WEPEP478
Experiences of loss of a parent before age 18 among female sex workers across seven Western and Southern African countries

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Background: In 2015, UNICEF estimated that there were 49.4 million children in sub-Saharan Africa who had lost one or both parents to any cause of death, including 10.9 million due to HIV/AIDS. Concurrently, parents’ death has been reported as a reason for entry into selling sex, but there are limited data characterizing the prevalence of orphanhood during childhood among female sex workers (FSW). This study assessed associations between loss of one’s parents before the age of 18. self-reporting that a parent had HIV and selling sex under age 18 in seven sub-Saharan African countries.

Methods: FSW ≥18 years old were recruited from 2013-2016 through respondent-driven sampling in Burkina Faso, Cote d’Ivoire, Lesotho, Senegal, South Africa, and Togo and venue-based sampling in Swaziland to complete interviewer-administered surveys including a question about how many of their parents were still living and, if applicable, the participant’s age when the first parent died. Bivariate logistic regression analyses were conducted using StataSE 14 to assess the relationship between reporting at least one parent died before the participant was 18 years old and selling sex ≥ age 18.

Results: As shown below, 37.5% (1701/453) of FSW reported at least one parent died before the participant was 18. Of those, 8.5% (125/1476) reported that their mother had been diagnosed with HIV, and 35.4% (461/1326) reported that their father had been diagnosed with HIV. 29.2% (486/1662) of FSW who lost at least one parent before age 18 started selling sex as minors, compared to 17.5% (267/1521) of those who did not (OR 1.90, p < 0.001). Swaziland was the only location where participants were asked about when their second parent died. 75% reported both parents died before the participant was 18. 36.8% of those who lost both parents before age 18 sold sex before age 18. compared to 14.7% of those who lost one or no parents before age 18 (OR 3.38, p < 0.0001).

Conclusions: Orphans may be particularly at risk for exploitation and economic pressures leading to selling sex as a minor reinforcing the importance of providing child protective and social support structures.
WEPE479
Economic empowerment as a tool for HIV treatment and prevention among a sex worker collective in Nairobi, Kenya

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Background: Male sex workers (MSWs) remain at highest risk for HIV in Kenya. Despite robust HIV prevention and treatment programs, MSWs in Nairobi face structural and social barriers preventing equitable access to health care. Stigma, combined with criminalization of sex work (a primary source of economic support), pushes this population to live in extreme poverty, resulting in diminished health outcomes. Created by MSWs in 2009, Health Options for Young Men on HIV/AIDS and STI (HOYMAS) works to address this gap. One issue that sets HOYMAS apart is its novel approach to economic empowerment.

Description: Big Dreams is an Economic Empowerment Program (EEP) begun by HOYMAS in 2015 to address the unique needs of the most vulnerable of MSWs. Many were HIV-positive, living on the street, struggling for food, and leaving antiretroviral treatment (ARTV) adherence at a low priority. Substance and alcohol dependence was common and most sex work performed was survival-based, with little opportunity to improve economic situations. By humanizing their situation, peer educators and participants of Big Dreams were able to agree on key concepts for EEP: Ownership, inclusivity, and Empowerment. From this place of mutual trust, the participants identified achievable economic, harm reduction, and wellness goals, arriving at a consensus for Empowerment Milestones. As a result, they were able to negotiate for better pay leaving them better equipped to maintain supportive housing, adhere to medication, and improve nutrition.

Lessons learned: Through past initiatives with highly stigmatized populations, PE at HOYMAS knew it was critical to reach people at their level, by working in hot spots and pubs frequented by MSWs. Today, Big Dreams has changed the economic future of more than 100 MSWs who had lost hope and given them a reason to dream again. Rates of ARV adherence has improved over 2016 and PrEP uptake for HIV negative MSWs has drastically improved. Most importantly, all have homes and are finally able to negotiate for better pay from clients.

Conclusions/Next steps: This approach of economic empowerment has managed to reach an otherwise inaccessible group of sex workers who avoided accessing services in mainstream clinics due to stigma and low self-esteem.

WEPE481
Achieving higher enrollment to care among female sex workers (FSW) recently diagnosed with HIV to ART care in Myanmar

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Background: HIV prevalence among FSW in Myanmar is 14.6 in 2016. Myanmar aims to achieve 90-90-90 treatment targets, based on UNAIDS’s fast track strategy, by 2020 in recent National Strategic Plan (2016-2020). There are concerns on percentage of newly diagnosed HIV positive cases actually receiving care. HIV prevalence among FSW is high in Myanmar and referral among this population needs to be understood.

Methods: A mixed method approach was used. Retrospective cohort secondary data analysis was carried out in five high priority townships. Study population included newly diagnosed FSW diagnosed at NGO clinics in past four months. Secondary data from the testing sites and ART sites during the defined period were extracted using a pretested check list. For qualitative perspective, interviews with FSW and providers were done.

Results: A total of 113 sex workers were identified from NGO clinics records on data collection period. Mean age was 31.6yr (SD 8.9); 90% of positives FSW were successfully linked to care with geographical variation in study areas. 82% were linked to ART centre within one month. For those 102 FSW linked to care at the time of study, 76.5% were on ART and 23.5% were in pre-ART status. Time from diagnosis to ART is median 33 days and time since enrollment at ART centre to ART initiation is median 15 days(IQR). One third of the FSW were diagnosed and enrolled for care mostly at WHO staging I and II. Only 14.7% of those successful care came with a referral form and 91.2% were accompanied by NGO volunteers. Qualitative findings revealed the factors contributing to referral are social and system factors: stigma, migration, multiple testing, weak record keeping of referral. Lack of provision of feedback forms from ART centres, etc.

Conclusions: A great proportion of positive sex workers were linked to care and treatment. This study looks at the first enrollment at ART centre as the outcome and could not provide information on the proportions that are lost once enrolled or not retained in care. Further studies are needed to explore retention in care.interventions to improve or facilitate linkage to ART care should be tested.

WEPE482
#SWPreP: HIV pre-exposure prophylaxis and sex work in Canada 2016

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Background: In October 2016, funded by Elton John AIDS Foundation, Triple-X in partnership with the Dalla Lana School of Public Health, University of Toronto, organized and hosted a national consultation and invited 23 organizations from 10 provinces and territories who provide advocacy or services for sex workers.

Description: The purpose of this national consultation was to give participants the opportunity to educate themselves, explore and grapple as a group with the implications of PrEP on the sex industry. Triple-X and DLSPH released #SWPreP: HIV Pre-Exposure Prophylaxis and Sex Work in Canada 2016 (http://triple-x.org/pdf/SWPrePbook.pdf) at an ancillary event at the 2017 CAHR Conference in Montreal on April 5, 2017. The report contains transcripts of all the presentations, as well as the discussions that ensued between sex workers and those who provide services for sex workers. In addition, #SWPreP, a seven-minute video that teases out the issues discussed at the consultation was released.

Lessons learned: The Facilitator's Summary (p. 135) highlights the top 10 concerns coming out of the consultation. For example, participants did not want PrEP side-effects played down. They wanted PrEP to be presented within the spectrum of HIV prevention and for more and equal promotion of condom use. They wanted educational presentations from healthcare professionals as well as from PrEP critics. Furthermore, sex workers and sex work advocates were concerned that this new HIV prevention drug could result in elevated risks for sex workers, including new pressures from market competition to provide services without condoms if there is an expectation that sex workers are on PrEP.

Conclusions/Next steps: By December 2017, triple-x.org website recorded 51,000 downloads of the #SWPreP book since the time of its release. New Canadian guidelines on PrEP were released November 27. “National data on HIV incidence among sex workers and their clients are scarce, perhaps in part because sex work is criminalized in Canada; as such, this guideline should be applied to these individuals based on the presence of other risk factors.” Free access to PrEP should be made available to sex workers based on individual risks discussed with their healthcare provider.
WEPED483
Better services for less money: Assessing prevention service needs among sex workers in Kyrgyzstan.

**Results of cross-sectional community-based participatory research**

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**Background:** HIV/AIDS prevention programs for sex workers (SWs) funded by international donors have been delivered in Kyrgyzstan for over 22 years. Some services will be cut in 2018 due to funding shortages and many will transition to local funding. This qualitative research, conducted among SWs May-September 2017 in four oblasts in Kyrgyzstan, aimed to identify the services in highest demand from SWs.

**Methods:** The views of SW representatives were collected to analyze how their experience and attitudes influence provision of and access to services. Methods involved a situational analysis in four Kyrgyz cities, through focus groups and a survey of 110 SWs. Brainstorming and rapid needs assessment techniques were used for the focus groups. All research was conducted where SWs live and work, i.e. saunas, hotels, drop-in centers and NGO premises.

**Results:** Outreach work is the most popular and effective model for providing services to SWs. The majority of respondents (98/110) said outreach workers (OWs) form a “bridge” between service providers and SWs. They rated positively the fact that almost all the OWs from their community and this plays a very important role in removing inhibitions and barriers to communication. OWs are the main source of information in addition to advice on HIV prevention. They also develop leadership skills and qualities among SWs and identify needs to ensure provision of targeted assistance. Respondents stated the highest-priority service was condom distribution, citing the low rate of free condom availability - one per day. A new service needed by SWs aged over 30 is retraining and employment programs; younger SWs are in greater demand and those over 30 are often left with no secure income, at a time in their lives when for many their needs are increasing. This pushes them into more risky behaviors, impacting negatively on the spread of HIV among SWs.

**Conclusions:** With the transition to local funding, outreach work and condom distribution must be maintained at the same level in the same regions of Kyrgyzstan, as these are the services in greatest demand from SWs. Retraining and employment programs for SWs over 30 are also needed.

WEPED484
Sex work regulation and HIV risk: A qualitative analysis of the impact of different regulation regimes on HIV prevention among female sex workers in two U.S.-Mexico border cities

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**Background:** Sex work regulation policies have been linked to HIV risk in Mexico. Sex work enjoys a quasi-legal status, where each state is responsible for implementing its own form of regulation. Thus, different regulatory regimes exist in the country, with differential effects on female sex workers (FSW) risk for HIV. This study analyzed the experiences of FSW in the U.S.-Mexico border, Tijuana and Ciudad Juarez, which operate different regulation regimes; compulsive registration and HIV/STI testing, and unsanctioned policing, respectively.

**Methods:** This analysis is part of a larger project that explored the HIV risk environment of FSW in both cities. We conducted 34 in-depth interviews with FSW in both cities, exploring different aspects of their work environment (i.e. type of venue, location, control over working conditions, etc.) and how the regulatory regimes in place in each city affect their ability to practice HIV prevention, harm reduction and influence their decisions regarding how and where they engage in sex work.

**Results:** Participants under compulsive registration and testing report registration fees are an economic burden. FSW who use drugs are not allowed to register; testing positive for an STI suspend work card until FSW can prove having received treatment, registration does not improve working conditions. FWS in Cd. Juarez, reported being subjected to policing practices including payment of quotas to police officers, requests for proof of HIV negative status, and displacement due to demolition of sex work tolerance area. In both cities, sex workers who also inject drugs reported being constantly subjected to police harassment and excluded from the registration program in Tijuana, due to their drug use. Thus pushing them to work in areas of the city that are less safe.

**Conclusions:** The current forms of regulation in both cities limit the capacity of sex workers to practice HIV prevention and engage in sex work in an environment where they can exert greater control. Considering the burden of HIV on this population in this region, sex work regulation policies need to move beyond policing and surveillance of HIV-STIs and be reoriented towards the promotion of sex workers’ rights, HIV prevention and harm reduction strategies.
WEPED486
Reaching culturally and linguistically diverse sex workers of migrant status background in response to HIV and related infections

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Background: Migrant sex workers from Culturally and Linguistically Diverse (CALD) backgrounds face a multitude of barriers in accessing support. These include discrimination based on race, gender, politics as well as myths and stigma attached to sex work, the criminalisation of sex work and also barriers created by language and marginalisation.

Methods: The SWOP Multicultural Project produces award winning original resources, online correspondence support and peer outreach and education programs via thorough consultation with each community/language/cultural group. Utilising Focus Testing within the language/cultural group and drawing on the expertise of a Steering Committee from the language/cultural group targeted these original resources and programs are not produced in English by non-CALD people and then translated. Rather, each original program and resource is produced from scratch by sex working members of that community/language/cultural group and each produced in a different language. The resulting Safe at Work resources won the 2017 New South Wales Government Multicultural Health Communication Awards.

Results: When accessing support, marginalisation, discrimination and the myths and stigma associated with CALD migrant sex workers are recognised as stronger barriers than language, and the input of the CALD migrant sex worker community has proved to be effective in overcoming these barriers. Since the inception of the Multicultural Project, there has been a marked reduction in the number of sexually transmitted infections among CALD sex workers, and the virtual elimination of HIV from the sex industry continues.

Conclusions: To overcome key barriers experienced by CALD migrant sex workers have been developed throughout the life of the Multicultural Project. These include extensive peer involvement such as peer interpreting support, peer translated resources, peer produced resources, peer held interagency training, workplace outreach, peer supported access to culturally responsive services and industry specific health and safety training provided in sex workers' first languages.

WEPED487
Female sex workers who use drugs and HIV/STI risk in Kazakhstan: Implications for HIV prevention

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Background: Female sex workers (FSW) who use drugs are at high risk of contracting and transmitting HIV. The prevalence of HIV among FSW in Kazakhstan is rising, and has been shown to be higher among FSW who use drugs. However, little is known about the sex work environment in Kazakhstan and the need for HIV prevention efforts to increase safe sex practices. Moreover, prevention must address the structural characteristics faced by this population, such as their socioeconomic status and employment.

Methods: We use descriptive statistics and ordinary least squares (OLS) regression analyses to examine sexual risk behaviors in commercial sex work and also barriers created by language and marginalisation. This paper provides an overview of participant’s sex work environment, including sociodemographic characteristics and risk behavior assessments. This paper provides an overview of participant’s sex work environment, history, employment structure, frequency and venue, and goods exchanged. It also examines sexual risk behaviors in commercial interactions, including number of partners and encounters and condom use. We use descriptive statistics and ordinary least squares (OLS) regression to examine the association between sex work environment and sexual risk behaviors.

Results: Participants averaged 34.6 years old (8.4 SD). The average age of initiation of sex work was 20.9 years (5.51 SD). Few participants (n=41, 10.3%) worked for a boss or pimp, and they worked an average of 8.9 months (4.18 SD) per year. Women exchanged sex for money (n=351, 87.9%), drugs (n=126, 31.6%), and basic needs such as food (n=97, 24.3%) and clothing (n=73, 18.3%). Participants averaged 6.78 (18.6 SD) commercial partners, and 28.9 (82.9 SD) vaginal sexual encounters with these partners in the prior 90 days. Only 13% (n=52) reported consistent condom use with these recent partners. Having a boss/pimp, working more months per year, and exchanging sex for basic needs were associated both with a higher number of paying clients and a greater number of sexual encounters. Few factors were significantly associated with condom use.

Conclusions: Our findings highlight the risks for FSW who use drugs in Kazakhstan and the need for HIV prevention efforts to increase safe sex practices. Moreover, prevention must address the structural characteristics faced by this population, such as their socioeconomic status and employment.
WEPE488
Uptake of HIV oral self-testing among female sex workers in Starehe Nairobi: Lessons from the key population implementation science study
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Background: The HIV epidemic in Kenya is largely generalized, but concentrated among key populations. The HIV prevalence among Female Sex Workers (FSW) is estimated at 29.3% compared to 6.9% national average for women. Using an implementation science approach, we sought to ascertain if HIV oral self-testing (HOST) would increase uptake of HIV Testing Services (HTS) among first-timers or infrequent FSW testers into FSW programs.

Description: A quasi-experimental crossover design was used. Two ongoing Sex Workers Outreach Program (SWOP) clinics, Langata and City, based in Nairobi were matched based on the number of enrolled FSW. Using Peer Educators (PE), eligible FSW were identified, counseled, and trained on HOST procedures and interpretation of results. Within the hotspots, PE distributed HOST to eligible FSW and instructed them to use and confirm their test result at SWOP City clinic within a three-month period. SWOP Langata clinic’s routine program data was used for comparison to measure proportion of HTS uptake and enrolment rate.

Lessons learned: Out of the 113 FSWs who received HOST kit, 2 did not meet the eligibility criteria, and 1 participant withdrew from the study. The remaining 110 (97%) used the kit. 72 confirmed their results in the DICE, 24 confirming results at other health facilities, while 2 did not confirm their results. All the 72 enrolled into the program and of whom 6 (8%) tested HIV positive.

Follow up of individuals given the OST kits revealed various reasons that impeded or delayed confirmation of results. Of the 156 follow-ups conducted, 96 (49%) mentioned lack of time or inconvenient clinic operating hours. 45 (23%) had travelled, 42 (22%) were scared of testing positive, 17 (9%) had unfavorable home environment due to family, and 14 (7%) forgot to confirm.

Conclusions/Next steps: HIV Oral Self-Testing encouraged extra testing and enrolment at the FSW clinic for the targeted hard-to-reach FSW. Those who did not confirm their result at the clinic cited constraints that can be addressed programmatically. Overall, majority of the hard-to-reach FSW got to know their HIV status and therefore HOST scaled up should be considered in FSW programs.

WEPE489
Sex worker driven approaches to enable the optimal introduction of HIV self-tests: Addressing social and structural barriers
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Background: There is a dearth of reliable research examining the potential implications of introducing HIV self-tests into legal and policy environments that discriminate against sex workers, particularly sex workers living with HIV and other STIs. In Australia, self-testing is anticipated to be introduced in the near future. Not surprisingly, sex workers are anticipating new challenges as well as new opportunities with the introduction of the tests.

Description: Scarlet Alliance, the national sex worker organisation in Australia, conducted a multi-stage consultation, consisting of focus groups, individual interviews and an online survey, on self-testing with peer educators and individual sex workers of different genders, backgrounds, sero-status and experiences in each state and territory in Australia. The participants were asked about the potential risks, barriers to, and benefits of self-tests in different social, legal and policy environments in Australia.

Lessons learned: Although the participants noted that self-tests present sex workers with an opportunity to test outside of a clinical setting, the discriminatory legal restrictions placed on sex workers living HIV may deter sex workers from getting confirmatory testing upon receiving a reactive self-test result. This may be additionally exacerbated by the limited availability of free, voluntary, anonymous and sex worker friendly sexual health services in general. The participants noted that self-testing may affect safer sex negotiations with clients, such as the implementation of universal protections, despite the self-test results not being definitive. Also, the participants from jurisdictions with mandatory testing noted that introducing self-tests in an already coercive testing environment may result in the tests being added onto existing mandatory testing regimes.

Conclusions/Next steps: To ensure self-tests do not inadvertently further deter sex workers from accessing comprehensive sexual health care or exacerbate human rights violations, laws and policies that generally create barriers to testing for sex workers need to be reformed. Alongside, the participants advocated for formal legal protections from coercive testing in the form of occupational health and safety and industrial protections. Additionally, there is a need to address structural barriers to testing such as by increasing investment in voluntary, free, anonymous and peer sexual health services.

WEPE490
Acceptability of Pre-Exposure Prophylaxis (PrEP) amongst sex workers in South Africa
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Background: Sex workers in Southern Africa are at high risk for HIV acquisition, yet access to and uptake of HIV prevention services are low. This study sought to determine the individual and socio-economic factors that enable or hinder the use of HIV prevention methods, access to health services, and knowledge of new prevention measures such as PrEP and acceptability of such services by sex workers.

Methods: This paper presents the qualitative part of a mixed-methods study conducted with sex workers in Bloemfontein, South Africa from August to September 2017. Specifically, it presents their perceptions on factors underlying ability to practice safe sex, knowledge of PrEP and willingness to adopt it as a preventative tool, and treatment conditions and providers for its distribution to sex workers. Semi-structured depth individual interviews were conducted. Snowball sampling was employed to recruit participants. Data was analysed using NVivo version 11 and conventional content analysis.

Results: Thirty five interviews were conducted with thirteen self-identified gay male and twenty female sex workers. Participants reported an awareness of increased risk to HIV infection but majority reported inconsistent condom use citing money and violence as barriers to condom negotiation. Knowledge and awareness of PrEP and its providers were low. Once informed, all participants expressed willingness to use it if it were made available to them. Participants reported that a collaboration between government and NGOs would ensure distribution to the group as public health facilities are easily accessible and NGOs work closely with vulnerable populations such as sex workers and were perceived to be in a good position to motivate for their prioritization with PrEP roll-out.

Conclusions: This study aimed to gather knowledge on HIV prevention amongst sex workers in light of South Africa’s 2016 launch of PrEP at selected demonstration sites as per National Sex Work HIV Plan guidelines which encompass combination HIV prevention interventions for sex workers. The study showed that difficulty in negotiating safe sex together with financial incentives not to use condoms are primary drivers for sex workers wanting alternate HIV prevention options.
Condom Use Patterns among FSWs: Women in Transactional Sex and Casual Sex in High HIV Risk Venues in Abuja FCT, Nigeria

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Background: The World Bank has been providing technical assistance to Nigeria to improve the efficiency and effectiveness of HIV prevention services. This technical support enabled Nigeria to conduct local epidemiologic appraisals and in 2015 the World Bank supported the design and implementation of a study on the sexual ethnography of high risk venues and locales in urban areas of Nigeria to provide in-depth knowledge about the context of risk and thereby contribute to the design of effective and efficient HIV prevention strategies. A pilot study that focused on how and what type of sexual networking is developed within high-risk settings was conducted in the Abuja, Federal Capital Territory (FCT). In addition, socio-demographic profile and sexual behaviors of women with risk behaviors attending these venues were also explored.

Methods: 1. The study population consisted of 450 female sex workers (FSWs) 200 women in transactional sex and 200 women in casual sex respectively in 105 active hotspots in Abuja. In addition to other parameters the study investigated condom use behavior among women in each group by their different types of partners.

Results: 88% of the occasional clients used condom at last sex with the FSWs. The occasional partner also used a condom with their transactional partner (66%). Men who visit the women repeatedly are more likely to use condom and about 95% reported that they used condom at last sex with their clients who either pay cash or gifts. On the other hand, non-paying partners were less likely to use condom with their partners (66% among FSW and 75% among women in transactional sex). condom use with the most recent sexual partner is lowest (32%) among women in casual sex, though it was about 43% with the second last and 48% with the third last sexual partner.

Conclusions: The study underscores the need for sexual ethnography of high risk venues and locales in Nigeria to provide in-depth knowledge about the context of HIV risk and thereby contribute to the design of effective and efficient HIV prevention strategies. The next step is to conduct this study in additional cities in Nigeria.

Crystal methamphetamine use and its associated factors in female sex worker in Iran, 2015


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Background: Crystal methamphetamine (CM) use has been associated with increased sexual risks and elevated risk of HIV as well as other sexually transmitted infections (STIs) among female sex workers (FSW). Given the dearth of evidence on CM use among FSW in the conservative context of the Middle East, this study aimed to examine the prevalence and correlates of CM use among FSW in Iran.

Methods: We analyzed data of the second bio-behavioral surveillance survey among 1,347 FSW across 13 major cities in Iran in 2015. We recruited a facility-based and outreach sample of women aged ≥ 18 years who reported penetrative sex with more than one client in the previous year. Data were collected by one-to-one interviews using a standardized risk-assessment questionnaire. The study outcome was a binary measure of any past-month self-reported CM use or injection. To examine the correlates of CM use, adjusted prevalence ratio (APR) and 95% confidence intervals (CI) obtained from Poisson regression models were reported (final analytic sample=1,299).

Results: Non-injecting CM use was reported by 15.0% (95% CI: 8.7, 24.7) while injecting CM use was only reported by 0.9% (95% CI: 0.4, 2.0). Overall, self-reported CM use was reported by 15.7% (95% CI: 9.3, 25.1) of the participants. CM use was more likely to be reported by FSW who reported opium use (APR: 2.08; 95% CI: 1.73, 2.51), heroine use (APR: 3.84; 95% CI: 2.62, 5.62), non-prescription methadone use (APR: 3.10; 95% CI: 1.50, 6.35), had forced sex (APR: 1.47; 0.99, 2.18), had more than one non-paying sexual partner (APR: 2.05; 95% CI: 1.14, 3.69) and unstable housing status (APR: 5.14; 2.82, 9.36). In contrast, CM use was less likely to be reported by FSW who had higher levels of education (APR: 0.35; 0.13, 1.03).

Conclusions: A considerable number of FSW reported CM use, which was associated with concomitant opioid use, higher number of sexual partners, violence and unstable housing. Gender-specific and couple-focused harm reduction and prevention strategies are essential to address substance use in this key population and their intimate drug-using partners to help improve their health and well-being.
WEPE494
Factors influencing transgender and male sex workers’ access to sexual health care, HIV testing and support

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Background: Globally, male and trans sex workers are reported to be at elevated risk of HIV transmission. However, current literature on their sexual health behaviours and needs is limited. Data suggests 20 per cent of workers are male or trans. Our research investigated the sexual health and HIV prevention behaviours of male and/or trans sex workers in Queensland, Australia, focusing on newer health technologies including PrEP and rapid HIV testing, to determine their needs. This is the first qualitative research on male and trans sex workers in Australia.

Methods: 35 male and/or trans sex workers in Queensland participated in interviews conducted by peer researchers. The workers were both urban and regional based, and of various ages, nationalities, and socioeconomic backgrounds. The interviews discussed work practices, stigma, sexual health, access to testing, and knowledge and attitudes about HIV testing and prevention.

Results: Participants reported diligent sexual health practices, including condom use and regular testing, even those working outside of regulated settings. A significant number experienced stigma in healthcare and other settings. Most were familiar with rapid testing and some, particularly migrant workers, relied solely on rapid testing for their sexual health checks. Migrant workers in particular reported not knowing how to access other sexual healthcare. Many were familiar with PrEP and some had used it. Attitudes were divided, with some seeing PrEP as a valuable sexual health tool and others holding concerns, either seeing it as a risk for condomless sex leading to other STIs or fearing it was still an ‘experimental’ drug. Asked about their needs as sex workers, most discussed the need to reduce stigma and for law reform around sex work.

Conclusions: Trans and male sex workers in Queensland are generally well informed about sexual health, and many are accessing newer HIV prevention and testing technologies. Healthcare workers must be trained to work with sex workers and people of diverse genders and sexualities, to reduce stigma and improve access to care. Sex workers need to make available friendly, accessible sexual health facilities. Decriminalisation of sex work is increasingly demanded by workers to ensure safe working conditions.

WEPE495
General self-efficacy as a predictor for HIV testing among female sex worker in Mombasa, Kenya

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Background: Female sex workers (FSWs) in Kenya continue to bear a high burden of HIV infection and will benefit from repeated HIV testing and counselling (HTC). General self-efficacy (GSE) is a psychological construct that refers to one’s belief in their own ability to respond to challenges to achieve positive outcomes across multiple domains. GSE is, therefore, likely to be predictive of individuals’ health-seeking behaviour. This secondary analysis assessed whether GSE is associated with self-reported uptake of HTC services in the past six months among FSWs in Mombasa, Kenya.

Methods: We analysed baseline data from 883 randomly selected HIV-negative FSWs enrolled in a larger two-arm cluster-randomised mHealth trial (WHISPER or SHOUT study), which aims to improve their sexual and reproductive health or nutrition. A structured questionnaire collected information on socio-demographics, sex work, sexual and other risk behaviours, psychosocial variables and HIV testing uptake. Self-efficacy was measured using the validated GSE scale (10-items). Cronbach’s alpha 0.80 and dichotomized at the median score. The association of GSE with self-reported uptake of HTC in the past six months was determined in stepwise hierarchical regression analysis, controlling for potential confounders including age, education, sex work characteristics, substance use, condom use and perceived stigma.

Results: Median age of study participants was 25 years (interquartile range (IQR)=22-29). A median duration in sex work of four years (IQR=2-6). GES score range was 18-40, median score was 36 (IQR=32-39). One quarter 226/883 (25.6%) had sought HTC services in the past six months. Regression models showed that higher self-efficacy (i.e. stronger belief in ability to respond to challenges), was associated with higher self-reported attendance of HTC services, and did not alter with sequential introduction of potential confounding factors (adjusted odds ratio (AOR)=1.69; 95% confidence interval-1.29-2.22; p<0.001).

Conclusions: Better strategies are needed to increase regular HIV testing uptake among FSWs given current inadequate levels. Sex workers’ GSE was an important and independent predictor for uptake of HTC services, and screening for low GSE might identify women requiring additional motivation and support. Further efforts are needed to develop interventions to improve women’s personal agency and determine the impact on HIV and other health outcomes.

WEPE496
I did not believe I could trust anyone with what I was living through: The HIV continuum of care as a site of support for us based sex workers

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Background: In the United States, sex workers (SWs) are a key population that experience disproportionately high rates of HIV but are often hesitant to seek care due to the criminal status of sex work. SWs are often not reached by HIV education, prevention, and treatment programs and stigma surrounding sex work isolates SWs from crucial support systems. A community-based research project conducted by COYOTE RI carried out to understand how SWs experience the HIV continuum of care. This study looks to explore how HIV care settings can best serve to counter the isolation of many US SWs experience.

Methods: This community-based research project was carried out by sex workers rights organizations that have been working in the US to uphold the rights of sex workers for many decades. This study surveyed people working in various areas of the sex industry in all regions of the US in ~1400. Analysis of the data utilized qualitative and quantitative methodologies and key findings were developed through the use of grounded theory.

Results: Respondents provided complex narratives surrounding the difficulties of disclosure of SW status within healthcare settings. Responses stated that being able to explain SW status and confide in HIV care providers played, or would play, an invaluable role in the respondent feeling socially connected, valued, and would build hope. As stated by a respondent ‘please understand that you are probably the only person they can go to and the only person aware of these situations.’

Conclusions: The ability of a provider to care for SWs in a non-judgmental way would greatly reduce isolation and serve as an entry point to other forms of care and support. Widespread discrimination against SWs in and out of healthcare continues to exist in the US and education for providers on caring for SWs in a compassionate way could greatly improve HIV outcomes.
**WEPED497**

Just give me the information I need to survive:
Understanding the needs of US based sex workers within the HIV continuum of care

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**Background:** In the United States, sex work remains criminalized and sex workers (SWs) are often isolated from basic healthcare and social support systems. SWs are a key population and experience a disproportionately high rate of HIV but it is challenging to connect with SWs due to their fear of being prosecuted for being open about being SWs. It can be difficult for SWs to engage with the HIV continuum of care and COYOTE RI developed this research project to understand the experiences of US-based SWs within the HIV continuum of care. This project seeks to use a human rights-based approach to understand the complexities of how existing HIV programs serve or fail US-based SWs.

**Methods:** This community-based research project was carried out by sex workers rights organizations that have been working in the US to uphold the rights of sex workers for many decades. This study surveyed people working in various areas of the sex industry in all regions of the US in (n = 1496). Analysis of the data utilized qualitative and quantitative methodologies and key findings were developed through the use of grounded theory.

**Results:** Through this study it was shown that US-based sex workers experience the HIV continuum of care in a range of ways that are fundamentally different from other populations. SWs frequently do not disclose their SW status, experience high rates of many forms of discrimination, and frequently avoid HIV services for fear of being surveilled or outed in other areas of their life.

**Conclusions:** Throughout the sample, respondents articulated the desire to be treated the same as other patients, with respect and attention, and provided additional insights into what SW-inclusive care could look like in the US. This study provided a nuanced exploration of the challenges SWs face in receiving education, preventative services, and treatment surrounding HIV. As a key population that faces legal persecution within the US, the perspectives and suggestions of SWs in this study provide valuable insight into how to improve the HIV continuum of care in the US works to uphold the rights of US SWs.

**WEPED499**

Trends in HIV testing uptake among female sex workers in Ukraine: Findings from four integrated bio-behavioral surveys

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**Background:** Ukraine has one of the fastest growing HIV epidemics in Europe with high rates of HIV among female sex workers (FSW). Despite a widespread testing program HIV testing uptake remains low. We examined temporal trends in outcomes of HIV testing among female sex workers using self-reported data from four rounds of integrated bio-behavioral surveys (IBBS) in Ukraine in 2009, 2011, 2013, and 2015.

**Methods:** The outcomes of interest included accessibility of HIV testing, ever in life testing for HIV, testing for HIV in the last 12 months and knowledge of HIV status. We examined correlates of accessing HIV testing. We collected IBBS samples from FSW in major regional cities of Ukraine (3,286-2009, 5,023-2011, 4,906 -2013; 4,300-2015). Each year a combination of different recruitment methodologies was applied in different cities, such as respondent-driven sampling (RDS), time-location sampling (TLS), and convenience sampling. Therefore, we used unweighted pooled analyses of samples and made no inferences to the overall population of FSW. We first calculated prevalence of each HIV testing behavior for each year and then performed Cochrane-Armitage test for trend to examine differences across the rounds. Next, using unweighted multivariable logistic regression we examined annual correlates of accessing testing.

**Results:** The reported testing accessibility progressively increased from 87% in 2009, 90% in 2011, 94% in 2013, and 97% in 2015 (p<.001). The prevalence of ever testing for HIV increased from 35% in 2009 to 82% and 84% for both indicators in 2013 and 2015 (p<.001). Testing for HIV in the last 12 months showed a significant change over time and ranged between 60-63% (p<.001). In all samples, younger FSW (less than 25 years old) were significantly less likely to access testing. Injecting drug use during last 30 days was the strongest predictor of testing accessibility.

**Conclusions:** HIV prevention and testing programs in Ukraine should focus on younger FSW as they report less ability to access it. FSW who inject drugs have better access to testing services, probably because of strong national harm reduction and testing programs for people who inject drugs.
WEPED500  
Characterizing the prevalence and determinants of incentivized condomless sex among female sex workers in Lesotho

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Background: Even in the context of a generalized HIV epidemic in Lesotho, female sex workers (FSW) carry a disproportionate burden of HIV with 72% estimated to be living with HIV. In the context of emerging HIV prevention strategies including PrEP, consistent condom use (CCU) remains a crucial HIV prevention strategy. We present prevalence and determinants of incentivized condomless sex among FSW in Lesotho.

Methods: Adult FSW were recruited using respondent-driven-sampling between February-September, 2014 with analyses reported here limited to those who were offered money for condomless sex. Bivariate and multivariate logistic regression models were used to evaluate factors associated with accepting money for condomless sex.

Results: 744 women were recruited into the study, 585(79%) reported to have been offered money for condomless sex, and 351(56.4%) accepted the offer. The median amount offered for sex with condom was R50 (IQR:R20-R500) and R100 (IQR:R30-R1000) for condomless sex. FSW who self-reported to be living with HIV were more likely to accept money for condomless sex compared to those who self-reported to be HIV negative (OR:1.15 [95%CI:1.00-2.01], p=0.066). (a)OR:1.40 [95%CI:0.93-2.08], p=0.103). Lack of HIV-related knowledge was also associated with accepting money for condomless sex.

Conclusions: Despite a high burden of HIV among FSW Lesotho necessitating sustained HIV prevention, our findings show an increased prevalence of incentives for, and willingness to accept more money for condomless sex. This dynamic highlight the challenges of HIV prevention using CCU. New approaches are needed including structural approaches to safely increase condom use as well as better condoms to prevent transmission and acquisition of HIV.

WEPED502  
Violence victimization among male sex workers in the U.S. Northeast

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Background: Intimate partner violence is associated with HIV transmission risk among men who have sex with men; however, research is lacking on intimate partner and client-perpetrated violence against male sex workers specifically—a group at high HIV transmission risk. Male sex workers may be at increased risk of violence due to heightened stigma and power imbalances in transactional relationships.

Methods: One hundred male sex workers living in Boston, MA and Providence, RI were enrolled in a cohort study to assess social, sexual and substance use networks. We estimated baseline prevalence of physical, sexual, and emotional violence victimization perpetuated by intimate partners and/or clients. Multivariable logistic regression models were used to examine sociodemographics (i.e., age, race, employment, sexual orientation, housing status, street- vs. internet-based sex work, source of income outside of sex work) and potential psychosocial (i.e., depression, stigma associated with sex work) and behavioral (i.e., alcohol use, drug use, condomless anal sex (CAS)) risk factors for violence victimization.

Results: Participants’ mean age was 33.6 (SD=11.4), and 40% identified as White, 32% Black and 19% Latino. Nearly 50% identified as bisexual, 36% gay and 12% straight. Most (63%) were unemployed and 43% reported recent unstable housing. Half had no income outside of sex work, and two-thirds participated in street-based sex work. While engaging in sex work, participants reported previously experiencing verbal abuse (22%), physical abuse (10%), rape (8%), forced CAS (9%), forced drug use (11%), and forced drinking (6%). In the past 6 months, 30% reported experiencing emotional (24%), physical (10%) and/or sexual violence (9%) by a client or intimate partner. In multivariable models, higher CESD depression scores (OR=1.09, 95%CI 1.01-1.17, p=0.022) and stigma scores (OR=1.60, 95%CI 1.23-2.08, p=0.001) were associated with recently experiencing violence perpetrated by a client or intimate partner.

Conclusions: Violence victimization was common among male sex workers in the US Northeast particularly when engaging in sex work, underscoring the need for violence education and prevention. Psychosocial risk factors were associated with violence victimization among male sex workers, suggesting the need for access to comprehensive health and social services for this deeply marginalized population.

Transgender people

WEPED503  
Advocacy in health care coverage for the transgender population in Argentina

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Background: The Association of Transvestites, Transsexuals and Transgender people in Argentina (ATTTA) is an organization founded in 1993 that aims to fight against violations of Human Rights. One of the most important achievements has been the approval of the Gender Identity Law No. 26743, enacted on May 9, 2012.

Description: Despite the fact that 5 years and eight months have passed since the approval of the law, most of the Argentine territory does not comply with article 11 that guarantees integral health care of trans people. This means that trans people still continue to find barriers in access to health care system.

Lessons learned: Therefore, ATTTA has established a strategy of community, territorial and political advocacy to guarantee trans people access to health care services without stigma or discrimination. In the first place, ATTTA has established cooperation agreements for the creation of inclusive health care centers. Currently these centers operate in the city of Buenos Aires, Lomas de Zamora, San Martin, Avellaneda, Mar del Plata, Chivilcoy, San Juan, Córdoba. In addition, ATTTA coordinates a program in the main referral center for HIV-AIDS treatment, Francisco Nuñez Infectious Hospital, where it works „TransVivir“, which provides support and accompaniment to trans women living with HIV-AIDS.

Additionally, ATTTA has signed an agreement with the Global Fund to fight AIDS, Tuberculosis and Malaria and has sensitized 43 health care personnel since 2016/17. The inauguration of the first Trans House is a model to replicate throughout the region. So far this year, 1,800 transgender women and men have passed for counseling, material delivery, vaccination, HIV testing.

Conclusions/Next steps: The best strategy to reverse the prevalence rates of HIV-AIDS, which in Argentina is around 35% and the life expectancy that is 35 years for the trans population is the community work of organized civil society with the support of the State. This result had been caused by the continuous violation of human rights and institutional violence. It is necessary to increase efforts to continue holding awareness-raising workshops in different public and private health care spaces, and continue with political advocacy to continue with the opening of more inclusive centers for the trans population.
WEPEDE504

Understanding the impact of incarceration and re-entry on HIV risk and treatment for transgender women in the United States

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Background: Transgender women (TW) experience higher rates of both HIV and incarceration than their cisgender counterparts, and this cycle of incarceration and poor health is understudied. Previously incarcerated TW who are living with HIV, particularly TW of color, are less likely to receive the HIV treatment they need due to economic and discrimination-related barriers. Furthermore, TW have unique challenges that may not be addressed in standard re-entry programs. The purpose of this mixed-methods study is to understand the experiences, needs, and resiliencies of TW during incarceration and re-entry in order to understand the cycle of poor health and recidivism in this population.

Methods: In this ongoing study we use qualitative interviews and spatial analysis to describe lack of access to resources, as well as challenges regarding HIV treatment and other healthcare services. We interview previously incarcerated adult TW residing in a mid-size city in the United States regarding experiences during incarceration, re-entry, and post-release. Additionally, we map city neighborhoods, bus lines, mental health providers, and trans-inclusive resources using geographic information system (GIS) software to explore barriers to transportation and access.

Results: Currently 50% of participants are HIV+ and 67% identify as Black/multiracial. Of the participants who received re-entry services, all were placed with cisgender men and no programs were trans-inclusive. Preliminary results indicate that immediate access to HIV treatment and other healthcare, housing, transportation, and trans-inclusive community support are the most significant barriers to successful re-entry. The spatial relationship between low-income neighborhoods and proximity to community resources suggests that TW residing outside urban areas have increased difficulty regarding access to HIV treatment and other needs.

Conclusions: TW face significant and unique challenges during re-entry and post-release from incarceration, particularly related to consistent HIV care. Future multilevel interventions should incorporate HIV treatment and other healthcare services, trans-inclusive community support, access to stable housing, and the alleviation of transportation barriers. Co-location of re-entry services will increase access, support, and treatment for TW re-entering the community. Developing trans-inclusive interventions during this vulnerable time of heightened HIV risk is vital for improving the health and well-being of TW and our communities.

WEPEDE505

My health, my rights/two case studies on the conditions of transgender women and effeminate gay men in prison

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Background: My health, my rights (MHMR) has the purpose of strengthening the sense of citizenship of key populations in Mexico -mainly transgender women and gay men- to ensure access to stigma and discrimination-free HIV/STI prevention and care services, through community systems strengthening, evidence-based advocacy actions, and external relations.

Description: Case studies describe and document in detail abuses and violations to the human rights of imprisoned and sentenced transgender women in two states in Mexico. The study describes how these violations affect their health and wellbeing; it denounces how in-prison transphobic violence is a threat to their lives and impinge on their human rights and dignity. Case studies include a groundbreaking and exhaustive analysis of how abuses entail law breaking by police, general attorneys and judges and expose the denial of health services to address HIV and consequences of bodily transformation of trans women.

Lessons learned: MHMR designed and developed a set of practical tools to implement participatory community assessments (PCA) to specifically collect data on HR abuses against TTT. The PCA methodology allows full and meaningful involvement of target populations in data search, identification, documentation, organization and analysis. As a result, the program documented and systematized for the first time in Mexico violations of human rights of trans people in prison, as described and analyzed in the two case studies of HR abuses. Both case studies reveal the ordeal Liz and Karina went through -starting with their apprehension- and demonstrate how ingrained homophobic and transphobic prejudice of public servants have a detrimental effect on due process, access to justice and to specific HIV/STI-related health services. The publication of the Case Studies as a key program output, sets the stage for further rapid research in other prisons at state and federal level and serves as a tool to generate and enrich new data, showing the impact that discriminatory and abusive practices by civil servants in the justice system are a threat to the health, safety and lives of these populations.

Conclusions/Next steps: New case studies on the conditions of transgender women and effeminate gay men in prison.

WEPEDE506

Understanding barriers, working alongside the community: A formative study for the implementation of a peer-navigation intervention among transwomen living with HIV in São Paulo, Brazil

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Background: Transwomen are disproportionately affected by HIV worldwide. Their lived experiences often include stigma and gender-related discrimination, which may hinder access to healthcare services and create cycles of violence that exacerbate existing health disparities. If diagnosed with HIV, transwomen also often face difficulties engaging in HIV care and adhering to ART. This study aimed to explore these challenges to inform a peer-navigation intervention for improving engagement in HIV care among HIV-positive transwomen in São Paulo, Brazil.

Methods: Between October 2017 and January 2018, we conducted 10 in-depth interviews with key informants (transwomen and health professionals working with transwomen), as well as 3 focus groups with transwomen only. A total of 33 people participated. Semi-structured guides sought to elicit experiences around access to social and healthcare services, with an emphasis on HIV care, as well as to understand the potential benefits and challenges of peer-navigation for transwomen living with HIV.

Results: Main barriers included access to social and healthcare services due to limited service hours and the lack of sensitivity and preparedness of professionals in addressing transwomen’s specific needs, such as the correct use of the preferred name, medical knowledge regarding hormone provision and complications related to industrial silicone. Low adherence to ART appears to be related not only to the obstacles transwomen face accessing care in general, but also to reduced prospects for successful careers, financial stability, and general safety and well-being. All participants, however, were very enthusiastic that peer-navigation could provide needed support.

Conclusions: This formative study confirmed that a peer navigation intervention among transwomen living with HIV in São Paulo has potential to enhance ART adherence and well-being by addressing some of the barriers pointed out with the help of empowered and adherent peers, at both medical and social levels. Consulting affected communities prior to program development and implementation will certainly improve its success.
**WEPED507**

Inclusion of transgender youth in educational institutes to mainstream the community and reduces the vulnerabilities to HIV & mental health

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**Background:** The Indian Supreme Court’s NALSA judgement of 2014 recognized the third gender, and recommended for reservations in jobs and education. Despite this, the enrolment of TG youth in educational institutes and jobs remains suboptimal. The literacy rate continues to remain low among TGs, and the community sustains on begging and sex work, which increases their vulnerability towards HIV and other health issues. The Humsafar Trust, conducted sensitization meetings with educational institutes in Delhi NCR to facilitate enrolment of TG communities for higher education.

**Description:** Under the CONNECT project, we conducted 10 meetings of 120 community members with national open educational institutes like Indira Gandhi National Open University. The meetings were attended by more than 30 staff members from these institutes who were sensitized on issues faced by the community in providing required documentation for enrolment. The sensitization workshops further helped clarify myths and foster understanding on complex issues of sexuality, gender and PLHIVs. This resulted in first ever declaration from Indira Gandhi National Open University that will support transgender communities in pursuing higher education. They also assured scholarships and free education support to the TG communities.

**Lessons learned:** The major challenges were in gathering the documents from transgender youth, as majority of them either didn’t have documents with them or were having it with the gender name assigned to them at birth. As an immediate step, we were successful in securing appointment of a TG person as a Help Desk Facilitator, at the educational institute who facilitated admission process for 32 TG women/men who were enrolled into the university. This was done in collaboration with other grassroots level organizations further strengthened this process not only in terms of institute sensitization but also the admission process.

**Conclusions/Next steps:** Along with sensitization workshops with faculty, there is need to institutionalize the processes of education opportunities for TG communities. The setting up of the systems (helpdesk) at educational institutes, will help ensure the stigma and discrimination free education to TG youth; will empower them and thus will help in overall reducing the vulnerabilities of the TG youth.

**WEPED508**

Inclusion of married transgender population in HIV-related services

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**Background:** Both in India and globally, there is no specific targeted intervention or program for the MTG (married transgender) community, transgender people assigned male at birth who are married to women out of familial compulsion or choice, and who are often socially compelled to live as heterosexual men. In that context, Kolkata Rista, a community-based organization of transgender, hijra and MSM people, conducted a year-long study of the barriers to HIV-related services faced by MTG people in three states of India: West Bengal, Bihar and Uttar Pradesh. **Description:** The project was a qualitative multi-sited study of the barriers to HIV-related services faced by MTG people in three states of India: West Bengal, Bihar and Uttar Pradesh. The study included 12 FGDs (Focus group discussions), two at each site, and a total of 60 interviews, ten at each site. The FGDs were conducted with MTG people, while the interviews were conducted with both MTG people and their partners. **Lessons learned:** As per the FGDs and interviews, over 90% of MTG individuals reported that compared to the rest of the transgender population, they experience double barriers to accessing services such as HIV/STI testing and antiretroviral treatment (ART). Firstly, MTG experience huge stigma and discrimination from the broader transgender community, which prevents them from accessing community-based intervention programs. Secondly, they also face barriers accessing services from non-communally run service centers because of the general isolation of transgender people in mainstream health services. They thus face compounded inter-sectional forms of vulnerability to HIV.

**Conclusions/Next steps:** While we are talking of Universal Health Coverage for all by 2030 and LNOB (leave no one behind), we are leaving behind the doubly marginalized MTG community. Since the present scenario of health services for MTG is unfriendly and discriminatory, it is essential to implement specifically targeted projects for MTG population if we really want to end HIV by 2030. Such targeted projects would help to bring HIV services to all marginalised communities, such that no one is truly left behind and we can achieve UHC 2030.

**WEPED509**

Health care guide for the respect of trans people in Latin America and the Caribbean

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**Background:** In the framework of the proposal ‘Women Trans without Borders against Transphobia and HIV / AIDS’ of the Global Fund to Fight AIDS, Tuberculosis and Malaria, REDLACTRANS has developed the only Health Guide developed by trans woman of Latin America and the Caribbean with the purpose of raising awareness among health care professionals about comprehensive care for this population.

**Description:** Over the past 2 years, REDLACTRANS conducted 57 awareness-raising workshops in 13 different countries in Latin America and the Caribbean, reaching a total of 2085 health care providers who were sensitized about comprehensive health care and HIV/AIDS towards the trans population. The ‘Recommendations Guide on Comprehensive Health Care for Trans Women in Latin America and the Caribbean’ has increased the reach of this audience and its socialization has led to the reduction of discriminatory practices in health care centers, which impede access by trans people to health care services.

**Lessons learned:** On the one hand, the awareness workshops were led by trans women who could sensitize health care providers from their own experiences. This dynamic reaffirmed the importance of trans people sensitizing health care professionals about their own needs. On the other hand, these instances have been the first steps for the development of inter-institutional agreements between Civil Society Organizations and Hospitals in order to guarantee unrestricted access to health care services. Among these advances, it is necessary to highlight the opening of Health care Centers and the respect for the identity of those trans people living with HIV / AIDS.

**Conclusions/Next steps:** These achievements highlight the importance of carrying out political strategies that articulate actors from both civil society and the government agencies with the purpose that trans people can freely access an elementary Human Right health care.

**WEPED510**

The Transcendendo cohort study - unveiling the social vulnerabilities of transgender women and travestis in Rio de Janeiro, Brazil


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**Background:** Transgender women and travestis (transwomen) are the most affected population in the Brazilian HIV epidemic. Recent data showed high HIV prevalence among transwomen in Rio de Janeiro. However, transwomen are underrepresented in HIV epidemiological be-
havioral and clinical studies and have poor access to prevention and health care services. The Fiocruz Transgender Health Clinical Cohort (Transcendendo) was created in 2015 to improve our knowledge of this population.

Methods: The Fiocruz Transgender Health Clinical Cohort is a clinic-based open cohort of HIV-infected and at risk HIV-uninfected transwomen ≥18 years living in Rio de Janeiro, Brazil. Data are prospectively collected at annual visits that include face-to-face interviews, clinical, behavioral and laboratory assessments. Additional information is retrieved from medical records and linked national databases. Baseline data are presented. Results: From August 2015 to July 2017, 323 transwomen were enrolled. Median age was 31.5 IQR 25.7 - 39.6). Age of transformation was 16 IQR 14-18) and age of sexual debut was 6 IQR 4-11). Markers of vulnerability, such as poor schooling (56% with less than 8 years of education), high rates of physical (94.0%) and sexual (46.0%) violence were prevalent. Access to reassignment surgery (5.6%) and feminization procedures (41.0%) was poor and frequent use of unsupervised hormone therapy (75.0%) and industrial liquid silicone injection (49.0%) was observed. The HIV-infected group (N=175) was less than 8 years of education (42.9% vs. 63.4% p=0.004), younger at the time of gender transformation (15 [12-18] vs. 16 [15-18.2]); p=0.04) and sexual debut (6 [4-10] vs. 7 [5-13]; p=0.034) were more frequently engaged in sex work (52.9% vs. 39.2%; p=0.022) and had higher rates of sexually transmitted infections, tobacco and cocaine dependence. At cohort enrollment, the median time since diagnosis was 1.8 years (IQR 0-7.3), 67.0% were on continuing medical education, should scale-up training in transgender care.

Results: Physicians were mostly female (52.8%) and specialized in internal medicine (25.2%) or primary care (51.0%). Average age was 34.7 years and medical officer (17.4%) and specialist (28.4%) were the most common clinical statuses. Transgender-specific care was not offered in most clinics (76.6%) and physicians ranked themselves as novice or beginner (84.4%) on transgender health; most (95.4%) had no formal training in transgender care. Nearly all (95.2%) said their clinic had no intake/triage procedure to identify transgender patients and most (69.9%) viewed such screening as unnecessary. Regarding sex reassignment surgery, 46.1% said it should not be available to transgender patients; and most (59.1%) said transgender people should be prohibited from changing their sex on government-issued identification. Physicians who recently provided care to transgender patients (26.6%) had lower prejudice (p=0.05) and fear (p=0.06) and were more willing to provide care to transgender patients (p=0.05) compared to physicians who had not provided care. No differences in stereotype, internalized shame, and belief in good care were observed. Personally knowing a transgender person was associated with lower fear of transgender people (p=0.05) and greater interest in receiving training in transgender healthcare (p<0.05).

Conclusions: Effectively engaging transgender patients in HIV treatment and prevention requires trans-competent physicians. Concerning from these results are the low knowledge of transgender care and low support for gender-affirming procedures. Contact with transgender persons, however, appears to mitigate prejudice and fear. Curriculums, including continuing medical education, should scale-up training in transgender care.
Conclusions: While the sample was small, TG who participated exhibited healthier attitudes regarding relationships, IPV and were more likely to know their status. HAI intends to scale up this intervention to prevent and mitigate IPV and promote healthy attitudes among TG.

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<th>Baseline %</th>
<th>Endline #</th>
<th>Endline %</th>
<th>OR</th>
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<th>P (McNemar’s two-tailed test)</th>
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(Table 1: IPV knowledge, attitudes and behaviors among transgender beneficiaries pre-and post-intervention)

WEPED513
A literature review of the factors that affect use and uptake of Pre-Exposure Prophylaxis (PrEP) among young transgender women (TGW) aged 15-24 years in sub-Saharan Africa

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Background: Current literature on PrEP adherence has mostly focused on men who have sex with men (MSM) with limited studies on transgender populations (TGP). However, TGP particularly TGW, are disproportionately affected by HIV and the evidence is extremely lacking, particularly in sub-Saharan Africa. The purpose of this study was to conduct a literature review of peer-reviewed literature to establish the factors that affect the uptake of PrEP among TGW so that culturally appropriate biomedical and behavioral interventions can be created.

Methods: Two independent reviewers electronically searched published studies and articles from 2000 to 2018 on PubMed, EMBASE, Web of Science, and Google Scholar. The reviewed resources focused on PrEP adherence, uptake, and use among TGW living in sub-Saharan Africa. A transgender individual was defined as someone who identified as being different from the assigned sex at birth. The search terms included “PrEP adherence”, “PrEP uptake”, “PrEP use” among “transgender-women” AND “HIV” AND “15-24 years”. Due to the limited number of resources, we included studies with PrEP adherence, some not specific to TGW in sub-Saharan Africa.

Results: 77 studies were reviewed to establish the factors that affected PrEP adherence among young TGW. Individual factors include sexual position during anal intercourse, having multiple high-risk sexual partners and internalized transphobic stigma. A major epidemiological factor is the failure of most studies to differentiate between MSM and TGW and mitigate IPV and promote healthier attitudes regarding relationships, IPV and were more likely to know their status. HAI intends to scale up this intervention to prevent and mitigate IPV and promote healthy attitudes among TGW. Moreover, it has impeded the development of culturally appropriate interventions as well as policies that address the unique challenges of PrEP provision among young TGW in sub-Saharan Africa. Future research should focus on qualitative methods in order to establish the specifics needs of TGW so that culturally appropriate biomedical and behavioral interventions for PrEP adherence can be created.

WEPED514
Princess project: Increasing health and well-being for African American transwomen living with HIV in Oakland, CA, USA

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Background: HIV prevalence is high among transwomen in the U.S., particularly among African American transwomen; however, they tend not to enroll in HIV primary care and also drop out from care.

Description: The Princess Project provided a Motivational Enhancement Intervention (MEI) to facilitate the enrollment and retention in HIV primary care for African American transwomen living with HIV in Oakland/Alameda County, California. Participants were asked to take the initial 3 MEI sessions, and then monthly 6 MEI sessions. Working with trans Health Educators, participants developed a realistic and workable behavioral change plan and strived to attain the objectives through client-centered MEI sessions. Participants were also encouraged to participate in a weekly support group.

Lessons learned: Among 63 participants enrolled, 54% had completed the required 3 MEI sessions, and 21% completed additional 6 MEI sessions. At intake, half of the participants (33 out of 66) had not enrolled in HIV primary care even though they knew their HIV positive status. Through MEI intervention, 11 out of 23 participants enrolled in HIV primary care and continued to be in care. Health Educators made a number of referrals in addition to HIV care, such as to drop-in centers, housing assistance, substance abuse treatment, legal assistance, mental health treatment, and food assistance programs. Participants had a number of barriers to enroll in and maintain HIV primary care (e.g., priorities for securing income and housing). A weekly support group was successful to assist participants to increase access to information about HIV care and other health issues (e.g., hormone therapy).

Conclusions/Next steps: A large proportion of African American transwomen living with HIV had not enrolled in or dropped out from HIV primary care and lacked access to comprehensive care and support in Oakland/the San Francisco Bay area where a number of HIV care and health services for transwomen are available. In order to reduce the number of HIV positive African American transwomen without HIV primary care, trans sensitive and comprehensive programs are needed to address their urgent needs (e.g., financial security, food, housing, and gender affirmation health care), as well as to build supportive communities for transwomen of color.

WEPED515
Factors associated recent HIV testing among transgender women in Cambodia: Findings from the National Integrated Biological and Behavioral Survey (TG-IBBS 2016)

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Background: Globally, the HIV prevalence among transgender women remains high, and a large proportion of transgender women are unaware of their HIV status. This study aimed to identify factors associated with recent HIV testing among transgender women in Cambodia.

Methods: The National Integrated Biological and Behavioral Survey was conducted in 2016 among a nationally representative sample of transgender women recruited from the capital city and 12 provinces with a...
high HIV burden using Respondent Driven Sampling method. Face-to-face interviews were conducted using a structured questionnaire. A multivariate logistic regression analysis was performed to explore factors associated with inconsistent condom use. This study was approved by the Cambodian National Ethics Committee for Health Research.

Results: In this analysis, we included 1375 transgender women with a mean age of 25.8 years (SD = 7.1). Of total, 49.2% had been tested in the past six months. After controlling for several potential confounding factors, participants who had been testing for HIV in the past six months remained significantly less likely to be a student (AOR = 0.36, 95% CI: 0.20-0.65), to perceive that they were unlikely to be HIV infected (AOR = 0.90, 95% CI: 0.32-2.78), and to report always using condoms with male non-commercial partners in the past three months (AOR = 0.85, 95% CI: 0.49-0.88) compared to those who had not been tested.

Conclusions: More than half of transgender women in this study had not been tested for HIV in the past six months despite the availability of extensive community-based HIV testing services across the country. HIV testing promotion programs with both HIV education and materials in the past six months (AOR = 1.65, 95% CI: 1.06-2.58) compared to those who had not been tested.

WEPE517 Potential barriers in access to community-based HIV services among transgender women in Cambodia: Findings from the National Integrated Biological and Behavioral Survey (TG-IBBS 2016)

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Background: Transgender women are at significant risk of HIV, and they face intersecting barriers to health, social, and legal services. However, data regarding the unique needs and experiences of transgender people is scant globally. This study was conducted to explore barriers in access to community-based HIV services among transgender women in Cambodia.

Methods: These cross-sectional data were collected in 2016 as part of the National Integrated Biological and Behavioral Survey. Sexually active transgender women were recruited from the capital city of Phnom Penh and 12 provinces using respondent-driven sampling method. A structured questionnaire was used for face-to-face interviews. Multivariate regression analysis was conducted to explore factors associated with depressive symptoms. This study was approved by the National Ethics Committee for Health Research.

Results: The study sample included 1375 transgender women with a mean age of 25.8 (SD = 7.1); of whom, 45.0% reported having received at least one community-based HIV service in the past three months. Transgender women with access to community-based HIV services remained significantly more likely to reside in a rural setting, report having used gender-affirming hormones, have been tested for HIV in the past six months, and have been arrested by police or authorities because of their transgender identity or expression compared to transgender women without access to community-based HIV programs. However, transgender women with access to community-based HIV services remained significantly less likely to report being in receptive role, using condoms consistently with men not in exchange for money or gifts, and not using condoms because it was not available. Regarding gender-based discrimination and violence, transgender women with access to community-based HIV programs were significantly less likely to perceive that their co-workers or classmates were very supportive regarding their transgender identity compared to that of transgender women without access.

Conclusions: We found that the respondent-driven sampling method enabled us to reach a large proportion of transgender women who had not been reached by community-based HIV programs. This method may be adapted to increase the coverage of the programs reaching out subgroups of this high-risk population who could not be reached by the existing interventions.
**WEPED518**
The HIV care cascade among trans women in Canada: Barriers and facilitators

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1Factor-Inwentash Faculty of Social Work, University of Toronto, Toronto, Canada; 2Western University, Department of Epidemiology & Biostatistics, London, Canada; 3The 519 Community Centre, Toronto, Canada; 4Simon Fraser University, Faculty of Health Sciences, Vancouver, Canada; 5McGill University Health Centre, Chronic Viral Illness Service, Montreal, Canada; 6McGill University, Department of Family Medicine, Montreal, Canada; 7McGill University, Family Medicine, Montreal, Canada, 8University of Toronto, Department of Medicine, Toronto, Canada, 9Women’s College Hospital, Women’s College Research Institute, Toronto, Canada

**Background:** Transgender (trans) women experience a disproportionate HIV prevalence, yet little is known about the engagement of trans women living with HIV (W/LWH) in the HIV care cascade and associated socioeconomic factors. This study sought to describe a) the proportion who attained each HIV care cascade outcome, and b) socioeconomic factors associated with each HIV cascade outcome among trans W/LWH in Canada.

**Methods:** The Canadian HIV Women’s Sexual and Reproductive Health Cohort Study (CHIWOS) collected national baseline survey data from 2013-2015. Of 1442 W/LWH, 50 self-identified trans women were included in this analysis. Proportions of trans W/LWH linked to HIV care (ever accessed), engaged in care (received any prior year), initiated and currently using antiretroviral therapy (ART), adhered to ART (≥ 95% ART taken, past month), and reported an undetectable HIV viral load (< 50 copies/mL) were summarized. Bivariate analyses identified correlates of each outcome.

**Results:** Results showed that 92% (n=46/50) (95% Confidence Interval (CI): 84%-100%) were linked to care. Of those linked to care, 91% (n=42/46) (83%-98%) were engaged in care. Additionally, 78% (57%-91%) (n=35/46) of those linked to care had initiated and were currently using ART, among whom optimal adherence to ART was reported by 67% (n=24/36) (52%-81%). Among those with optimal adherence, 96% (n=23/24) (85%-100%) reported an undetectable viral load. Statistically significant associations were identified with linkage (positively correlated: years living with HIV, violence; negatively correlated: physical health-related quality of life [HRQoL]), barriers to care access; engagement (negatively correlated: affective social support, social interaction, trans stigma); ART initiation/use (positively correlated: years living with HIV, hazardous alcohol use, recreational drug use, violence; negatively correlated: increased age, physical HRQoL, personalized HIV-related stigma, unstable housing, racism; barriers to care access, access to a family physician, trans stigma); and ART adherence (negatively correlated: depression, PTSD).

**Conclusions:** Findings suggest gaps in care access across the cascade for trans W/LWH, particularly for ART use and adherence. Targeted research is needed to further understand the mechanisms by which socioeconomic factors impede care access for trans W/LWH, in particular trans-specific factors (e.g., trans stigma), in order to inform contextually-relevant interventions to increase HIV care engagement for this population.

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**WEPED519**
Factors predicting viral suppression and retention in HIV care among transgender women of color living with HIV in four urban centers in USA

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**Background:** Transgender women of color (TWOC) experience high HIV infection rates while facing unique barriers to healthcare engagement. HRSA’s Special Projects of National Significance TWOC initiative is an evaluation of care engagement interventions implemented by 9 demonstration projects in 4 US urban centers.

**Methods:** The demonstration sites conducted computerized surveys (baseline and 4 follow-up surveys every 6 months) with 858 TWOC living with HIV between December 2013 and August 2016 (mean age: 37; 49% Latina, 42% Black) to assess key barriers and facilitators to healthcare engagement. Medical chart data were also collected throughout the initiative. We defined retention in care as at least one visit in each of two prior six month periods, separated by ≥ 60 days. We conducted exploratory analyses to uncover changes in viral suppression (VSI) [viral load<200] and retention in care (both evaluated from medical chart data) over time, by the facilitators and barriers to care (from the baseline survey data). We used GEE modeling used to assess how changes over time in retention and VS were associated with multiple self-reported barriers and facilitators to care at baseline.

**Results:** A significant improvement in VS at the 24-month follow-up period was detected among participants who at baseline, reported (for previous 6 months): drug use, homelessness, transience, food insecurity, transportation challenges, and disclosing their gender identity compared to those who did not report those barriers or facilitators at baseline (Table 1). A significant improvement in retention in care at the 24-month period was associated with baseline reporting of: childhood sexual abuse, transience, transportation challenges, disclosing gender identity, and higher levels of healthcare empowerment.

![Image](https://via.placeholder.com/150)

(Table 1: Baseline barriers and facilitators associated with changes in VS and retention in care over time in bivariate GEE models)

**Conclusions:** People reporting barriers at baseline generally had lower levels of engagement in care than those who did not report barriers. But, those who reported certain barriers (e.g., drug use, childhood sexual abuse, food insecurity, homelessness, transience, transportation barriers) demonstrated more improvement than others over 24 months. Disclosure and healthcare empowerment are important facilitators to consider in interventions to improve engagement in care.
These findings indicate that the interventions were successful at improving engagement in care for the most vulnerable groups of transwomen of color living with HIV.

**WEPED520**

Sex work is associated with sexual violence and HIV among transwomen in São Paulo, Brazil

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**Background:** Studies have shown that transwomen (TW) who engage in sex work to survive, but little is known about the health and wellness of TW who do sex work in Brazil. Data from other regions suggest TW who do sex work suffer high rates of discrimination, physical, and sexual violence, which may precipitate poor health outcomes. The present study was conducted to determine the prevalence and correlates of sexual violence and HIV infection among TW sex workers living in São Paulo.

**Methods:** DIVAS was a cross-sectional study of 386 adult TW conducted from November 2016 to May 2017 in São Paulo, Brazil. Descriptive analyses and multivariable logistic regression models were used to calculate the HIV prevalence among TW with a history of sex work and to examine the associations between sex work (lifetime and current) and sexual violence, forced sex without a condom, and HIV infection. Odds Ratios were adjusted based on significant demographics and risk factors (use of condom, housing, gender, race, and education) associated with sex violence in bivariable analyses.

**Results:** Among all TW in DIVAS, 90.41% (N=349) ever experienced sexual violence and 80.00% (N=308) were ever forced to have sex without condoms. Most participants had a history of sex work (N=326, 84.46%), and of those, 92.02% (N=300) reported experiencing sexual violence and 43.97% (N=139) tested positive for HIV. TW who were currently engaged in sex work had greater odds of experiencing sex violence (adjusted odds ratio, AOR=2.419 [95% CI: 1.07 - 5.41]) and being forced to have sex without a condom (AOR=2.52* [95% CI: 1.07 - 5.41]) than those not currently engaged in sex work. TW with a history of sex work had 2.59* (95% CI: 1.34 - 5.02) times the odds of having HIV compared to those with no history of sex work.

**Conclusions:** HIV and sexual violence is prevalent among TW in São Paulo. Even more so among TW who do sex work. TW sex workers are at greater risk for being forced to have condomless sex, which has important implications for their wellbeing and the transmission of infectious diseases. Interventions that address violence, particularly among transwomen engaged in sex work, are needed to promote well-being and reduce risk for sexually transmitted infections.

**WEPED521**

Sexual behavior and health of transgender people who are sexually active with MSM in Japan: An online survey through gay social networking mobile application, LASH study

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**Background:** MSM account for 60-70% of people living with HIV in Japan. However, little is known about those transgender individuals who are sexually active with MSM. The objectives of this study were to better understand their sexual behavior and health issues so that their needs for prevention, care, and support could be filled.

**Methods:** Data come from the LASH study conducted from September to October 2016. MSM including transgender people who have sexual relationship with MSM were subjected for the study. The respondents were recruited through Japan’s most popular gay social networking mobile application. Then an anonymous, self-completed online survey, composed of 97 questions about love, sex, and health, was conducted to measure their view of relationships and sexual health such as HIV-related risk behaviors and knowledge.

**Results:** Of total 6,921 respondents who completed the survey, 83 respondents were transgender (41 trans women, 23 trans men, and 19 others, e.g. X-gender persons) with a mean age of 31.0 years (95% CI: 29.32 - 32.89). Among trans women, 41.5% had sexual contact with 2 to 5 men and 29.3% with 6 or more men over previous six months. Meanwhile, 56.5% had sexual contact with 2 to 5 men and 8.6% with 6 or more men among trans men. Compared to 62.3% in all respondents, 56.6% in trans men, 39.0% in trans women, and 47.9% in other transgender persons had tested for HIV at least once in their lifetime.

When asked about knowledge of HIV, transgender respondents less understood (more than 10% gap between transgender and all respondents) the effect of ART, social welfare services for HIV/AIDS, and links between HIV and STIs.

**Conclusions:** The results suggest that most of transgender population are sexually active, but they neither grasp HIV risk nor test for HIV as often as non-transgender populations. Since it is limited to gay mobile application users, future in-depth research is expected to prepare appropriate strategies of prevention, care, and support for this population.

**WEPED522**

Transgender stigma – barrier to accessing HIV testing and treatment services in Federal Capital Territory (FCT), Nigeria

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1Heartland Alliance International, Strategic Information and Knowledge Management, FCT, Nigeria, 2Heartland Alliance International, Chicago, United States, 3Heartland Alliance International, FCT, Nigeria, 4USAID, FCT, Nigeria

**Background:** Globally, many transgender people face stigma, discrimination, social rejection and exclusion that prevent them from fully participating in society, including accessing health care, education, employment and housing. Transgender people are 49 times more likely to be living with HIV infection than the general population. Recently, Heartland Alliance International (HAI) began implementation of HIV comprehensive care and treatment among the transgender population in Nigeria.

**Description:** From February through December, 2017, HAI recruited 246169 male, 577 female) transgender individuals through mobile outreach and in “One Stop Shops” (fixed locations that provide specialized comprehensive HIV prevention, care and treatment for key populations). The service package included HIV prevention services, HIV testing services (HTS), sexually transmitted infection (STI) syndromic management and

**Sex Work Involvement**

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*p value <0.05

*Bi and Multivariable analysis of sex work involvement associated with sex violence and HIV.*
WEPED523
Improving targeted HIV testing services (HTS) in Zimbabwe: A study to identify orphan and vulnerable children (OVC) sub populations most at risk for HIV

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Background: OVC programs have increasingly been called upon to increased uptake of HTS in pursuit of UNAIDS 90-90-90 goals. Experience in Zimbabwe demonstrates that mass testing efforts among broad OVC populations however have not yielded high positive rates. More targeted testing is needed to ensure limited resources are applied to finding, testing, and initiating those OVC most in need of treatment and care. This study set out to inform community-based screening processes that feed into targeted testing by establishing which social and clinical characteristics among the OVC population best represent individuals with the greatest HIV risk.

Methods: A retrospective case control study was conducted in Bubi District in November 2017 to identify index markers related to HIV infection. Secondary data on HIV status of OVC and primary data generated through administration of a 14-item standardized questionnaire to 159 OVC caregivers via interviews by a Community Health Worker were gathered. Study participants included OVC caregivers of both HIV-positive and HIV-negative children enrolled in Bantwana Initiative’s OVC program activities. Data were analyzed utilizing advanced predictive techniques (Logistic Regression, Chi-square Automatic Interaction Detector-CHAID and Random Forest Modeling) to elicit the relationship between risk markers and HIV status.

Results: The study identified 58 cases and 103 controls (54.1% male, 45.9% female). The study population was over 5 years of age and 42% cared for by a grandparent. 58.6% of caregivers had at least secondary level education. Regression analysis identified ‘poor school attendance’, ‘orphanhood’ and ‘living with an HIV+ contact’ as the social markers strongly associated with HIV infection (p <0.05). CHAID and Random Forest analysis recognized ‘living with an HIV+ contact’ as a strong predictor of HIV infection.

Conclusions: Children who demonstrate irregular/no school attendance, orphans and those residing with a person living with HIV are at heightened risk of HIV infection and should be targeted for HTS. The similar performance of social and clinical index markers in predicting HIV positivity, community-focused OVC programs are well positioned to carry out comprehensive social profiling to identify and track socio-demographic determinants related to HIV-risk that can inform more targeted testing.

Other populations vulnerable in specific contexts

WEPED524
Increasing uptake for HIV testing services (HTS) among key populations using linkage facilitators

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Background: Addressing the second 90 in the 90-90-90 global agenda is becoming a key challenge due to poor adherence and loss to follow up, using health facility linkage facilitators who are Key populations peers already in care to bring the gap of HTS among key population community as helped increase adherence and treatment compliance in Eastern Uganda. This approach was adopted after the move by the ministry to roll out test and treat strategy where by any patient who tests positive is immediately enrolled in care Improving performance in linking HIV Positives to Care as part of the second 90. Overall, 95% of the HIV positive clients identified in FY 2017 were linked to care.

Description: RHITES-E worked to improve performance on this indicator by enlisting a key population peer leader per health facility as a linkage person for fellow key populations who test positive this resulted in 88.8% initiation to care under the new test and treat strategy. RHITES-E provided educational materials, condoms, moon light testing to KPs at identified bars as a way to address the first 90 in brothels and known hot spots targeting female sex workers (FSW). Men who Sex with Men (MSM) and People who inject drugs (PWID) in Mbilale and Toro districts.

Lessons learned: The performance of RHITES-E in getting HIV+ individuals into ART is significantly stronger in its work with Key Populations, with 81.3% of all HIV positive KP initiated on ARVs. RHITES improved linkage to care to 60% in this reporting period. This high linkage percentage can be attributed to the role played by peers as linkage facilitators from community to facilities.

Conclusions/Next steps: This practice, coupled with a team of four health workers per facility as contact persons for key populations was found to boost key population facility attendance and continuity of services, a practice that will be scaled up in other hot spots.

WEPED525
Breaking the silence for learners with disabilities

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Background: Adolescents and youth with disabilities in South Africa lack access to comprehensive sexuality education, which increases their vulnerability to HIV and other reproductive health issues. This is exacerbated for learners with intellectual disabilities whose educators often lack skills and tools to accommodate these learners in sexuality education lessons and who may hold negative beliefs about these learners sexuality. In response, the Breaking the Silence approach, a curriculum implementation and disability-accommodating approach, was developed, piloted and formattedly evaluated in KwaZulu-Natal, South Africa.

Methods: We conducted a formative evaluation of the approach with educators of learners with intellectual and learning disabilities from eight special schools. Using in-depth interviews we describe the educators’ understanding and experiences of using this approach and what contextual factor provided barriers or enablers for implementation. The analysis used conventional content analysis and NVIVO software.

Results: Educators still conceptualized sexuality education within a risk-protection discourse but began to break through towards a rights-based approach. They revealed that the training and tools enabled them to provide sexuality education in accessible formats, tackle difficult topics such as sexual orientation and masturbation, and improved awareness and assertiveness within their learners. Educators began to address cultural taboos related to talking about sexuality and disability. The findings revealed that contextual factors impacted the degree of implementation. These factors were related to perceptions of socio-cultural norms, interpersonal engagement with peers and management, the structural environment of school settings, and the wider community setting. In particular negative attitudes of untrained staff and cultural taboos were
WEPED526
Vulnerable children committees pave the way towards achieving first UNAIDS 90-90-90 for pediatrics in Tanzania

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Background: Despite the outstanding progress towards an AIDS-free generation, Tanzania faces challenges in meeting the UNAIDS 90-90-90 targets for pediatrics. These challenges include identifying HIV positive children and linkage to care and treatment. Only 67% of the estimated 90,000 children living with HIV in Tanzania have been identified. Baylor Tanzania conducted a community-based educational program with the Most Vulnerable Children Committees (MVCCs) in our catchment area.

Description: Beginning November 2016, we identified, trained, and supported members from the MVCC along with district, ward, and village community leaders. MVCC members were trained to educate and sensitize families and caregivers of orphans and vulnerable children (OVC) for HIV testing, care and treatment services. MVCC received monthly ongoing support and feedback. A retrospective review of provider-initiated testing and counseling (PITC) monthly clinic reports was performed.

Lessons learned: During the six months preceding MVCC training, the 1163 clients received PITC services at Baylor: 70% (810/1163) clients were children and 1% (9) were referred by MVCC members. Of the total clients tested, 10% (119) were HIV positive including 6% (47/810) of children tested. During the six months after the MVCC initiative began, 2618 clients received PITC services: 77% (2004) were children and 69% (1805) were children. During the six months after the MVCC initiative began, 5% (136) were positive including 3% (62/1805) of children tested.

Conclusions/Next steps: MVCC sensitization efforts substantially in increased the number of children and family members knowing their HIV status and were successful at identifying HIV positive children and linking them to care. Targeting priority groups using community members may contribute in closing the gap needed to achieve “the first 90” for pediatrics.

WEPED527
The economic empowerment of women vulnerable to HIV. Experience from Kyrgyzstan

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Background: Traditional interventions for marginalized women, including women living with HIV in Kyrgyzstan, usually focus on providing crisis interventions. However, this ignores other aspects of women’s lives, especially high levels of poverty and stigmatization. The project “Our choice: economic empowerment of vulnerable women in Kyrgyzstan” set the goal to enhance the social and economic capabilities of vulnerable women in Kyrgyzstan (single mothers, sex workers, workers living with HIV, partners of drug users, former prisoners, mothers of children living with HIV).

To achieve the goal the following comprehensive approach is being offered to vulnerable women during the project framework (August 2017-January 2020).

Description: The initial intervention is client management to help women in solving a wide range of social, medical and legal problems. The client managers also encourage women to participate in first stage training on personal development in order to increase women’s self-esteem and internal strength. The next intervention is second stage training about economic independence which aims to mobilize the resources of each participant and design a business plan. The most interesting and feasible business plans are awarded with micro-grants.

By December 2017, 172 women were reached by the client management program through outreach and referrals from partner organizations. 79 started changing their lives through participation in the trainings on personal development. 46 women attended the economic independence sessions. 19 women demonstrated legit financial goals and started implementing their business plans with the support of the Project.

Lessons learned: Making positive changes in people’s lives is impossible without integrated support which includes economic empowerment and personal development. Questionnaires confirmed that 81% of the project participants had an increased sense of internal strength and motivation to resist stigma. 100% of second stage training participants announced that they became stronger in financial calculations. All grantees increased their income by at least 15%.

Conclusions/Next steps: The project’s approach is broader than resolving client’s critical situation. Using consecutive steps of complex program we intend to change women’s life perception, focusing on economic empowerment, and improve their quality of life.

WEPED528
Turning the tide, breaking the barriers to access, adherence and retention to antiretroviral therapy and prevention of mother to child transmission of HIV among adolescents in Kenya

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Lean On Me Foundation, Nairobi, Kenya

Background: The shift to combination therapies for treating people living with HIV has increased adherence and improved health outcomes. However, HIV morbidity and mortality among adolescents is still on the rise. We set to identify barriers associated with adherence to antiretroviral therapy (ART) among adolescents and find sustainable solutions to improving health outcomes for them.

Description: The program engaged 250 adolescents (ages 15 - 24 years) living with HIV who had been on antiretroviral therapy for over 1 year with high viral loads. We had 100 males and 150 females of which 72 needed Prevention of Mother to Child Transmission (PMTCT) services, 11 had HIV/TB co-infection. We employed both qualitative data collection methods in form of individual and focus group discussions to identify barriers to adherence. The quantitative involved using hospital records to assess the impact of adherence on viral load and clinical outcomes.

Lessons learned: Factors that influence adherence were identified as: (1) Individual factors such as stigma, discrimination, disclosure, fatigue, pill burden, poverty and treatment literacy.
Accessing healthcare services and supports in remote communities: The stories of 29 First Nations people living with HIV in Ontario, Canada

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Background: In 2014-2015 Indigenous peoples represented 17.5% of all HIV infections in Canada, yet account for only 3.2% of the population. In 2008 in Ontario (ON), Indigenous people accounted for an estimated 3.2% of people living with HIV, while comprising 2.4% of the population. From 2009 to 2011, 2.7% of new HIV diagnoses in ON were Indigenous people, of whom 7.2% were women. One in three Indigenous people is infected through the use of drugs. This research study sought to assess the efficacy of funding and services for HIV/AIDS services within ON First Nations (FN) communities. This research will improve understanding of the epidemic among the adolescents. We need to put deliberate efforts to improve treatment literacy and address stigma, gender-based violence and other human rights related barriers to access to HIV services.

Results: In northern communities, all participants experienced issues with access to care and supports. Participants were forced to leave their northern communities, either permanently or temporally, due to limited access to care. HIV related stigma played a role in access to prevention, testing, and care. All participants indicated difficulties with HIV education either in understanding their own HIV status or in the lack of education within the broader community. Historical traumas (residential school- ing & the 60s scoop) and discrimination were a central theme to many stories, impacting the lives of participants and their overall health outcomes.

Conclusions: Greater access to community based, holistic care in northern FN communities is urgently required. There is pressing need for culturally competent and relevant HIV prevention measures and education within communities to reduce stigmatization and improve access to prevention and care services.

WEPE530 Moving ART services behind bars: A differentiated service delivery model for ART services results in high viral load suppression among inmates in correctional facilities in Zambia

K. Mwanda1, M. Chikuba Mcleod2, D. Phiri3, E. Mwila4, K. Chibesakunda5, D. Chikondi6, M. Banda3, L. Kawanga7, J. Jose7

Background: HIV prevalence among prison inmates in Zambia is twice as high as that in the non-incarcerated population, 27% compared to 13.3%. Correctional facilities are overcrowded and the warden to prisoner ratio is often low, resulting in challenges in escorting HIV positive inmates to health facilities for ART and related care. USAID DISCOVER-Health project applied a differentiated service delivery (DSD) model for the provision of ART: care and adherence support to prisoners. The objective was to eliminate key barriers to comprehensive HIV treatment/care in correctional facilities and improve treatment outcomes.

Description: Working together with the Zambia Correctional Services between October, 2016 and December, 2017, the Project established service provision within prison grounds and prison walls at eight correctional facilities. Standard of care in these prisons was typified by inmates only get to a health facility upon being escorted by a wader or a prisoner enlisting for parole. In contrast, the DSD model addressed the risk of missed clinic appointments and provided comprehensive HIV treatment and care including adherence within easier reach.

Lessons learned: Viral load investigations were conducted in line with national guidelines. 241 (95%) viral load results were received of the 438 submitted. Of these 234 (97.1%) were males and seven (2.9%) were females. 221 (98.2%) were virally suppressed. Of this figure, all the seven females were virally suppressed (100%), while among the males, 214 (98.1%) were suppressed. For the suppressed males, the majority, 178 (83.2%), were initiated in prison while 25 (16.8%) were already on treatment at the time of imprisonment. All the females were initiated on ART in prison. Inmates benefiting from this differentiated model had higher viral load suppression rates (98.2%) compared to the non-incarcerated population (89.2%) (ZAMPHIA, 2016).

Conclusions/Next steps: Eliminating barriers to treatment, care, and adherence support in prison settings can yield better viral suppression rates. The Project’s next steps include undertaking an empirical study to scientifically ascertain this correlation. The Project will engage government and other stakeholders to both scale-up this model to other correctional facilities and to implement structural changes that will sustainably support similar innovations in Zambia.

### Table 1

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(Table 1)
WEPEP532  
Towards 90-90-90: Examining the knowledge and attitude of prisoners in Nigeria towards HIV/AIDS

A. Igwenyong1, Y. Adebiyi2, S. Adeyemi3, B. Ntacyabukura4,
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Background: Prisoners risk for infections including HIV/AIDS is very high due to their lifestyle. This made it pertinent to understand their knowledge and attitude towards HIV/AIDS which will further contribute to the achievement of the 90-90-90 treatment target in 2020. The aim of our study was to systematically review available evidences on the knowledge and attitude of prisoners towards HIV/AIDS in Nigeria.

Methods: A systematic review of literature on PubMed, Scopus, Web of Science, Embase and Cochrane Library was performed from 2010 to 2017. This search was complemented with conference abstracts and unpublished research reports. The studies were screened for eligibility. 13 studies were carefully chosen: 7 quantitative, 2 quantitative and 2 mixed methods studies. Qualitative content analysis was carried with the resultant data extracted and summarized to highlight prisoner’s knowledge and attitude towards HIV/AIDS.

Results: From the systematic review, the knowledge and awareness about HIV/AIDS was identified to be high with the mass media as the main source of information. The knowledge of the 90-90-90 target and antiretroviral treatments was found to be minimal. There were certain misconceptions about HIV/AIDS, including incidents of high risk behaviors among inmates despite the perceived increase in knowledge and awareness about HIV/AIDS. Injection of drugs was also found to be common among the prisoners using unsterilized materials. The common sexual practices identified among the articles reviewed were masturbation and homosexuality, with the latter representing a significant source of HIV in Nigerian prisoners. Socio-cultural factors and religion were not prominent factors influencing the knowledge of inmates. However, it had a significant effect on their attitude towards HIV/AIDS.

Conclusions: More awareness needs to be carried out to address misconceptions about HIV/AIDS as well as reduce the prevalence of risky behaviors among inmates in Nigerian prisons. A necessary step in achieving target 90-90-90. Furthermore, mass sensitization of the inmates using sterilized materials. The common sexual practices identified among the articles reviewed were masturbation and homosexuality, with the latter representing a significant source of HIV in Nigerian prisoners. Socio-cultural factors and religion were not prominent factors influencing the knowledge of inmates. However, it had a significant effect on their attitude towards HIV/AIDS.

WEPEP534  
Mental health resilience for young children whose parents have died

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1UCL, Global Health, London, United Kingdom, 2Stellenbosch University, Stellenbosch, South Africa, 3UCL, London, United Kingdom

Background: Parental loss is a major stressful event that has been found to increase risk of mental health problems in childhood. Option B+ and ARV treatment will dramatically affect parental survival, but the legacy of AIDS parental deaths still remain. Yet, some children show resilient adaptation in the face of adversity across time. Studies focus on the negative implications, but we explore predictors of mental health resilience among parentally bereaved children, and their cumulative effect.

Methods: Consecutive child attenders aged 4-13 of HIV community services randomly selected in South Africa and Malawi were interviewed at baseline and 15-18 month follow-up (N=83) - 97% refusal rate: 84% follow up. Interviews comprised study specific and standardised inventories on demographic information, child and family data, child mental health, bereavement experience and community characteristics. Resilience was the absence of symptoms of depression, suicidality, trauma, and emotional and/or behavioural problems at baseline and followup.

Results: 490 (58.8%) had lost one or both parents (182 paternal orphans, 84 maternal orphans, 224 double orphans). One quarter of orphaned children, 70 girls, 54 boys, showed no mental health problems at either wave and were classified as resilient. Resilience status did not differ by age (OR=1.03, 95% CI= 0.95, 1.11) or gender (female: OR=1.20, 95% CI=0.81,1.91) significant predictors were identified. Being a quick learner, having a role in helping family members, positive caregiving, living in a home where someone was employed, higher community support, and lower exposure to domestic violence, harsh physical punishment, or stigma at baseline predicted sustained resilience. There were cumulative influences of predictors of resilience. For those experiencing one of the predictors, resilience rates were 11% climbing to 42% with 7 predictors. OR=1.42, 95% CI=1.21, 1.66; p<.001). Only 4 children experienced all 8 protective factors.

Conclusions: This study enhances understanding of resilience in younger children in the wake of parental death. Attention should be given to both positive and negative mental health. The longitudinal study identifies a number of potential environmental and psychosocial factors for bolstering resilience in orphaned children. These should be incorporated into the AIDS response.
WEPED535
Increasing TB case detection and treatment among street children in the slums of Kampala District: the case of Kamwoyka Christian Caring Community (KCCC)
N Serumaga, A Namugweera. KCCC Study Group 1Kamwoyka Christian Caring Community, Monitoring and Evaluation, Kampala, Uganda. 2Kamwoyka Christian Caring Community, TB Section, Kampala, Uganda

Background: Despite concerted efforts to curb TB in the slums of Kampala district, KCCC realized that there was no intervention to increase TB case detection and treatment among Street Children in Kampala district and TB still remained a public health burden among street children. The Stigma and social economic status of street children makes it difficult for them to access treatment from public clinics and information on TB. In 2015 KCCC launched a 3 year project aimed at strengthening TB/HIV Prevention and care among street and other vulnerable children in Kampala district.

Description: 144 Community Health Works were trained to map dwelling places for street children. Weekly community outreach clinics were launched to screen children on the streets, Sputum samples for children aged 0-17 years were examined using Microscopy or Genexpert. Clinical Diagnosis, X-Ray tests were done for children whose sputum results tested negative but had signs of TB. Nurses and Community Health Workers visited children on treatment on a daily basis to collect adherence data. Nutritional support was given to Street Children on TB treatment so as to adhere to medication. Those Co-infected with HIV were initiated on ARVs.

Lessons learned: Between 2015 and 2016, 1532 street/vulnerable children were tested for TB using microscopy, Genexpert, X-ray and clinical diagnosis. 26 had TB (5 females and 21 males) This year 150 children tested for TB and 9 tested positive: An overall 35 children since 2015 have been diagnosed with TB and of those, 5 were co-infected with HIV/AIDS and initiated on ART. 2 children were pregnant and also co-infected with HIV/AIDS. All street children diagnosed with TB have registered 100% adherence to TB medication.

Conclusions/Next steps: TB detection in children requires a combination of diagnosis methods such as Genexpert, Clinical diagnosis, microscopy and x-Ray. Because using one method is difficult to detect TB in children.

WEPED536
Closing the gaps: Addressing sexual and reproductive health needs of young persons with disabilities (PWDs) using school based minimum prevention package intervention (MPPI) strategy
R. Akinyi1, B. Osuguela, A. Ajumobi2

Background: Young person with disabilities are found to be more vulnerable to HIV compared to those without disabilities and yet they face several challenges in accessing HIV services due to many factors such as stigma from their host community and health care providers, transport challenges, long queue, requirement for escort, facility infrastructure not being physically accessible and lack of skills and sensitivity on the part of Care providers.

The HAF project (funded by the World Bank) in Ekiti State Nigeria designed a two years disability-inclusive HIV/RH programme to address sexuality and health needs of PWDs.

Description: Three special government schools for PWDs, one urban and two rural were selected as project sites. A cohort of health Care providers comprising of Government health facility, civil society, private sector organizations and the host schools were constituted under the supervision of three (3) local programme officers on HIV/RH services. PWDs in the four categories (blind, deaf, physically challenged and intellectually impaired) were profiled to explore their sexual vulnerability using psychosocial, health, legal and education indices. HIV/SRH facilities were mapped and designated. Specially PWDs tailored tools and materials such as braille, pictorial, audio- aids, sign language manual, PEP model were developed to deliver a comprehensive MPPI program among PWDs. The result of the intervention was collated, analyzed and documented using District Health Information Service (DHIS) and implementation completion report(ICR).

Lessons learned: The result showed a varied sexual and reproductive health requirement of young persons with disabilities as the project outcome revealed that 45% of PWD access condom services. 25% HIV Testing and Counseling. 3% STI services, 0.5% family planning services,1% TB services, 86% health education, 25% educational support, 15% nutritional support services, 76% psychosocial support services and 5% legal protection.

1357 individuals representing 89% of the host community were enrolled and assessed HIV/RH services within the two years project increase in health seeking behaviour among PWD rose from 12% to 68%.

Conclusions/Next steps: Provision of disability inclusive HIV/RH services for PWDs is key in meeting their sexuality and reproductive needs where it also addresses PWDs vulnerability challenges to accessing services like other person without disabilities. More still need to be done in overcoming communication barriers to reach a large segment of PWDs.

WEPED537
Utilization of PHC services of rural Migrant communities in South Africa
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1Western Cape Government, Health, Cape Town, South Africa. 2University of the Western Cape, School of Public Health, Cape Town, South Africa

Background: Large scale labour migration is central to the regional economy of southern Africa. With millions of people already on HAART and with a growing burden of chronic disease, health systems based on models of stable catchment area populations are increasingly unable to respond to the real health needs and social realities of the people they serve both migrant and sedentary. 11,000 migrant workers from Zimbabwe, Lesotho, Malawi and other provinces in South Africa come to the fruit growing areas of Cape Winelands District between September and March each year, increasingly including families with young children. Farmer workers often travel between many locations as different crops mature hence risk suboptimal continuity of care and poor health outcomes for both migrants and the community where they reside. The children are also at high risk of neglect, malnutrition and diarrhoeas.

Methods: A cross-sectional, quantitative survey of 807 households in De Doorns were administered to 807 migrant workers (73% male. 473 - female; mean age - 35 yrs) by trained research assistants. Descriptive analysis was conducted to describe utilization of health care services.

Results: Both women (89%) and men (74%) reported high utilization of public primary health care services. TB (21% and HIV (18%) health services were mostly accessed by male migrants; while females mostly accessed health services for Maternal and Child Health (MCH) 37% (pregnancy (17%), child care (20%) and HIV (16%). Services for non-communi- cable diseases (NCDs) were less utilized at 8% and 7% for diabetes and 12% and 26% for Hypertension amongst men and women, respectively, which indicate undetected and/or uncontrolled chronic conditions.

Conclusions: High utilisation of public health services for HIV/TB and maternal and child health indicates high trust in public health care services, and holds promise for realizing universal health coverage. HIV/TB and MCH services should be used as access points to reach migrant populations with chronic care services such as undiagnosed diabetes and hypertension and other NCDs.
WEPED538
Suicidal feelings and attempts among HIV/AIDS-positive sub-Saharan African migrant women in Belgium: A qualitative study

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1Vrije Universiteit Brussel, Mental Health and Wellbeing Research Group, Public Health, Brussels, Belgium, 2Universiti Ziekenhuis Brussel, Internal Medicine and Infectious Diseases, AIDS Reference Center, Brussels, Belgium

Background: Globally, suicide remains a major public health problem and should be given high priority especially in chronic illness management. In Belgium about seven cases of successful suicides are reported daily. Suicidal feelings are not uncommon among people with diverse psychosocial issues or diagnosed with chronic and incurable diseases like cancer, mental health issues and HIV. There is dearth of research on suicidal ideation and attempts among Africans with HIV/AIDS. This paper examines suicidal feelings and attempts among HIV-infected sub-Saharan African (SSA) migrant women in Belgium.

Methods: We conducted a qualitative research between April 2013 and December 2014 in Belgium consisting of semi-structured interviews and observations. Participants were recruited through purposive and snowball sampling techniques if from SSA, females, >18 years, diagnosed HIV-positive for more than 3 months, receiving treatment and care in Belgium. Thematic analysis was used to analyze study data. To enhance the validity of this qualitative research, different data collection methods were used: interviews, observations and document analysis to increased credibility. Ethical approval was obtained from the Ethics Committee of the Universitair Ziekenhuis Brussel and the Internal Review Board of the Institute of Tropical Medicine, Antwerp, Belgium.

Results: 44 women were interviewed, 25 of the 44 reported having seriously contemplated or attempted suicide because of shame, guilt, blame, depression, stigma, discrimination, fear and uncertainty since diagnosed HIV positive. Many of those who reported suicidal feelings/attempts did not indicate seeking any type of mental health services. Participants also indicated intermittent periods of depression and anxiety. A relationship between suicidal ideation and awareness of successful suicide of others was found among participants. No timeline for suicidal thoughts was mentioned by participants.

Conclusions: Our findings highlight the ubiquity of suicidal ideation/attempts among HIV-infected SSA migrant women in Belgium. Understanding the relationship between the outcomes of stigma/discrimination and suicidal ideation may contribute to a holistic care of HIV-infected women. Assertive interventions to reduce suicidal feelings/attempts among SSA migrant women and other people living with chronic illnesses early in their disease trajectory should be redesigned. Future research is needed to investigate the increasingly aging HIV population at risk of neuropsychiatric diseases and other co-morbidities.

WEPED539
Innovative model HIV, recidivism and risk behavior prevention among adolescents in conflict with the law in the context of juvenile justice reform in Ukraine

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1Ukrainian Foundation for Public Health, Kyiv, Ukraine, 2HealthRight International, New York, United States, 3HealthRight International, Kyiv, Ukraine

Background: In 2017, there were 1164 adolescents on probation and 260 adolescents in closed settings in Ukraine. Juveniles in conflict with the law commonly face higher risks of HIV because of low access to information, social circles with high prevalence of HIV and drug use, risks of re-offence and incarceration in adult prisons. The juvenile justice reform shifted focus from incarceration to suspended sentences for minor offenders creating an opportunity for NGOs and probation services work together with adolescents in the community.

Description: Our HIV and recidivism prevention model is focused on adolescents on probation or in juvenile prisons. NGOs collaborate with probation services providing high-quality case management support, HIV/HCV testing and counseling, and innovative behavior change programs. The model is built into the existing penitentiary system delivering training on non-discriminatory approaches for juvenile justice professionals. The collaboration between NGOs and prison officers is an effective referral system in supporting resocialization and reducing risk behavior. Probation officers provide official supervision of the case and refer clients to NGOs who are responsible for comprehensive case management support.

Lessons learned: Combining HIV and recidivism prevention activities for adolescents in conflict with the law has been an effective mechanism for prevention of HIV transmission. Behavior change programs are specifically designed to meet adolescents’ needs, address main causes of re-offence (i.e. substance use, aggressive behavior) and incorporate HIV education. HIV counselling and testing should be combined with other approaches, such as case management, behavior change programs and working with families. The analysis of 116 queues filled by participants of an HIV prevention program showed the increase in HIV- and health-related knowledge by 32.2%. Implementation of complementary program for parents reduces risks by influencing the social environment of a person. Finally, case management approach improves the quality of services and reduces recidivism risks.

Conclusions/Next steps: The introduction of HIV and recidivism prevention activities in probation services showed positive results in reducing risky behaviors among adolescents serving their sentences in the community. It is an effective strategy for HIV prevention using a comprehensive approach to address health risks and recidivism. We are adapting this model to reach soon-to-be-released female prisoners.

WEPED540
Call to action: Why a disability sensitive SRH policy is needed in Lagos State

Q. Akanji1, A. Adebayo2, E. Okotie3, F. Fijabi4, D. Ayinla5
1Journalists Against AIDS (JAAIDS) Nigeria and Nigeria Association of the Blind (NAB) 2Journalists Against AIDS (JAAIDS), Lagos, Nigeria, 3Nigeria Association of the Blind (NAB), Lagos, Nigeria

Background: Lagos State is arguably the most populated state in Nigeria with an estimated population of nearly twenty million. About three million of the populations in Lagos State are persons with disabilities (PWDs), who are mostly neglected, excluded and unable to access basic services including health. Research has shown that the marginalization and exclusion of PWDs from basic health services results from these broad factors namely low awareness, poor capacity and the inadequacy or absence of appropriate legal and policy frameworks.

Description: Journalists Against AIDS (JAAIDS) Nigeria in collaboration with the Nigeria Association of the Blind (NAB) with support from the AMPLIFY CHANGE is working on a project titled Voices for Change: Promoting increased uptake of SRH services among People with Disabilities (PWDs) in Lagos State. The project, involves a research to assess current legal provisions and practices in order to build an evidence base and includes media monitoring, focused group discussions with PWDs, key informant interviews (KII) with health care workers and a desk review of HIV/SRH policies.

Lessons learned: Outcomes of the research revealed that Lagos state currently has no specific policy on sexual and reproductive health; although, the state implements a number of SRH programmes none of which are disability-inclusive. While existing health sector legal and policy frameworks in the state make barely minimal provisions which provide access of PWDs to health services, there are significant limitations in these health laws and policies which largely inhibit the uptake of HIV/SRH and other health services by PWDs. There is also limited knowledge on the part of the PWDs about HIV/SRH issues and a dearth of information, education and communication (IEC) materials in accessible formats. Limiting societal and behavioural attitudes also impact on the SRH rights of PWDs.

Conclusions/Next steps: Beyond facilitating PWDs participation in the state health budget consultations, efforts are ongoing under the project to strengthen collaboration between the State Ministry of Health, PWDs Organisations and Civil Society Organisations in order to intensify awareness raising, capacity building of PWDs and promotion of disability sensitive policies that will promote and protect the SRH rights of PWDs.
**WEPED541**

**Multidisciplinary approach to TB Control in Uzbekistan**

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1Republican Specialized Scientific - Practical Medical Center of Tuberculosis and Pulmonology, Tashkent, Uzbekistan. 2USAID TB Control Program in Central Asia, Tashkent, Uzbekistan.

**Background:** Uzbekistan is among 18 TB high-priority countries in the Eurasian Region and one of the 30 high MDR-TB burden countries in the world. Labor migrants, people living with HIV, and ex-prisoners are the most affected populations with TB. The USAID TB Control Program together with the National TB Program (NTP) has been pioneering a multidisciplinary approach to ensure their equitable access to TB services.

To reach these key populations, the Program helped the NTP to establish four multidisciplinary teams (MDT) in pilot areas. The MDT includes coordinator, TB doctor, Infection Disease specialist, psychologist, nurse, and five outreach workers. The MDTs link TB health providers and local communities to provide the program clients with TB diagnosis, treatment, and psychosocial support.

**Description:** Clients who are supposed to undergo TB screening are referred for further examination and diagnosis. The clients diagnosed with TB are enrolled in TB case management and receive peer-to-peer and psychosocial support until they complete TB treatment. The Program introduced the MDT and outreach in TB care in 2015. Each adult, belonging to the key populations who have not received proper TB services, can become an MDT client. The monitor client responses to referrals, prevent double counting, and prevent disclosure of personal information.

The Program uses unique identifier codes. On average, outreach worker communicates monthly with 35-40 clients including TB/HIV educational sessions, personal risk assessments, and referrals to TB testing.

**Lessons learned:** Within the period of June 2015 to March 2017, the MDTs have reached out to 21,400 individuals with more than 45,000 peer educational mini-sessions related to TB and HIV. About 14,500 individuals were referred to TB services, and 87% (12,500) of the referred clients were tested for TB. 110 TB cases were detected. 105 started TB treatment.

**Conclusions/Next steps:** The MDT approach along with peer-to-peer outreach is an effective way to deliver TB healthcare services among vulnerable populations that helps to increase TB detection and improve TB treatment adherence in Uzbekistan.

Using MDT improves awareness of TB and HIV. Coverage of the target population, referral to TB services, and supports patient treatment adherence through the TB case management program.

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**WEPED542**

**Understanding perceived internalized stigma among pregnant HIV positive women in rural Mpumalanga province, South Africa**

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**Background:** Given the varied and profound ways in which HIV-related stigma, particularly internalized stigma, affects the lives of PLHIV and their ability to access and maintain HIV-related care, it becomes imperative to understand how that affects pregnant HIV positive women as they navigate through the added layers of negotiating their socially constructed roles of womanhood and motherhood. The goal of this study was to assess the correlates of HIV-related internalized stigma among HIV positive pregnant women in rural Mpumalanga province, South Africa.

**Methods:** A total of 673 HIV positive pregnant women, less than 6-months pregnant were recruited from 12 community health centres in rural Mpumalanga province. The Berger et al. (2001) 40 item internalised stigma scale (κ = 0.96) was utilized along with demographic, and HIV related variables. Factor analysis was performed using SPSS 24.0 to produce four factors, namely personalised stigma (17 items), concerns with public attitudes about people with HIV (7 items), disclosure concerns (6 items), and negative self-image (10 items). Cronbach’s Alpha for each of the four subscales was between 0.79 to 0.94. Bivariate and multivariate analysis was carried out to predict associations that would lead to the likelihood of participants experiencing internalised stigma.

**Results:** The mean age of the 673 HIV positive pregnant participants was 28 years old (SD=5.73). The multivariate model on personalized stigma found associations with not completing schooling i.e. Grade 11 or less, income of less than R310, those who experience IPV, and those that have no male involvement in their current pregnancy. With the components of public attitude and disclosure concerns stigma, significance was found with those who receive a monthly household income of less than R310 and those that have no male involvement. Those who have no male involvement were more likely to experience negative self-image.

**Conclusions:** This study revealed the ways in which higher levels of education, income and partner involvement (outside of the context of IPV) serve as protective factors against internalized stigma, at multiple layers.

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**WEPED543**

**Sexual health, condom-use agency and substance-use behavior among 1222 sexually active unmarried women in Lebanon**

S. Abou Zale1, J. Naous1, A. Ghaniem2, D. Abou Abbass2, N. Kinge2, R. Aaraj2, R. Majed2, S. Mandour2, A. Assi2, N. Parpieva1, S. Tashkhodjaeva2, E. Mun2, E. Suleymanova2

1Marsa Sexual Health Center, Beirut, Lebanon. 2Faculty of Medicine, University of Saint-Joseph, Beirut, Lebanon.

**Background:** Women residing in Lebanon, who are unmarried, are reluctant to seek sexual health services for fear of being stigmatized (Jimenez 2013). It was shown that stigma increases women’s vulnerability to sexually transmitted infections (STIs), risky sexual practices and substance-use (Poteat 2015). There are no studies on rates of STIs and common sexual practices among unmarried women in Lebanon and MENA region. The aim was to assess rates of STIs and risky behaviors including substance-use among women in Lebanon.

**Methods:** An anonymous questionnaire was administered by trained sexual health educators to 1222 sexually active unmarried women who presented consecutively to a sexual health clinic in Lebanon between 2015 and 2017. Collected sexual health indicators were: demographics, substance-use, sexual practices and risky exposures. STI status was collected through rapid testing and/or medical consultation. Determinants of condom-use and substance-use behaviors were assessed using regression models.

**Results:** Majority of the sample (95%) were women having sex with men. There were no cases of HIV, Syphilis, HBV or HCV. Symptoms indicative of HPV were in 15.6% and of Gonorrhea/Chlamydia in 10%. The majority (79%) reported inconsistent condom-use for various reasons among them: 26% were attributed to lack of agency (she was coerced, nervous or uninformed), and 11% were due to being under the influence of a substance. Only 24% reported receiving sexual health information from reliable sources and 43% reported using recreational drugs (fig.1).

![Figure 1. Substance use behavior of 1222 woman in Lebanon: cigarette/ water pipe smoking, alcohol consumption, recreational drug use and the reported drugs used]
Condom use at first sex protects young women in South Africa from HIV and teenage pregnancy

M. Rampedi1, S. Magni1, S. Johnson1, S. Goldstein1, V. Nikumanda1, A. Ismail2
1Genesis Analytics, Health, Johannesburg, South Africa. 2Soul City Institute for Justice, Johannesburg, South Africa

Background: Young women in South Africa have consistently high rates of HIV and teenage pregnancy. Understanding what influences this is essential in designing programmes to address this problem. We used data from an existing impact evaluation to explore this.

Methods: 403 women aged 18-26 from Gauteng and KwaZulu-Natal were sampled as a part of a retrospective cohort study which included HIV testing. We measured pregnancy based on women’s self-reported pregnancy status. This included women who have been pregnant in their lifetime and those who have experienced teenage pregnancy.

Results: 79% (n=320) of young women had ever had sex. Of these, 16% (n=3) were HIV positive and 42% (n=134) reported having been pregnant. Young women who used a condom at first sex were significantly more likely to be HIV negative (AOR 2.50, 95% CI 1.15 – 5.42, p < 0.02). Young women who used a condom the first time they had sex were also less likely to have ever been pregnant (AOR 0.47, 95% CI 0.27 – 0.80, p <0.05) and less likely to have had a teenage pregnancy (AOR 0.34, 95% CI 0.14 – 0.82, p <0.016).

Conclusions: In this study condom use at first sex seems to protect young women against both HIV infection and early pregnancy. Health programmes need to improve self-efficacy for condom use and assist young women to have the confidence and ability to use condoms. Programmes need to reinforce messaging around condom use at first sex and emphasise the need for consistent condom use in order to reduce HIV and teenage pregnancy in South Africa.

Factors associated with perceived access and utilization of HIV testing services among international students studying in Japanese language schools in Tokyo

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Background: Migrants receive the least healthcare services in society. Japan hosts around 260,000 international students, mostly from Asian developing countries. Among them, language school students have tripled from 2011 to 2017, against the backdrop of labor force shortage in Japan. Most of these students are also engaged as cheap labors and are at high risk population with poor access to health services. Several socio-economic and behavioral factors may increase their vulnerability to HIV and also prevent them to access HIV testing services in Japan. However, evidence is scarce in Japan on these issues. We examined the factors associated with perceived access and utilization of HIV testing services among international students in language schools in Tokyo.

Methods: From September to December 2018, we conducted a cross-sectional survey among international students studying in Japanese language schools in Tokyo. We collected data from 769 Chinese, Vietnamese and Nepalese students using self-administered questionnaire. We used multivariable logistic regression models to analyze the data.

Results: Nepalese students were less likely to have better perceived access to HIV testing services in Japan than Chinese students (AOR=0.12, 95% CI 0.01-0.96). Students who had poor perceived access to health worker (AOR=0.47, 95% CI 0.28-0.81) and who did not have knowledge on free and anonymous HIV testing services (AOR=0.18, 95% CI 0.08-0.42) were less likely to have better perceived access to HIV testing services. Students who did not need Japanese language interpreter during visit to health facility were more likely to have better perceived access to HIV testing services (AOR=1.93, 95% CI 1.14-3.26). Students who had not utilized HIV testing services in their home country (AOR=0.09, 95% CI 0.03-0.28) and who did not have knowledge on free and anonymous HIV testing services (AOR=0.06, 95% CI 0.02-0.20) were less likely to utilize HIV testing services in Japan.

Conclusions: Factors associated with perceived access and utilization of HIV testing services among language school students in Tokyo are nationality, need of Japanese language interpreter, perceived access to health worker, and knowledge on free and anonymous HIV testing services. These findings may help to design interventions for improving access to HIV testing services among international students in Japan.

An integrated approach of addressing GBV and HIV for AGYW’s. The case of DREAMS project in Malawi

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Background: Half of the 100,000 new HIV infections in Malawi occur among young people (15-24 years).

1Early sexual debut coupled with socio-cultural practices involving unprotected sex increase young girls vulnerability to sexually transmitted infections. In Malawi, 65% of girls experience some form of child abuse during their lifetime.

2Despite strong evidence highlighting the risks gender based violence (GBV) poses for HIV, specifically for girls, most programs continue to address the two epidemics separately.

1Malawi - 2013 UNAIDS modes of HIV Transmission model

2Malawi - 2013 Violence against Children and Young Women Ministry of Gender and Children Welfare.

Description: Through the DREAMS initiative, PSI Malawi offer integrated health services including GBV to Adolescent Girls and Young Women (AGYW) in Machinga district. Health services on offer to AGYW’s through mobile outreach clinics are STI screening, HIV testing and first-line support to survivors of GBV. Program data was used to understand the effectiveness of integrating GBV and HIV service for AGYW.

Lessons learned: Program data show steady increase in number of GBV cases reported and biomedical services given to survivors of GBV: 90% of the 83 GBV survivors mentioned their sexual partners as perpetrators of the violence. Although most AGYW’s experienced different forms of violence, most (82%) only disclosed physical violence. Out of the 81 AGYW survivors of GBV, 4 HIV+ cases were identified with most (3 HIV+) among survivors of physical violence compared to survivors of sexual violence (1 HIV+ case). This highlights the need for an integrated effort in addressing all forms of GBV and HIV.

Conclusions/Next steps: An integrated approach of addressing GBV and HIV for AGYW’s is a potentially powerful strategy to address the two epidemics considering the risks GBV poses for HIV.
WEPE6547
Community-based strategies to ward off new HIV infections among sex workers, substance users, women, and transgender people who live in homeless encampments in the Oakland, San Francisco Bay Area

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Background: The growing number of homeless encampments in the Oakland, San Francisco Bay Area, with people living in tents under free-ways and bridges, has required California Prostitute Education Project (CAL-PEP) and Women Organized to Respond to Life-Threatening Diseases (WORLD) to develop new, creative outreach and linkage strategies within their existing programs. From 2015 to 2017, the homeless population in Oakland increased by 26%. Members of key HIV populations experience homelessness at higher rates than the general population. This growing public health crisis is a concern for local AIDS service organizations (ASOs) and their partners committed to helping vulnerable populations most impacted by the epidemic.

Description: CAL-PEP and WORLD are partnering to address the explosion of homelessness among women - inclusive of transwomen - sex workers and drug users at increased risk of HIV infection. Outreach is adapted to take into account the lack of privacy, safety, hygiene products and facilities, as well as water and nutrition affecting homeless populations. Outreach staff consists of peer individuals "buddies" from the same community as the target groups and with similar firsthand experience. Staff distributes prepared meals and hygiene kits along with condoms and harm reduction materials from mobile testing units provided by corporate sponsors. Collaboration with safety net providers, local government, healthcare providers and research institutions supports this expanded work.

Lessons learned: Non-traditional, cross sector collaborations are necessary to address the complex, intersecting needs of homeless communities and communities highly impacted by HIV/AIDS. Passive recruitment of people into services is no longer adequate. The complex social circumstances associated with being homeless and being at risk for HIV infection require outreach wherever people are at anytime. Hiring and training people with similar life experience (e.g., peers/buddies) to work alongside service providers is particularly relevant when serving homeless populations.

Conclusions: The homeless community is a potential emerging key population for the HIV epidemic. The current, ongoing work of CAL-PEP and WORLD recognizes the importance of addressing this situation head on to ensure that HIV does not become more prevalent in our fluid homeless encampments.

WEPE6548
Sexual network-structure and vulnerability of HIV: Observation from Indian village

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Background: This study is trying to explore dynamics, social context and pattern of sexual network between migrant, wives of migrant and adolescent boys (15-29) from the same villages and their use of contraceptives and knowledge of HIV and S/RTI.

Methods: 896 women with migrant husbands, 881 adolescent boys (15 to 19 years old) were surveyed followed by in depth interview of 40 migrant husbands from 12 high migration blocks of 4 districts of two states of India. Multi-stage stratified random sampling was used. Migrant men were purposively selected for this study from the same villages and invited to participate in in-depth Interview. For further and in-depth understanding of the field, particularly to understand local custom, culture, jargons and terminology we had repeated discussion with community workers from same field. Cross sectional mixed methodology was adopted to triangulate information.

Results: More than 70% women of total sample reported that they suspected their husbands extra-marital relationship. Even after underreporting, around 10% women reported physical relationship outside marriage, often with the younger guys in the neighbours. Out of 896, 103 used condoms, only 88 reported that they ever had used condoms with their husbands. 66% women of all respondents reported symptoms of RTI or STI, 1.4% knew about two ways of preventing HIV transmission. Significant number of women reported that their husbands have symptoms of S/RTI. Less than 1% knew about HIV. Almost all migrant men reported symptoms of S/RTI 12 out of 40 reported extra-marital relation with low to no condom use with 50% of adolescent reported physical relation with their partners and significant number reported relation with married women, both of adolescent and migrant men's group reported low condom use and low level of HIV related knowledge.

Conclusions: The study findings indicate that three groups are connect-ed to each other through sexual network. Study findings reveal low level of condom use in concurrent and serial monogamous relation coupled with low level of knowledge regarding HIV. RTI/STI are increasing vulnerability to the whole sexual network and which is reflecting in increasing number in ANC clinic.

WEPE6549
Nepalese returnee migrants from India: Are they at risk of HIV?

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Background: Nepal is one of the major source countries of migrant laborers in Asia and abroad. Migrants may serve as a “bridge” population transmitting HIV/STDs from high-risk groups to the general population. The objective of this paper is to assess the sexual risk behaviors related to HIV among the returnee migrants from India.

Methods: The data from this study was drawn from cross sectional study entitled ‘Integrated Biological and Behavioral Surveillance (IBBS)’ Survey among Male Labor Migrants in Western and Mid to Far Western Region of Nepal. A total of 720 MLMs were selected for the interview and testing of blood samples. Bivariate and Multivariate analysis were performed. Results: Almost a third of the sampled returnee migrants (32%) were involved in sexual risk behavior. Multivariate analysis showed that age group, level of education, caste, marital status, place of residence (region), alcohol consumption and participation in HIV and AIDS awareness program in community were significant predictors for sexual risk behaviour. Iliterate migrant were more than two times (aOR=2.35) more likely to involve in risk sexual behaviour than who had grade 10 or more. Similarly, migrants who consumed alcohol every day, at least once a week and less than once a week were 5 times, 2.9 times and 2.7 times more likely to involve in high sexual risk than those who never consumed alcohol. Migrant who every involved in HIV/AIDS awareness program in community were less likely to involve in high sexual risk behaviour (aOR=6.8) than those who never participated in HIV/AIDS awareness program in community.

Conclusions: The findings show that returnee migrations are exposed to health hazards through their sexual behavior. This problem should be addressed early by targeting these groups of high-risk students.
WEPED550
“Prepara, Nem”: An innovative strategy to empower, promote education and human rights among LGBTQI communities living in Rio de Janeiro, Brazil
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Background: Brazil has the unfortunate reputation of being one of the deadliest places in the world in terms of recorded anti-LGBTQI violence. About one LGBTQI Brazilian is killed in a hate-motivated crime each day, but the police are often reluctant to register anti-LGBTQI crimes as hate attacks. The extreme social exclusion faced by Brazilian LGBTQI translates into increased vulnerability to HIV, other diseases, including mental health conditions, limited access to education and employment, and loss of opportunities for economic/social advancement.

Description: Our group implemented a project called “Prepara, Nem”, in English something like “Get ready, baby” - a free college prep course that happened twice a week at a leading Public Health School in Brazil (ENSP/FIOCRUZ) in close partnership with Rio de Janeiro Federal University (UFRJ). Students received personalized study plans, top-quality supplementary materials, transportation, and food support. The intervention was implemented during 1 year and improved LGBTQI access to formal education and to HIV-related interventions available at ENSP/FIOCRUZ, free HIV testing. Prep, PEP and HIV-treatment. (https://www.youtube.com/watch?v=MPQ31wesgUM)

Lessons learned: The engagement of activists, researchers, educators and the LGBTQI community at large improved the intervention outcomes and impact. The non-judgmental, cultural sensitive and engaging environment promoted students engagement. Nowadays “Prepara, Nem” is being offered inside a large slum complex from Rio de Janeiro (Complexo da Maré): within a close partnership between educators, UFRJ and a local NGO (Conexão G). The strong college-prep curriculum allowed many students to meet the requirements for entry into colleges and universities, become tutors and peer educators.

Conclusions/Next steps: This work directly relates to advancing the rights of disenfranchised LGBTQI people living in Rio de Janeiro slums. Thought a close partnership between the LGBTQI community, researchers and educators we were able to improve access to education, HIV-prevention and treatment services. Our intervention will be replicated in other slums from Rio de Janeiro, aiming at promoting human rights, gender equality, strengthen social/economic development, put a stop to unhampered violence and properly respond to high HIV vulnerability among LGBTQI living in Rio de Janeiro slums.

WEPED551
Between the Rock and a hardplace: Comprehensive sexuality education vs cultural religious norms in rural Zimbabwe a case study of young women in Masvingo youth friendly corners
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Background: The study explores the impact of the reception of HIV and and AIDS communication on self efficacy among young women in Masvingo Province youth friendly corners. The study arises from the realisation that female reproductive health remains low, particularly in marginalised communities as mass media seem not to prioritise reproductive health communication. Various organisations including NGOs have created alternative communication on HIV and AIDS which do not take into cognisance the cultural and religious norms of the recipients. However engaging traditional leaders improved support for HIV communication that was perceived to be at odds with socio cultural norms.

Description: In this qualitative research. Data was collected through archival research complemented by semi structured interviews of key informants focus group discussions with young women to establish their reception patterns, the impact of HIV communication on their self efficacy as well as the role of traditional leader in the intervention.

Lessons learned: The study revealed that comprehensive sexuality education exposed the young females to HIV and AIDS messages which contradicted with their cultural and religious norms on appropriate social and sexual behaviours. Social factors associated with stigma and culture disempower young females from undertaking SRH promotion activities tailored for unmarried adolescents. Therefore unsafe sexual practices among young females in Masvingo rural Youth friendly corners are sustained not only by lack of access to SRH services but also the social structures of norms that support such practices.

Conclusions/Next steps: SRH communication alone thus had no capacity to improve self efficacy among young females in societies where ambiguous social norms were central to adolescent sexual behaviors.

Sexualities and sexual cultures: meanings, identities, norms, and communities

WEPED552
Gangsterism on the Cape Flats: Gangster masculinity and HIV risk for young men in a Coloured township in Cape Town, South Africa
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Background: The communalized of the Cape Flats of Cape Town are recognized for their high incidences of gang violence, drug abuse, and exceptionally high rates of HIV and TB. Most studies concerning community dynamics and their relation to HIV prevention and/or ARV adherence however, tend to concentrate on interpersonal relationships, economic factors, and populations such a women and girls. This study focused on a critical population: men, and their relationship with gangsterism, a dynamic force operating throughout most of the townships in the Cape Flats. This study examined masculinities existing in relation to gangsterism and their relationship with HIV risk and ARV adherence in a Coloured township of the Cape Flats.

Methods: This qualitative study consisted of a nine month long participant observation along with semi-structured interviews among residents of a Coloured township in Cape Town, South Africa. Interview included four focus group discussions and forty four in-depth interviews along a target group of 18-30 year olds and staff at the local community health clinic and hospital, respectively.

Results: Part of upholding a gangster masculinity included in partaking in gang activity, consuming illicit drugs, engaging in risky sex, and experiencing constrained social and physical environments due to entrenched gang territories. Visibly marked gang territories prohibited both gangsters and non-gangster residents of the township from accessing their local clinic and hospital which translates into reduced visits for HIV testing and pickup of ARV medication.

Conclusions: Gangsterism organizes a sizable area of The Cape Flats and influences mens’ behaviors in two chief ways: encouraging risky behavior that renders them vulnerable to HIV infection as well as hindering their access to HIV testing and treatment. The results demonstrate a greater need for interventions that respond to the reality of the gang dominated areas of The Cape Flats principally those that provide men improved access to testing and ARV medication.
**WEPED553**  
Socio-legal and the religious environment vs. the human rights approach and it’s implications of LGBTI activities in Ghana  
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**Background:** The Human Rights Approach to Law Enforcement and its pursuits promotes Freedom, dignity and worth of every individual especially marginalized groups. Evidence abounds to show that Rights based Approaches, protective and enabling legal environments reduce the vulnerability of LGBTI individuals to HIV infections. This is because these groups are often marginalized and stigmatized coupled with harmful legal environments and practices not founded on Human Rights exclude or punish those that are marginalized. They also perpetuate stigma and discrimination by dehumanizing and criminalizing those who are vulnerable and they place a disproportionate burden on those affected by HIV.  

**Description:** To promote rights-based policing approaches towards KPs The Ghana Police AIDS Control Program with support from the Ghana AIDS Commission/CEPERGCH implemented orientation sessions in 6 out of 10 Regions in Ghana for members of the LGBTI Community. The program targeted 180 community members who were decision makers in their respective NGOs. Qualitative methods were employed through the holding of FGDs for 6 gay groups, 6 Lesbian Groups and 6 bisexual groups.  

a) Solicit information on challenges faced by community members from:  
- their peers  
- general society  
- law enforcement officials  

b) How these challenges could be addressed or minimized.  

**Lessons learned:** There were similar levels of threats and challenges across the sites.  

- From Community members  
  - Neglect and torture  
  - Blasphemy and extortion  
  - Name-calling  
  - Stigmatization especially if one partner contracts STI  

- From Society  
  - We are considered as demon-possessed  
  - Parental neglect and denial of job opportunities including family support  
  - Misconceptions from religious groups  

- From Law Enforcement  
  - Police often side with and defend perpetrators of crime because of our presumed sexuality  
  - Police more often than not focus on our sexual orientation instead of the law and this leads to unlawful detentions  
  - Unsupportive and unwillingness to prosecute those who violate the rights of LGBTI.  

**Conclusions/Next steps:** Acceptance of misconduct is a major breakthrough to reform. This program has the support of the Police hierarchy and seeks to punish subsequent perpetrators of abuse of KPs. Consensus building among the police and efficient use of available resources will help sustain the program.

**WEPED554**  
Health risks of lesbian, bisexual, queer and transgender women in Kazakhstan  
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**Background:** The needs assessment research on the situation of lesbian, bisexual, queer and transgender women in Kazakhstan was initiated by Kazakhstan Feminist Initiative ‘Feminita’. It is the first research of its kind that reaches out to cities and towns other than Astana and Almaty, which majority of researches focus on. It is also so far the first and only research in Central Asia focusing on LBQT women.  

**Methods:** A mix of qualitative and quantitative methods was used for the purposes of the research: All respondents filled out a 92-question multiple choice survey, participation in the deep semi-structured interviews was offered to all participants on voluntary basis (44 agreed). The survey topics covered demographics, economic and social status, general health, sexual health, mental health, access to healthcare, sexuality, civic and political attitudes, human rights and discrimination. The interview topics focused on significant moments of their lives, self-awareness, self-identification relationships, violations of human rights.

Data from 228 respondents from 16 cities - Aktau, Atyrau, Taraz, Temirtau, Kostanay, Kokshetau, Kyzylorda, Petropavlovsk, Almaty, Aktoke, Astana, Karaganda, Semey, Shymkent, Uralsk, Ust-Kamenogorsk - was analysed. These cities cover a wide geographical range of the country with its north, south, west and east.

**Results:** Only 6% from 228 respondents of the research know about HIV/AIDS as a potential health risk for LBQT women. 71% did not answer the question: ‘What do you know about potential health risks for LBQT women?’ Both of these percentages indicate an alarming rate of illiteracy regarding sexual health risks for lesbian, bisexual, trans and queer women. Considering at least 24% of them are or have been in heterosexual marriages or have had or were forced to have heterosexual contacts, the rate of illiteracy is dangerously high.

**Conclusions:** Research suggests that the needs of LBQT women are not catered for in traditional health education messages; for example, perception of risk of cervical cancer may be different in heterosexual women. They are excluded from health education materials in sexual health where the emphasis is on heterosexual sexual relationships. Health risks of lesbian, bisexual, queer women in Kazakhstan are a huge lacuna in general public health.

**WEPED555**  
Resilience, heritage and vulnerability: Qualitative assessment on violence and HIV among indigenous women and girls in the Amazon region  
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**Background:** The study aimed to provide an overview of the situation of violence and HIV among indigenous women in the Amazonian region of Alto Solimões - border with Brazil, Peru and Colombia, in order to influence policies and implementation of programmes. The study identified:  

(i) the needs of indigenous women and girls for HIV and violence-related interventions;  
(ii) the gap of services with a holistic approach to HIV and violence;  
(iii) community-based organizations in the area.  

**Methods:** The study focused on the indigenous areas of Umariaçu I (population: 2374 in 2016), Umariaçu II (population: 5389 in 2016) Belém do Solimões and Belém do Solimões (population: 29868 in 2016).  

- A desk review of the demographic, epidemiological, historical and ethnographic data was performed;  
- Field interviews of public officials and non-governmental organizations;  
- Interviews with indigenous women and men, previously identified by community leaders; UNAIDS counted with the support of Portuguese-Tikuna translators for the exercise;  
- Systematization and analysis of qualitative data.  

**Results:** The cross-border setting brings several concerns:  

- Difficult access to public services;  
- Trafficking of illicit drugs;  
- Exchange of sex for alcohol and/or drugs;  
- Various forms of violence.  

- Violence impacting disproportionately the young indigenous populations.  

**Gender-based violence identified:**  
(i) Physical;  
(ii) Psychological;  
(iii) Sexual;  
(iv) Patriological and  
(v) Domestic. Violence was identified, especially by the elderly, as a consequence of non-respect of traditions, as well as abuse of drugs and alcohol.
Due to fear, the interviewees declared to witness daily violence against women, but did not declare themselves as victims. Episodes of intra-community violence appear as an embarrassment factor for families.

**Conclusions:** Violence is closely associated with the abuse of drugs/alcohol. Indigenous women who are victims of violence feel shame and fear, which limits their possibilities to cope with these situations. The study made a set of recommendations to tackle this.

Although the indigenous living with HIV represent only 0.5% of all people living with HIV in the country, the impact for the individual is important. Sanctions from the community to people who acquire HIV can vary from domestic reprimand to public beating, resulting in ostracism or even suicide.

**Adolescents, sexuality, and relationships**

**WEPED56**

*Young hearts - I just want to love: The success story behind the Emmy-nominated web series and the use of edutainment to talk about HIV to very young audiences in Brazil*

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**Background:** Since 2015, UNAIDS has been Globo TV’s main partner on HIV- and discrimination-related issues. The office has supported fine-tune language and contributed with ideas for storylines, scenes, and characters. The strategy:

(i) To partner with the team of writers of Globo’s longest running telenovela ‘Malhação’, with a 20-million viewers daily audience;
(ii) To introduce in the plot an HIV-positive character for five months to help break down stigma and misinformation;

(ii) To build on this experience and create the internet complement ‘Young Hearts’ go more in-depth about issues related to serodiscordant couples, based on the love story of Henrique and Camila, mixed with real-life stories.

**Description:** Mixing fiction and documentary, the five-episode series tells the stories of young serodiscordant couples, encouraging debate about sexuality and relationships involving people living with HIV. In the spin-off production, Henrique and Camila are invited to be part of a web documentary, alongside four real serodiscordant couples, talking about the impact of HIV in their daily lives.

**Lessons learned:** The partnership led us to realize the need to speak about sex, sexuality, and HIV to this young audience. Considering the limitations imposed in Brazil to broadcast TV in afternoon slots, a digital series for Globo’s streaming platforms was chosen as the best fit for purpose. The production soon became a hit: from April-June 2016, it was the third most-watched original series on the platform: almost 1 million views. On 16 October 2017, it was nominated for the Emmy Kids 2017 in the digital category, alongside productions from Norway and Japan.

**Conclusions/Next steps:** (i) UNAIDS supported Globo to get HIV back on the agenda for young people in Brazil, where AIDS detection rates have more than tripled in the past decade among young men aged 15-19 years, and almost doubled among those aged 20-24 years.

(ii) Initiatives in partnership with mass media can positively contribute to breaking HIV-related barriers and change behavior of millions of people at very low cost.

(iii) Edutainment designs characters and storylines to provide viewers with positive role models to relate to, often at a personal and emotional level.
WEPED557
Who are the male partners of adolescent girls and young women in DREAMS sites in Malawi, and how can they be more engaged in HIV services?

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Background: A successful HIV/AIDS response in sub-Saharan Africa requires identifying and engaging the male partners of adolescent girls and young women (AGYW) in HIV testing, care and treatment services. AGYW vulnerability to HIV is in large part related to male partners. Yet, men generally are reluctant to access HIV services. We sought to 1) identify and locate the male partners of AGYW in Malawi; 2) understand the challenges to and facilitators of them accessing HIV services; and 3) identify strategies to engage them in HIV services.

Methods: We conducted four community mapping exercises with AGYW and community opinion leaders to identify locations within Zomba and Machinga districts—two DREAMS intervention sites—where AGYW meet male sexual partners. The participants identified the types of men who had sexual relationships with AGYW and where they could be found. Afterward, the study team visited the identified venues (e.g., football grounds, markets) and invited men, aged 18 and older, to participate in focus group discussions (FGDs). Men were eligible if they were in a relationship with a woman aged 15-24. Thematic content analysis was conducted.

Results: The profile of men recruited in the FGDs matched those identified during the mapping experience, representing a range of ages and occupations. A total of 157 men, with mean age of 27.5 (range 18-55), participated in 16 FGDs. The male partners of AGYW were teachers (15%), transporters (e.g., bus driver) (11%), businessmen (11%), and football players (11%). Representing less than 10% each were students, vendors, farmers, health workers, fishermen, and estate workers. Barriers to HIV service use included fear of testing positive, stigma, long waiting times that disrupted income generation, and lack of privacy and confidentiality. Peer and partner influence facilitated HIV service use.

Strategies to engage men proposed by FGD participants included offering male-only services, incorporating features from traditional circumcission initiation camps into circumcision services, providing community-based services, and leveraging media and technology for HIV prevention services.

Conclusions: The male partners of AGYW in Malawi are diverse. Given their gender-specific needs and preferences, they should be engaged in the development of HIV services and reached through venues where they meet AGYW.

WEPED558
Feasibility of accessing sexual partners of young women at high risk of acquiring HIV in rural KZN

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Background: Accessing sexual partners of young women at high risk of acquiring HIV remains a challenge. Respondent-driven sampling to access sexual networks provides an opportunity to locate male sexual partners, understand overlaps between sexual networks and obtain a more nuanced understanding of partner characteristics and behaviours.

Methods: This study took place in 2 phases between October 2016 and January 2018 in Vulindlela, a rural sub-district located 150km west of Durban, South Africa. Phase 1 identified and interviewed 11 female index cases aged 18-24 years old. 6 sexually active with no negative sexual health outcomes (SARS) and 5 who had experienced at least one negative SRH outcome (SARU). Index cases were asked to identify their male sexual partner(s) and a sexually active girl friend who were followed up for an interview. In Phase 2, we identified 5 SARU and 3 SARS index cases and only interviewed partners. We also assessed the feasibility of accessing partners of identified partners. Basic descriptive statistics were used to summarise key quantitative data, and thematic analysis was used to analyse interview transcripts.

Results: We were able to conduct interviews with 84.2% of the partners identified by the 19 index cases (Phase 1 and 2) and 72% of the friends in Phase 1. Age range of SARS cases was 18-24 years, and their partners 18-46 years. Age range of SARU cases was 19-24 years, and their partners 18-28 years. 44.4% of SARS and 27.3% of SARU cases reported more than one current partner. 40% of partners in both groups reported having other current partners. There were many discrepancies between what women and men believed about their partners sexual behaviours, and what partners reported including being the only current partner, being the main partner, HIV status belief discrepancies and age of partner.

Conclusions: Our findings highlight many discrepancies between believed and actual sexual behaviours within these sexual networks. Sexual networks of young women were high-risk and underscore the importance of expanding the study to advance our understanding of young women’s sexual networks.
WEPED560
Capitalizing on aspirations of adolescent girls to reduce their sexual health risks: Implications for girls’ HIV prevention in Tanzania

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Background: Young people have aspirations and will use whatever means to achieve them. Little has been done to understand how young people’s aspirations are key in determining the sexual decision-making. This paper set out to explore aspirations of young people and the strategies they used to meet them and how that enhanced or reduced their risk for HIV.

Methods: This study employed ethnographic research design involving 18 participatory focus group discussions and 43 in-depth interviews with girls and boys in-and-out-of-school, adult men and women within the study sites. Fieldwork was undertaken in rural and urban Tanzania in 2016. Participants were sampled purposively and by snowball sampling techniques. Thematic analysis was conducted with the aid of NVIVO 10 software.

Results: Girls mentioned their aspirations as: getting education; having a job; having nice clothes; an attractive body; a good life; good behaviour that is praised by everyone; having someone to take care of their needs; getting married and having children. Men were aware of the aspirations and desires of adolescent girls and mentioned these as: status among peers; trendy things such as smartphones, clothes; marriage; Young men mentioned that a popular girl was one who had several pairs of clothes and was always in nice clothes; and a smart one at school. Young men talked about their aspirations as: performing well at school and having many friends and has behaviour that is acceptable among peers. Sex was one of the ways girls met their material and non-material aspirations. For example, sexual relationships with adults in power fulfilled their material and non-material aspirations.

Conclusions: The aspirations of young women were important in determining their sexual decision making and ultimately risk for HIV. There is need for interventions to capitalize on these aspirations by addressing them in interventions as they are critical for their sexual decision making, sustainable development and achievement of future goals.

WEPED561
Understanding the influence of a conditional cash transfer on sexual behavior among adolescent girls and young women in Northwestern Tanzania

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Background: Adolescent girls and young women (AGYW) aged 15-24 in Tanzania face increased vulnerability to HIV infection compared with their male peers. This is exacerbated by structural factors, including poverty and gender inequality, that shape HIV risk behaviors. Conditional cash transfers (CCT) may address AGYW’s economic vulnerability, in turn reducing HIV risk behaviors such as transactional sex. This study sought to understand how CCT to AGYW in Northwestern Tanzania may influence their sexual behavior, including partner choice and engagement with transactional sex.

Methods: We conducted in-depth interviews (n=20) with AGYW enrolled in a CCT project in Northwestern Tanzania. Interviews sought to understand their sexual partnerships, sexual decision-making, and the influence of the CCT, which was conditional on participation in an HIV prevention and economic strengthening program, on sexual behavior. In addition, we used Photovoice (n=19), a qualitative community-based participatory research methodology, to record AGYW’s strengths and concerns and promote critical dialogue through photography and focus group discussions with AGYW. We analyzed interview and Photovoice data to understand initial impacts of the CCT on sexual partnerships and behavior.

Results: Preliminary evidence shows that CCT influenced AGYW’s sexual behaviors and partner choice, particularly among unmarried women. AGYW reported reduced engagement in compensated sex and condomless sex, reduced numbers of sexual partners, and increased interest in men who provide emotional, rather than financial, support. Unmarried AGYW reported decreased engagement with partners overall. In addition, while married women relied on their husbands for advice regarding CCT use, unmarried women relied more on female family members for financial advice than their partners. AGYW saw CCT as a way to promote gender equality and reduce their reliance on men for support; partner and family expectations and support for AGYW may have influenced the extent to which these changes occurred.

Conclusions: This study showed that CCT for HIV prevention may play a role in AGYW’s sexual behavior by influencing their partner choice and motivations for engagement with sexual partners. The impact of CCT may vary based on AGYW’s age, relationship history, or family context; future implementation should take these factors into account when enrolling AGYW in CCT programs.

WEPED562
Effect of time change on adolescent and young people accessibility to youth friendly health services in Akure, Ondo State Nigeria

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Background: The Government of Ondo state have made significant effort in establishing youth friendly health care centres to increase young people’s access to health and social services. But it became very frustrating to see very few young people patronizing such centres due 8am-4pm working hours.Change in time to 4pm-8pm showed a significant difference in young people access to Adolescent and youth friendly health centre services.

Description: Young people 10-35years in Akure either attend school from 8am-4pm or go to centres where they learn skills from 8am-8pm. With this kind of schedule, it is very difficult for young people to leave
school or their skill centres to access the services provided by this adolescent and youth friendly health centres. In 2017, there was an extension in service time to 8pm, there was an increase from 2persons per day to 12persons per day of adolescent and young people accessing social and health services at this centre's from 4pm-8pm.

Lessons learned: It was observed that the additional 10 persons came between 4pm to 8pm. Most of the young people preferred the evening hours because it was very convenient and it allowed them to do their daily activities. Also it reduced stigmatization because absence at school or work leads to questions been raised

Conclusions/Next steps: Provision of Adolescent and youth friendly health centre isn’t enough. passionate Friendly health workers should be employed and Service time should be convenient for young people to come as well as the location should be strategic.

**WEPE654**

**What do adolescent girls and young women tell us about their male partners and their relationship characteristics?**

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Background: Adolescent girls and young women (AGYW) in Kenya are at high risk of HIV infection, in part because of their partner’s behaviors and characteristics. Yet, less is known about male partners of AGYW. This study examined characteristics of male partners of AGYW to inform targeted HIV prevention interventions.

Methods: Survey was conducted with AGYW, 15-24 years (N=1778) in urban and peri-urban locations in Kisumu, Kenya from October 2015-February 2017. Questionnaires assessed characteristics of recent male partners, their relationship characteristics and their partner’s HIV risk characteristics. Descriptive analysis was conducted to assess attributes of current male partners among adolescent girls (AG, 15-19-year olds) and young women (YW, 20-24-year olds).

Results: Respondents’ average age was 19 years and 98% were currently in school. Nearly half, 49% of all AGYW (54.16% AG and 44.76% YW) had a current sexual partner, and 67.2%, YW vs. 33.0%, AG were married. Mean age of AG’s partners was 22.0 ± 14 years and 27.0 ± 14.3 years for YW. 65.7% of YW’s partner lived within the community, versus 38.5% of AGs partners, p< 0.00. Over 22% of the male partners had high-risk jobs, e.g. trucker (22%, AG vs. 31%, YW). Over 70% of all AGYW were in relationships of 1-4 years in length. Reported condom use at last sex was 74.3% among AG vs. 48.7% among YW, p< 0.00. AGYW knew their partner’s HIV status (88.6%, AG vs. 88.3%, YW). 16.5% of AG vs. 14.7% of YW knew that their partner had other partners in the last year, and less than 1 in 5 AGYW perceived their partner at elevated risk for HIV. Recent experiences of physical (17%, AG vs. 30%, YW) and sexual violence (17%, AG and YW) from intimate partners were high.

Conclusions: Key differences emerged between AG and YW’s partner age, residence, condom use, and physical violence. Similarities emerged in partner occupation, duration of relationship, knowledge of partner’s HIV status and sexual concurrency. HIV risk and sexual violence. Programmers need to understand the differential patterns and experiences of AGYW within partnerships to design effective couple-level HIV prevention and risk mitigation among AGYW.

**WEPE656**

From peer education to full engagement: Promoting adolescents and youth friendly HIV services in Jiangsu Province

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Background: As of the end of 2017, there are cumulatively 4660 reported HIV cases aged 15-24 in Jiangsu, China. To encourage multi-sectoral participation in adolescent and youth HIV prevention, especially youth themselves, we started the Youth Engagement Prevention programme “YouAI” in 2015.

Description:

1. Management: Jiangsu CDC was the lead agency for this programme. UNICEF China was engaged to provide financial and technical support to “YouAI” and this abstract.

2. Design: A 2-level approach was used with youth engagement every step of the way: firstly, a provincial Youth Peer Educator contest mobilized a large number of youths to creative publicity and a supportive social environment for students to use services. Secondly, a youth-designed “Test and Assess” campaign was launched to empower young clients walk into healthy facilities as “secret clients”, ask for a test, and evaluate youth-friendliness.

3. Operation: More than 2000 youths participated in “YouAI”, 64% of them getting tested for HIV. 85% shared their experience with friends. Their experience and findings were shared with provincial CDC, leading
to measurable improvements in service quality and understanding of adolescent needs among providers. As a result, percentage of providers willing to provide test to adolescents increased from 60% to 89%, referral rate increased from 6% to 60% in 2017, compared with 2016. Lessons learned:
1. Traditional peer education model of information and knowledge sharing can contribute to improved youth access to quality HIV-STD services, if combined with youth-driven, creative models of service promotion and quality improvement. It also helps create awareness and support from multiple stakeholders including youth.
2. The "Test and Assess" campaign not only provided evidence for service quality improvement, but also adolescent and youth health seeking literacy and self-efficacy. Technology has great potential to quickly mobilize youth, collect, analyze and share data, and advocate with stakeholders for positive change, going beyond the traditional KAP model. Conclusions/Next steps: Adolescents and youth are at increased risk for HIV due to a number of factors in Jiangsu, China. Their participation in all stages of HIV prevention must be integrated into the overall HIV prevention plan to improve service access, uptake and quality for this age group.

WEPEP567
Successfully reaching young key populations with essential HIV prevention, care, and treatment services in Mali

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Background: There is scarce epidemiological and service uptake data on young key populations (YKP) in Mali. The USAID- and PEPFAR-supported LINKAGES project in Mali implemented a comprehensive package of HIV services for key populations, including YKP. This program analysis describes HIV outreach, care and treatment services for young female sex workers (FSW) and young men who have sex with men (MSM) in Mali.

Description: Program activities were conducted from July to December 2017 by local NGO, Soutoura, in four regions: Bamako, Kayes, Segou, and Sikasso. YKP age groups were defined as 18-19 and 20-24 years old. Aggregate data from monthly reports captured and disaggregated by KP group included: number of YKP reached, tested, enrolled into care, and enrolled in ART; number experiencing gender-based violence (GBV); and number screened for STIs. We conducted a chi-square test to compare results among groups.

Lessons learned: A total of 2,672 (49%) of all KP reached (5,417) were YKP; of which 76% were FSW and 21% were MSM. Table 1 presents data disaggregated by FSW and MSM. Of the YKP, 24% were under 20 and 76% were 20-24 years old; 48% were located in Bamako and 52% in other regions. HIV testing was provided to 70% of those reached. HIV case finding was 3.7%, with higher rates observed among MSM 20-24 years old (8.6%) and among YKP in Bamako (7.8%). Enrollment into care and initiation on ART for HIV YKP was 65% and 56%, respectively. Prevalence of GBV among YKP was 7.6% and higher in Bamako (8.1%) and the MSM group (10.6% and 15.7% respectively for 20-24 and under 20 years old). Primary care was provided for 88% of incidents of GBV. STI screening services were provided to 74% of YKP reached. Among those screened, 34% were diagnosed and treated for STIs.

Conclusions/Next steps: In Mali, half of the KP reached are under 25. The LINKAGES program, jointly with the Ministry of Health, will use these findings to develop urgently a youth-friendly approach to reach, improve access to care and treatment, and retain YKP in the program.

<table>
<thead>
<tr>
<th>Total</th>
<th>Number of YKP</th>
<th>Number of YKP screened for HIV</th>
<th>Enrolled into care</th>
<th>Initiated ART</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FSW</td>
<td>MSM</td>
<td>Total</td>
<td>FSW</td>
</tr>
<tr>
<td>18-19</td>
<td>483</td>
<td>1,627</td>
<td>1,710</td>
<td>14 (4%)</td>
</tr>
<tr>
<td>20-24</td>
<td>1,133</td>
<td>1,117</td>
<td>2,250</td>
<td>114 (78%)</td>
</tr>
</tbody>
</table>

(Young key populations (YKP) reached and tested in four regions in Mali, July-December 2017)

WEPEP566
The status of sex education in times of political turmoil in Peru: HIV-related findings indicate progress but also important needs

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Background: Sex education can be a useful supporting strategy for HIV/STI prevention. Sex education in public schools of Peru has been facing strong criticism from religious groups since November 2016. Initially a political weapon against the administration, the "Don't mess with my child" movement gained momentum and put the national policy into question. We conducted a large evaluation of sex education across three geographical regions in Peru, as part of an international study, aimed at performing an in-depth exploration of sex education across three regions of Peru covering knowledge, practices and opinions from teachers and principals, as well as knowledge, practices, beliefs and experiences among students.

Methods: Data were collected between 2015 and 2016 in three Peruvian provinces (Lima, Ayacucho and Ucayali representing the coast, the highlands, and Amazonia, respectively). The study used multi-stage probabilistic sampling of schools and students; 2528 adolescents participated. Analysis used descriptive statistics such as frequency and contingency tables.

Results: Most students 75% (n=1896) reported that they had received sex education that students receive is valued, but its importance needs to be strengthened. Eighty percent (n=2364) of students had received sex education at school, and 85% of them had been taught about HIV and STIs. Only 52% knew where to obtain HIV/AIDS prevention and treatment services. Over 35% of students wanted to know more about HIV/AIDS and where to get prevention and treatment services. Additionally, 40% hoped to learn how to talk with their partner about being tested for HIV. Nearly three-quarters of students would be willing to befriend a person living with HIV. 70% of adolescents think that It is important to address differences across regions mainly in the areas with lack of knowledge (Highlands and Amazonia). As the majority were willing to befriend people living with HIV, this suggests that forces sustaining stigma and discrimination may be receding.
Same-sex-attracted, bisexual, and queer people

WEPED568
The relationship as a safety bubble: Reasons for not testing for HIV regularly among gay male couples in the US

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Background: Gay men in relationships are at high risk for HIV infection, yet many men may perceive being in a relationship as being protective. Although biomedical strategies (e.g., PrEP, TasP) offer effective prevention tools, HIV testing is the first step in the HIV treatment continuum. CDC guidelines recommend sexually active gay men test for HIV every 3-6 months. However research indicates that men in relationships may not adhere to these guidelines.

Methods: The Gay Couples Study is a longitudinal survey of 441 gay male couples (336 concordant HIV-negative, 105 serodiscordant) in San Francisco, California. To be eligible, couples had to have been together for at least 3 months, and at least one partner had to report anal intercourse in previous 90 days. Couples concurrently but independently completed computerized surveys regarding HIV testing, reasons for not testing, and sex behavior. We explored time since last test and reasons for not testing among the HIV-negative men (N=777) in the baseline sample.

Results: Average age was 41.7 years; median relationship was 5 years. Over one third of the sample (36%) had not tested in over one year. For men in concordant HIV-negative relationships who reported condomless anal intercourse (CAI) with an outside partner of unknown or discordant HIV status (DISC), over one quarter (26%) had not tested in at least six months; 10% had not tested in over two years. For men in serodiscordant relationships, among those who reported CAI with a DISC primary or outside partner, more than one third (35%) had not tested in over six months. “I am in a relationship” was among the reasons for not testing endorsed by 54% of the twenty-four men who had never tested and 47% of those who had not tested in over one year. Only 36 (4.6%) HIV-negative participants reported being on PrEP.

Conclusions: Gay men in relationships may underestimate their need for HIV testing due to perceiving relationships to be protective, even when behavior may confer increased risk for HIV. We identified high rates of non-adherence to CDC HIV testing guidelines. Gay couples may need tailored messages and interventions to increase their HIV testing frequency.

Gender issues and gendered relationships

WEPED669
Association between intimate partner violence and HIV status among Haitian women

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Background: The prevalence of intimate partner violence (IPV) among women in Haiti has increased from 25% to 29%. A number of studies have associated higher levels of STD/HIV transmission with IPV among women, in part due to forced sexual activity and microscopic vaginal

and anol tears that increase viral contact through raw wounds. This study examined the associations between IPV and HIV status and the factors contributing to this relationship.

Methods: Participants included HIV+ women (n = 55) drawn from a larger sample of women (N=513) who had experienced IPV and were attending the GHESKIO clinics. From the larger sample, a 1:2 optimized matching was performed to get a control group of HIV- women (N=110) with a history of IPV, matched on demographic and mental health variables. Attitudes towards gender roles, mental and physical well-being, and partner violence were assessed using a culturally adapted version of the questionnaire from the World Health Organization multi-country study. Logistic regressions were utilized to calculate multivariable adjusted odds ratios.

Results: IPV participants reported poorer general and mental health. Both groups reported very high partner control, however HIV+ women were more likely to report more severe forms of psychological violence such as being belittled or humiliated in front of other people (p < 0.05) and made to feel scared on purpose (p < 0.05) as well as severe physical violence such as being choked or burnt on purpose and being threatened to use or actually having their partner use a gun, knife or other weapon against them (p < 0.001). Women who experienced severe forms of IPV were 3.5 times more likely to have an HIV positive status compared to those who did not experience severe IPV (OR = 1.24, p < 0.001).

Conclusions: This study points to the significant associations between severe forms of physical and psychological IPV and HIV status, indicating important areas for future studies and interventions among Haitian women.
Background: Intimate partner violence (IPV) is a highly prevalent form of gender-based violence (GBV), widely recognized as one of the leading causes of poor health, disability, and death among reproductive-age women. In Mozambique, HIV prevalence among women aged 15 years is 15.1%, and 32% of women have experienced GBV in their lifetime. To improve HIV-related outcomes, the Ministry of Health piloted an intervention addressing women’s experiences of GBV as driver for poor HIV outcomes. Through routine GBV screening in health facilities with the promotion of intimate partner violence (IPV) than HIV-negative women (p=0.0032); the same was observed among non-pregnant women (p=0.00001). Reported IPV among HIV-positive pregnant women was as frequent (1.1%) as in HIV positive non-pregnant women (p=0.00001). We found no difference in IPV between pregnant and non-pregnant women. We compared IPV rates among HIV positive (pregnant and non-pregnant) women, and assessed whether HIV seropositivity is associated with more IPV in pregnant women.

Methods: We conducted a cross-sectional study of 4,664 women aged 15 to 49 years attending antenatal consultations (ANC) or voluntary HIV testing (VCT) at a peri-urban health facility. All were screened for exposure to IPV in the previous 12 months. We compared HIV test results and GBV screening results over nine months. Analysis used Pearson Chi-square test, stratifying by pregnant and non-pregnant women.

Results: Among all ANC and VCT sites, 4,664 women were screened for IPV. 2,385 (51%) were in ANC and 2,279 (49%) were in VCT. Overall, IPV prevalence was 4.8%. At ANC, 27 women who were HIV positive were IPV survivors (12% of the 246 HIV positive women). IPV survivors (7% of the 370 HIV positive women). At VCT, 30 women who were HIV positive were IPV survivors (12% of the 246 HIV positive women). IPV survivors among non-pregnant women (p=0.00001). Reported IPV among HIV-positive pregnant women was as frequent (1.1%) as in HIV-positive non-pregnant women (1.3%).

Conclusions: IPV positive women were more likely to have experienced IPV than HIV-negative women, and this was true for both pregnant and non-pregnant HIV positive women. There is need to expand GBV screening in both ANC and VCT settings to improve post-GBV services are offered and provided to women who need them.

Table 1. Association between male partner reaction to HIV disclosure of post-partum HIV positive women

<table>
<thead>
<tr>
<th>Male partner reaction</th>
<th>Female partner reaction</th>
<th>Odds ratio (95% CI)</th>
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<tbody>
<tr>
<td>Positive</td>
<td>36.1%</td>
<td>9.3 (1.9-44.4)</td>
</tr>
<tr>
<td>Negative</td>
<td>63.9%</td>
<td>1.0 (0.2-5.0)</td>
</tr>
</tbody>
</table>

Results: A total of 180 (90%) women reported having a main male partner of whom 95.5% respondents reported disclosing their HIV status to that partner. The majority of women (82.8%) reported disclosure to their male partner occurred within one year of their diagnosis, with 62.7% of disclosure occurring within one week. Most common forms of disclosure were self-disclosure (65.4%), couple’s HIV testing (31.5%), and at antenatal care visit (7.7%). Women reported 87.5% of male partner reactions to disclosure were positive. There were no reports of gender-based violence, threats or break up as a result of disclosure. Women reported 162 (90%) of their male partners had an HIV test, 8 (4.2%) untested, and 10 (5.6%) unknown. Of those who also knew their partner’s HIV status, 62% were HIV-positive and 29% HIV-negative. Disclosure to male partners via couples counseling and testing was positively associated with a positive reaction to disclosure compared to self-disclosure (Odds Ratio (OR) 9.3; p=0.03). Table 1) Women experiencing verbal intimate partner violence were nearly 80% less likely to experience a positive response to disclosure (OR 0.23; p<0.01).
Conclusions: The majority of HIV+ pregnant and postpartum women in this cohort disclosed to their male partners early after diagnosis and experienced a positive reaction. According to women, knowledge of HIV status is high among male partners but most often does not occur at the same time as women’s HIV diagnosis.

**WEPED573**

Harnessing peer support amongst women living with HIV in positively women: A case for gender sensitive interventions

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**Background:** Around 29,000 women are living with HIV (WLWH) in the UK and Black African women are disproportionately affected. Sex and gender interact with HIV status, ethnicity, socio-economic background, immigration status, and personal factors. The Positively Women’s project was initiated in recognition of women’s specific needs following a wide consultation with WLWH at the 2014 Women Know Best conference in London.

**Description:** The Project aims to increase women’s agency in managing health through peer support. Collective activities support women in all aspects of life and women can train to become peer mentors. Interventions include: individual peer support from specialised case workers and volunteer peer mentors in HIV clinics and at our premises; regular group support and workshops on topics chosen by women (e.g. sex and relationships, legal rights, financial management); partnership and sustained advocacy with other services.

**Lessons learned:** Gender-based power imbalances at home and work and structural barriers in UK welfare and immigration policies affect a large proportion of the women in the project, constrain our capacity to meet their intersecting needs, and limit their ability to become peer mentors. Other public and voluntary service providers do not always display awareness of the specific material and psychosocial needs of WLWH. It is challenging to deliver an inclusive service to women who differ in terms of: employment, age, motherhood, ethnicity, literacy, gender identity, sexuality, citizenship and legal rights. Yet issues with isolation, stigma, and disclosure are common irrespective of this diversity. Ongoing feedback from project beneficiaries, volunteers, staff and the evaluation team enable tailoring of the project. The project success is growing: 140 group and 244 individual sessions have been held this year and increasing numbers of women access the service; collaboration with other services is strengthening; project staff are invited to present on project activities at other organisations and events in local communities.

**Conclusions/Next steps:** The task of meeting the needs of the heterogeneous population of WLWH in the UK remains a challenge. However, the project is needed and well-attended as it empowers women to live positively with HIV, help their peers through training as volunteer peer mentors, and be active stakeholders in service delivery.

**WEPED574**

Engaging men and boys is key to preventing violence against women and for promoting better health outcomes for women and children

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**Background:** Health initiative for safety and stability in Africa (HIFASS) through USAID funding is currently supporting Cross River State, South-South Nigeria to provide quality care, protection and support services to orphans and vulnerable children (OVC) and their households especially in rural and hard to reach communities. Violence such as rape and physical assault against girls and women have been a major occurrence in these communities. This paper examines the outcome of interventions to reduce violence against women and girls in rural communities.

**Description:** Violence against women have been a major challenge in the rural communities where we work. These violence against women are mostly perpetrated by men. Violence is being condoned by these communities because it is regarded by culture as a show of masculinity and power control by the men folk. Hence the need to reach out to men within these communities and sensitize them on the effect of violence against women and the overall impact on the health of women and children. Several advocacy and sensitization visits were made to the community leaders who were mostly men. In-depth interviews were held to obtain information on their knowledge, attitude and practices on HIV/AIDS related issues. In addition, community sensitization and outreach activities targeting men and boys were conducted in eighteen communities to create awareness on the effect of negative social norms in the community and how they predispose women and girls to HIV infection and other sexually transmitted infections.

**Lessons learned:** Results from in-depth interviews conducted reveal that men are mainly influenced by the attitudes of women regarding gender roles. Men engage in these violent acts to maintain the patriarchal system. The main issue identified was the need to continually engage men in the communities. Men need to be educated on the negative impact of violence on women and children. This can be achieved by involving men in activities and discussions.

**Conclusions:** Men are active participants in the perpetuation of violence against women. Engaging men and boys in the process of change is crucial in curbing violence against women. The involvement of men is important in changing the violent culture and in the process of creating a change in the minds of these men. The outcome of this work can help to create a new culture where women and girls are not perceived to be inferior to men.
couple-race including couples’ socio-economic status, individual HIV-statuses, agreement type, and relationship dynamics such as communication (levels and -types) is needed to uncover the mechanisms behind this association. Meanwhile, HIV prevention programs for male couples should incorporate the handling of relationship power imbalances to minimize this risk.

**WEPE576**
Are relationships protective for trans women and trans men partnered with cis gendered men?

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**Background:** HIV disparities in the U.S. continue to affect the most marginalized groups. Transgender women represent alarmingly high rates of HIV, and trans men report high risk sexual behaviors, particularly with cis men, and increasing rates of HIV. Past research has identified important relationship factors associated with risk among gay couples. However, little is known about relationships that feature a trans partner. We conducted a study that explored relationship factors associated with HIV risk among trans women and trans men in committed relationships with cis men.

**Methods:** Between May 2016 and May 2017 we recruited N = 39 couples in the San Francisco Bay Area. Targeted recruitment strategies were used at transgender community events, community-based organizations, as well as social media (e.g., Facebook). Couples were interviewed simultaneously but separately at our offices in downtown San Francisco. Semi-structured interviews explored gender identity, discrimination, sexual behavior, agreements, HIV prevention and relationship satisfaction. Interviews were transcribed, coded and analyzed by the study team.

**Results:** Of the 39 couples, 22 were trans women with cis male partners and 17 were trans men with cis male partners. Approximately 48% of the sample identified as White, and 15% were HIV-positive. Of those who were HIV-positive, approximately half were trans women and half were cis men. None of the trans men in the sample reported being HIV-positive. Overall, sexual risk behavior for HIV was low. Factors contributing to this included: a clear understanding of agreements about whether or not sex with outside partners was allowed; condom use with outside partners; and few reports of broken agreements. Most couples did not perceive themselves to be at risk, none were taking PrEP, and most were satisfied with their sexual relationship with their partner. Few discrepancies between partners were reported in any of the interview topics.

**Conclusions:** Trans women and trans men in committed relationships with cis men reported low sexual risk for HIV. Relationship factors like having clear agreements and not breaking agreements support these couples to have satisfying sexual relationships without the burden of significant risk. Relationships may serve as a protective mechanism against risk for HIV among these couples.

**WEPE577**
Sexual agency and disproportionate risk: Young women's experience with HIV risk in Cape Town, South Africa

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**Background:** Young women in South Africa are experiencing a greater disproportionate risk of HIV than their male counterparts. Relationship dynamics and gender roles shape the environment within which men and women can engage successfully with HIV risk prevention. This study investigates gender imbalances in sexual relationships that exacerbate women’s risk and looks to how gendered HIV risk perception is understood and performed in sexual partnerships.

**Methods:** The primary data findings are based on a sample study from field research conducted in Cape Town, South Africa from February 2016 - June 2016. This study conducted focus group discussion and used qualitative thematic content analysis to analyze responses from 280 men and women (18-30) who engaged in heterosexual partnerships in the past 6 months in Kloofontein sub-district and Khayelitsha sub-district.

**Results:** The themes derived from recurrent and similar patterns of discussion revealed:
(a) Maintaining the relationship with the main partner as more important than communicating HIV prevention.
(b) The sexual decision making power was constrained for women in sexual partnerships. Women chose their male partners but would submit to the demands of the male partner when gift giving was present.
(c) Men and women spoke of the lack of trust between genders, minimal communication about prevention and openly acknowledged engaging in multiple partnerships.

This lack of trust by both the men and women has culminated into an increase in risk actions taken by young women. The study revealed that women age 25-30, were more likely to be waiting at home for their partner to bring HIV to them, while the younger women age 18-24, suggested that they are purposefully seeking multiple partnerships. There is strong link between women’s means of subsistence (money), sexual partnering and the risk actions taken. These gendered dynamics contribute to agency constraints for young women.

**Conclusions:** This study reveals an important connection between HIV risk perception, agency and sexual partnering dynamics. Prevention efforts need to be tailored to recognize the constraints of sexual agency for young women and reduce barriers to effective and more sustainable gendered combination prevention strategies that focus on the underlying sociocultural and economic factors related to gender inequality.
WEPEDE579

Determinants of post-disclosure violence against HIV positive women in serodiscordant unions: A cross-sectional study in Kumasi, Ghana


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Background: Violence against women is a global epidemic that infringes on their rights and has negative health outcomes. In sub-Saharan Africa lifetime prevalence of partner violence is over 30%. HIV positive women in serodiscordant unions are at risk of violence after disclosure of their status. This can hinder their adherence to antiretroviral therapy, with serious public health consequences. Knowledge of the determinants of violence can help design appropriate interventions. This study assesses the risk factors for post-disclosure violence against HIV positive women in serodiscordant unions in Kumasi, Ghana.

Methods: A cross-sectional study was conducted among 129 consented HIV positive women in serodiscordant unions attending the HIV clinic at a tertiary health facility in Kumasi, Ghana from May to October 2017. Self-reported biodata, social history and experience of post-disclosure violence from their partners were confidentially obtained from each participant using standard interviewer administered questionnaires and analysis done using SPSS version 20 statistical software. Characteristics of the respondents who reported violence and those who did not were compared using Chi square analysis at 5% level of significance.

Results: The mean (sd) age in years of respondents and their partners was 40.6±8 and 45.6±19.3 respectively. Post-disclosure violence was reported by 24 (18.6%) respondents; psychological violence was the most common (n=18, 75%), followed by physical (n=3, 12.5%) and sexual violence (n=3, 12.5%). Women who experienced violence were more likely to be financially independent of their partners than those who did not (40.7% vs 13.3%, p=0.005), more likely to be in a polygamous relationship (61.1% vs 12.8%, p=0.001) and more likely to have partners who took alcohol (83.3% vs 16.7%, p=0.005).

Conclusions: Screening for partner violence and provision of the needed support should be integrated into routine ART services especially for vulnerable HIV positive women who are prone to violence. Behaviour change communication strategies against alcohol intake and polygamy should also be developed. Furthermore caregivers should be trained to empower women, with identified risk factors for violence, with skills on status disclosure so as to minimize violence. There is a need for further research into factors that determine violence among financially independent women.

WEPEDE580

Sex and age differences of clients accessing post gender based violence care services in selected states in Nigeria

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Background: Gender-Based Violence (GBV) is a global pandemic that afflicts men, women and children. However, women and girls are the most affected by gender-based violence. An estimated one in three women worldwide has been beaten, coerced into sex, or abused in her lifetime. Nigeria in recent years witnessed instability in various political, ethnic and religious conflicts, which has been further heightened by the terrorist group Boko Haram in northeastern Nigeria. With these conflicts, came media reports of increased GBV and sexual assault of women and children. The USAID funded SIDHAS project has a design that includes strategies to increase awareness of GBV, post-exposure prophylaxis uptake, and post-GBV care at all supported health facilities and communities. This review describes sex and age difference among clients receiving Post-GBV care in the SIDHAS supported treatment program in Nigeria.

Methods: We reviewed data from 143 supported public health facilities located across 13 states in Nigeria. Post-GBV care was available for both sexual violence and physical violence at the facilities. Post-GBV care data dis-aggregated by type of violence was documented in the National register and reported monthly in the DHIS. We reviewed Post-GBV data reported from January 2016 to October 2017.

Results: A total of 5,986 individuals received post-GBV care services of which 2,941 and 3,045 were cases of sexual and physical violence respectively. Females accounted for 83% (2,438) of individuals that received post-GBV care for sexual violence and 65% (1,981) for physical violence. Individuals below 25 years accounted for 68% (1,992) and 45% (1,408) of people that received post-GBV care for sexual violence and physical violence respectively. Children 0-9 years contributed 14% and 3% to post-GBV care for sexual and physical violence respectively. Majority (53%) of all the sexual violence cases reported was from the South-south states with the North-East accounting for 13% (138). Sixty nine percent (2,032) of clients receiving post-GBV care for sexual violence received post-exposure prophylaxis (PEP), of which 84% (1,711) were females (p<0.001).

Conclusions: This highlights the need for a comprehensive GBV intervention in Nigeria, addressing first and foremost violence against women and girls and secondarily men and boys.

Sexual concurrency and sexual networks

WEPEDE581

Using virtual reality to make young people more aware of their sexual network in order to reduce unfounded trust in their partner’s STI status

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Background: International research into the determinants of condom use shows repeatedly that trusting your partner, however long you’ve known him or her, is the main reason for not using condoms – “they wouldn’t have an STI”! Confronting young people with the unknown factor of their sexual network, by asking them how many exes they have, is a good way to make them think again.

Description: That’s why Soa Aids Nederland has developed the Ex-O-Meter: an online application that calculates and visualises the size of a sexual network based on details given by the person themselves. Being confronted with the size of their network seems to heighten a young
person’s perceived necessity for using condoms. When the network is visualised, it makes them aware that they actually have to trust their ex’s ex too if they want to have safe sex without a condom.

Lessons learned: The Virtual Reality version currently in production will further increase the impact of the Ex-O-Meter. Rather than being just a spectator, you really enter the network of exes, making the experience much more intense. Interacting with them provides you with information that convinces you of the risks of unsafe sex.

Pretesting the prototype showed us that it does increase awareness of the network: “I see the reality that I don’t dare think about. We all know the risks of unsafe sex, but tell ourselves that nothing will actually happen.” Making the experience too scary proofed to be counterproductive.

Conclusions/Next steps: VR is an innovative method for bringing about behavioral change. The preliminary results of the Ex-O-Meter suggest that it enhances the experiences of the users and therefore might have a bigger impact on the determinants of condom use, namely awareness, risk perception and intention. An important condition is that it does not arouse fear.

Sao Aids Nederland believes the Ex-O-Meter can be effective as an interactive installation at schools and events. The organisation has an extensive national network that enables us to reach many young people. We will also be exploring possibilities for exporting our VR experience internationally, to middle-income and even low-income countries.

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![Ex-O-Meter in virtual reality](image)

### WEPED582

**A longitudinal analysis of the impact of PrEP on sexual behaviour and drug use among Australian gay and bisexual men**

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**Background:** It has been claimed that PrEP may change sexual and drug using behaviors among gay and bisexual men (GBM) but few studies have assessed this longitudinally.

**Methods:** Between 2014-2017, we enrolled into the FLUX online cohort study 1426 GBM who were not HIV-positive and who provided five rounds of six-monthly follow-up data collection. We describe changes in sexual behavior and methamphetamine use following PrEP uptake.

**Results:** At baseline, mean age was 33 years and 13 men (1.1%) were using PrEP.

Among 228 men (151%) who commenced PrEP during 24 months follow-up, number of partners in the previous six months increased from baseline (Mean=24) to 24 months (Mean=44) (p<0.001; the proportion reporting group sex also increased from 25% to 49% (p-trend<0.001). Nearly 60% of men who commenced PrEP reported condomless anal intercourse (CLAIC) in the round prior to commencing PrEP, and almost 25% reported methamphetamine use. In particular, receptive CLAIC in- creased among these men who commenced PrEP from 45% at baseline to almost 80% by 24 months follow-up, but methamphetamine use remained steady. Also, whereas 5% reported ‘often’ engaging in receptive CLAIC at baseline, this increased to 16% at 24 months.

Of 930 men who had never used PrEP throughout the study period, 23% reported recent CLAIC and 6% reported methamphetamine use at baseline; they reported a mean of 10 recent partners. Prevalence and frequency of these behaviours remained steady over time.

Among men who reported any receptive CLAIC during 24 months follow-up, 25% of men who had commenced using PrEP and 15% of men who never used PrEP reported receptive CLAIC only with partners who were using PrEP.

**Conclusions:** Men who initiated PrEP became significantly more sexually active in general and were more likely to engage in CLAIC, and to do so more often. Methamphetamine use remained steady after commencement of PrEP. GBM who commence using PrEP change their sexual behavior, though not necessarily their drug use behavior. These behavior changes appear not to have affected men who do not use PrEP.

### WEPED583

**Hearing from the men: Multiple partnerships, HIV risk, and drivers of their relationships with AGYW in Swaziland and Uganda**

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**Background:** Given very high incidence rates among adolescent girls and young women (AGYW) in eastern and southern Africa, HIV risk experienced by AGYW and their male partners is a major concern in the HIV field. However, little is still known about these relationships from men’s perspectives. We conducted in-depth qualitative research with 135 men as part of implementation science research to reach and characterize male sexual partners of AGYW, and understand drivers of their relationships.

**Methods:** From March-August 2017, we conducted in-depth interviews (IDIs) with 40 men in Swaziland and 95 in Uganda, ages 18+. Respondents were recruited primarily at community ‘hot spot’ venues. Data analysis involved coding in atlast.i and synthesizing findings.

**Results:** Respondents were 28 years old on average in both countries (range of 20-47 in Swaziland; 19-45 in Uganda). Most men reported sexual relationships with AGYW over the past year, who were usually 3-7 years younger than themselves. Eighty percent of men in Uganda and 33% in Swaziland were married/cohabiting. Men’s relationships in Uganda generally consisted of multiple, overlapping long-term partners, whereas in Swaziland they reported multiple shorter-term casual relationships. Most men in both countries described norms supporting multiple partnerships and common patterns of conflict within their relationships. In Uganda this manifested primarily as unresolved discord in their marriage, which men said drove them to seek younger side partners who would be more likely to value and respect them. In Swaziland, men described ubiquitous distrust within relationships, which they said has led to a shift among youth to delay formalizing relationships in marriage until older (e.g., age 30). In both countries, couples report infrequent and/or blaming communication about HIV prevention and family planning.

**Conclusions:** Inability to resolve conflict in relationships, and to communicate about HIV and reproductive health, emerged as a root cause of both relationship dissatisfaction and men’s multiple concurrent relationships in Swaziland and Uganda. Carefully designed interventions focused on healthy couple communication and conflict resolution skill-building, and critically examining norms around the need for multiple partnerships, are urgently needed for both men and their partners.
breakers

**WEPED584**

"I feel like shackles have been loosened a little": The impact of PrEP on gay men's sexual cultures in Australia

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**Background:** By the end of 2017, more than 14,000 gay and bisexual cisgender and transgender men (GBM) were accessing HIV pre-exposure prophylaxis (PrEP) in Australia. This study explores the culture of PrEP adoption and the evolving concepts of 'safe sex'.

**Methods:** Between September 2015 and February 2018, 38 in-depth interviews were conducted with 24 GBM using PrEP, and seven sexually active GBM not using PrEP. Twelve participants completed a follow-up interview 9-18 months later. Interviews were electronically recorded and transcribed. Data were analysed thematically.

**Results:** Of the 24 PrEP users, three had ceased use by the follow-up interview. Cessation due to side effects provoked anxiety due to renewed HIV acquisition risk. Some PrEP users reported sporadic or non-existent condom use prior to PrEP access, and most reported reducing condom use following PrEP uptake. Many participants associated condoms with HIV-related anxiety and loss of pleasure and intimacy. However, some positively associated condoms with practices of negotiation and expressions of mutual care. HIV-negative men not on PrEP reported an increasing difficulty in having sex with condoms, and feeling stigmatised as non-PrEP users. Some participants described PrEP as a means of reducing barriers based on serostatus, but most PrEP users still wanted HIV-positive partners to have undetectable viral loads. Positive impacts of PrEP included reduced HIV-related anxiety, improved sexual negotiation, and the resurgence of peer-based sexual health support. Negative impacts included concerns about sexually transmissible infections and perceived loss of sexual capital by those who wanted to continue condom use.

**Conclusions:** Many study participants reported irregular or infrequent condom use prior to PrEP initiation, which declined further after adoption. However, this is not a concern for HIV transmission in a high adherence context. Reduction in HIV-related anxiety suggests a mental health benefit for PrEP users. Of concern are reports of normative pressure on non-PrEP users to adopt PrEP. While PrEP has made HIV prevention easier for many, and we support the culture has not yet shifted to an inclusive ‘combination prevention’ approach. Paradoxically, maximizing the benefits of PrEP may require further support for those opting to continue condom use.

**WEPED585**

Community research engaging women (CREW): Utilizing participatory action research to understand women’s knowledge, attitudes, and beliefs about PrEP

C. Carey-Grant

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**Background:** African American and Latino women in Oakland are at significant risk of HIV infection. According to the Oakland TGA Comprehensive HIV Service Plan, women comprise 31% of people living with HIV/AIDS, higher than in any major metropolitan area in the western US: with 64.9% being African American and 13.1% Latino. PrEP can reduce the risk of HIV by almost 90% among HIV discordant heterosexual couples. While studies show using PrEP properly can reduce the risk of HIV transmission, uptake has been slow. At the 2014 HIV and Drug Therapy Congress in Glasgow, community level data collection was recommended as a means to integrate PrEP into HIV prevention messaging and service.

**Description:** CREW engages and empowers women in Oakland to better identify the opinions, motivators, and barriers to PrEP adoption by our community. Using Participatory Action Research (PAR), our research was based on what our constituency knows about their unique circumstances rather than from external research. WORLD trained 25 women to become Peer Researchers during a 15 day training which included information on PAR, the power of research in policy & advocacy, and how to ethically conduct research in the community setting. Of the 25 women who graduated from the training, 17 went on to interview women. Data from 503 women were collected using a 12 page interview tool with self-identified women, age 18 or over.

**Lessons learned:** 25% of sample have heard of PrEP (n=129). Of those, 31% have never heard of PrEP for women.

- Many know it’s a pill taken orally & daily to prevent HIV but there are many misconceptions.
- Confused PrEP with PEP.
- For gay men only: 16% know where to access PrEP.
- 12% have accessed PrEP: ≤2% have a partner who uses PrEP.

**Conclusions/Next steps:** Through the data we gathered, we were able to develop a tailored PrEP 101 fact sheet geared towards women. Our fact sheet addresses the concerns women have about PrEP and provides a guide for their own personal decision making regarding PrEP. The data was shared at a one day convening with over 70 attendees comprising of community members, researchers, physicians, policy makers, consumers, and social service providers.

**WEPED586**

Will male partners of adolescent girls and young women (AGYW) support their PrEP use? A comparative analysis of AGYW and male partners of AGYW views in Tanzania

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**Background:** Power differentials in AGYW’s sexual relationships are a contributing factor to AGYW vulnerability to HIV. Although PrEP is a female-initiated HIV prevention method, AGYW’s relationship contexts could potentially influence uptake and adherence to PrEP. We assessed AGYW’s and male partners of AGYW’s views on PrEP use in Tanzania via a qualitative comparative analysis of AGYW’s and male partners of AGYW’s views.

**Methods:** Twenty-four in-depth interviews (IDIs) and four focus group discussions (FGDs) were conducted with AGYW aged 15-24 residing in Dar Es Salaam and Mbeya. Sixteen IDIs were conducted with men aged 18 or older who were married to or in a relationship an AGYW. To acquaint participants with PrEP, a visual, standardized script of PrEP information was shared with them prior to IDIs and FGDs. AGYW and male partners were asked the same questions during their interviews, including perceptions of their partners’ use of PrEP and reactions of their partners’ to their PrEP use. Thematic content and constant comparative method analyses were used.

**Results:** Both AGYW and male partners agreed that most male partners would be willing to support PrEP use by AGYW partners. However, both expressed that male partner support would be dependent on his early inclusion in the decision-making process. This early inclusion, respondents noted would remove suspicion of infidelity and alleviate negative consequences associated with late or inadvertent-disclosure of PrEP use. AGYW noted potential consequences associated with covert use of PrEP. Potential consequences included relationship dissolution, loss of financial support, and verbal and physical violence. Male partners however denied such potential extreme consequences associated with their partner’s covert use of PrEP.
Male partners recommended engagement in PrEP initiatives targeted toward AGYW - including providing education to men on PrEP, equipping AGYW with skills educate their partners, couples counseling by providers, provision of PrEP for men, and community education and sensitization as strategies for gaining men’s support of PrEP.

Conclusions: Engaging male partners may need to be an essential component to ensure AGYW’s access and use of PrEP. Educating male partners about PrEP and engaging them in implementation activities should be part of PrEP roll-out strategies for AGYW.

**WEPEDE587**

**Gender in biomedical HIV prevention trials in sub-Saharan Africa: A review of the issues and recommendations for gender transformative research**

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**Background:** Since the early 2000s, biomedical HIV prevention trials have embraced approaches emphasizing community engagement and social protection. Despite the importance of gender dynamics in influencing decisions to participate, use products, and be retained in a trial, gender considerations are not explicitly addressed in such research. Furthermore, given past controversies regarding biomedical trials with vulnerable populations, including female sex workers (FSW), there are arguments to adopt procedures that promote gender transformative practices. We conducted a systematic review of articles from 2001-2017 to analyze gender-related issues in biomedical HIV prevention trials and generate recommendations to make such trials gender transformative.

**Methods:** A search of eight databases and sourced bibliographies identified 483 unique articles. Title, abstract, and full texts were reviewed, yielding 99 peer-reviewed publications of biomedical HIV prevention trials and associated social and behavioral research that included discussions relevant to gender-related themes. We examined gender-related themes for general trial populations and key groups: adolescent girls, FSW, pregnant women, men who have sex with men (MSM), and transgender women (TGW).

**Results:** We examined related themes to pregnancy, contraceptives, partner engagement and communication, decision-making, violence, stigma, and others. Pregnancy and birth control requirements were major themes; trials typically required participants to avoid pregnancy to remain on product. This was often at odds with gender norms and participants’ family planning desires. Some women and gender minority participants experienced distrust, discrimination, or violence when partners or the community misunderstood the study or product’s intent. Certain products were designed as women-controlled options, allowing for covert use if necessary; however, most women discussed product use and trial participation with partners to promote engagement, potentially transforming sexual decision-making norms. Some partners were not engaged due to inequitable gender attitudes or fear of abuse or abandonment. Gender themes for MSM and especially TGW were rarely addressed.

**Conclusions:** To make biomedical HIV prevention trials gender transformative, researchers should become competent in and responsive to gender norms affecting study populations; educate communities while promoting gender equitable attitudes; empower women to decide how to involve their support networks, if at all; and consider the needs of under-represented groups, such as TGW.

**WEPEE589**

**PrEP adopted by the Brazilian National Health System: What is the size of the demand?**

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**Background:** Brazil’s response to the HIV epidemic now includes free access to pre-exposure prophylaxis (PrEP) to populations at substantial risk for HIV, including men who have sex with men (MSM). We used nationally representative demographic, epidemiologic and surveillance data to offer estimates for the number of MSM at substantial risk for HIV infection who might be eligible and willing to use PrEP in Brazil.

**Methods:** Starting from the age/sex-stratified population, we calculated the number of men aged 15-64 years, in 5-years age groups, and the proportion of those who report sex with other men during their lifetime. We then calculated the proportion of PrEP-eligible men who report sex with other men during their lifetime.
WEPEE590
Experience of reaching hard-to-reach people who inject drugs through field mentors with HIV prevention and treatment services in northeastern states of India

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Background: Reaching people who inject drugs (PWID) with comprehensive HIV prevention services is challenging. Only 65% of PWID in India report ever having been tested for HIV. Field mentors selected from the PWID community implemented innovative strategies for PWID who are unreachable and hard-to-reach through government-supported targeted interventions (TI).

Description: Field mentors were placed in 12 priority districts under Project Sunrise, funded by President’s Emergency Plan for AIDS Relief (PEPFAR) in the northeast states of India. Strategies implemented through mentors included:
(a) Secondary distribution of needle and syringe (SDNS) for unreached PWID.
(b) Community-based Index case testing for HIV.
(c) Tracking of clients lost to follow-up from opioid substitution therapy (OST) and ART services.
(d) Accompanied referral for HIV positive PWID to ART services.
(e) Registering new, more vulnerable and young PWID through non-incentivized snow balling approach.
(f) Organising testing camps beyond the coverage areas of targeted interventions.
(g) Facilitating new OST enrolments through client motivation and support group meetings; and
(h) Collecting and consolidating feedback from the PWID and refining program approaches.

Lessons learned: A total of 28 mentors were trained. Of the estimated 2,039 unreached and hard-to-reach PWID in the districts, mentors distributed clean needles and syringes to 373 hard-to-reach PWID through SDNS. Through community based index testing 283 unreached PWID were identified, 238 PWID were contacted and 211 PWID were tested for HIV and 23 (10.6%) were confirmed HIV positive and initiated ART. Of the 931 PWID who were tested through camp approach, 444 PWID who were not registered with TI were having higher positivity (6%) compared to those registered with TI (2%). Around 503 PWID were navigated to the ART centres and initiated on ART. Mentors enrolled 1,229 new OST clients, increasing OST coverage from 2,611 to 3,840 clients from April to September 2017.

Conclusions/Next steps: The mentoring model has improved access to HIV prevention and treatment services altogether for 1,200 unreached and hard-to-reach PWID. The National AIDS Control Program is replicating and scaling up the mentor model in its targeted intervention programs for key populations.

WEPEE591
Integration of community and facility care across the continuum to improve pediatric ART enrolment and retention: Lessons learned from Munhava Health Centre, Beira-Mozambique

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Background: ART initiation for children exposed to HIV is a challenge. In Beira City in Mozambique, in 2015 just 50% of HIV infected children were enrolled in care and only 70% of those were retained in treatment after 12 months. The reasons include long turnaround time for PCR early infant diagnosis (EID) results and poor linkage of high risk children into ART services due to limited psychosocial support and adherence counselling and the absence of paired consultation for mother and baby. Innovative interventions involving community support and reorganization were piloted by the Clinical and Community HIV and AIDS Services Strengthening (CHASS) project to improve enrolment and retention.

Description: Between November 2015 and April 2016, CHASS worked with facility staff at Munhava health center to improve these linkages by introducing a point of care (POC) machine for EID in the consultation room for children at high risk, reallocated staff to provide pediatric ART, and assigning a community case manager to follow defaulters and strengthen psychological support. Regular supervision and mentoring supported these innovations. Routine clinic data were collected from patient registers and clinical files from of exposed and infected children. Retention rates were tracked for six months. Results following the introduction of the intervention were compared to those in the 6 months prior to the intervention.

Lessons learned: In the 6 months prior to the intervention 282 exposed children were enrolled versus 352 in the 6 months post intervention. The percent of children tested for PCR EID increased from 73% to 100% and positivity increased from 4 percent to 7.9 percent. Enrollment in care increased from 84% to 100% and 6-month retention from 79% to 95%.

Conclusions/Next steps: Simple reorganization in the high risk consultation room for children in combination with integrating testing services and providing a community case manager for immediate identification for follow up and psychosocial support can improve enrolment and retention without substantial additional effort or resources. Given the simplicity of the interventions and positive feedback from clinical and managerial staff, this approach can be easily scaled up in similar health facilities in the country.
WEPEE592
Acceptability and feasibility of promoting HIV testing to sexual partners using self-testing among HIV-positive men who have sex with men in Guangzhou, China

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Background: HIV testing of sexual partners (SPs) of HIV-positive men who have sex with men (MSM) has always been a significant challenge. Owing to the convenience and privacy, HIV self-testing (HIVST) has become increasingly acceptable. But it is unclear whether HIVST could enhance the uptake of testing among SPs of HIV-positive MSM. Therefore, the current study aimed to evaluate the attitude and the influencing factors about promoting HIVST to SPs among HIV-positive MSM in Guangzhou, China.

Methods: Participants were recruited at the HIV voluntary counseling and testing (VCT) clinic of Guangzhou Center for Disease Control and Prevention between April and December 2016. Attitude and the associated information were collected by electronic-questionnaire and analyzed using logistic regression.

Results: 340 HIV-positive MSM were included in the study, with the median age of 28 (18–52). 78.8% (265/340) participants would recommend HIVST to SPs for HIV testing. The proportion of participants who had had intercourse with regular SPs and casual SPs within the past 6 months were 81.5% (25/178) and 70.3% (104/148), respectively. The willingness to promote testing to regular SPs by HIVST was higher for participants who got diagnosis less than 6 months (aOR: 3.50, 95%CI: 1.09–11.28), once notified the regular SPs for the past 6 months (aOR: 2.37, 95%CI: 1.05–5.39), with self-experience (aOR: 2.84, 95%CI: 1.07–7.59) or experience from friends (aOR: 2.72, 95%CI: 1.16–6.38) about HIVST. Regarded HIVST as non-inferior to VCT (aOR: 0.65, 95%CI: 1.19–3.65), got diagnosis less than 6 months (aOR: 3.80, 95%CI: 1.31–11.01) and once notified the casual SPs for the past 6 months (aOR: 2.93, 95%CI: 1.32–6.48) may be the associated factors for recommending HIVST to casual SPs. Among participants who finished the questionnaire at VCT and preferred to bring HIVST to SPs by themselves, 45.7% (7/15) really took the HIVST kits.

Conclusions: Positive attitude about promoting HIVST to SPs for HIV testing was found among HIV-positive MSM in Guangzhou, China. Enhancing the perception of HIVST, strengthening the consciousness of partner notification and to mobilize SP testing as early as possible after diagnosis of HIV infection, would be the crucial factors for the actual implementation. Anyway, a feasible operation mode is needed.

WEPEE593
Scale-up of a passive referral model of HIV Index case testing to accelerate case identification in Mangochi, Malawi

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Background: Timely identification of people living with HIV (PLHIV) is a critical first step towards the elimination of HIV/AIDS. Index case testing (ICT) can be a high yield strategy to identify PLHIV. Malawi’s national HIV Testing Services (HTS) guidelines recommend ICT through passive referral using family referral slips (FRS). However, only 40% of newly diagnosed PLHIV received FRS in the last quarter of 2016. We describe the scale up of ICT via passive referral and its impact on HIV case identification in Mangochi, Malawi (estimated HIV prevalence 10.1%).

Methods: A total of 763 HTS and antiretroviral therapy (ART) providers from 33 health facilities supported by the TangaThe Program in Mangochi district, received a 2-hour on-site training on ICT and how to issue FRS to clients from May–June 2017. “Index cases” defined as clients either newly diagnosed with HIV or known to be HIV-infected and on ART were educated on the importance of ICT. Those who consented to index testing were given a FRS for each household contact with unknown HIV status. FRS contained information inviting the individual to the facility for family health education. We conducted a descriptive analysis of routinely collected program data from these facilities to examine the number of index cases screened as well as the proportion of and yield amongst contacts tested over a 6-month period post-training.

Results: Between June–November 2017, 4177 index clients were screened. There were 7956 FRS issued: a 50% increase from the 4028 issued from December 2016 to May 2017. Of the FRS issued, 1335 (17%) were for sexual partners and 6641 (83%) for children. There were 1035 (13%) contacts who reported for HTS; 193 tested HIV-positive (19.4% yield). Among those returning for HTS, 228 (22%) were sexual partners, 745 (72%) children and 62 (6%) guardians. Of sexual partners tested, 135 (53%) were male.

Conclusions: Facility-based ICT through passive referral using FRS is scalable with a brief targeted training. Further, it is a high-yield strategy for identifying PLHIV. To optimize the impact of this intervention on case identification, additional efforts are needed to increase the proportion of contacts reporting for HTS.

WEPEE594
Piloting community-based saliva testing increases coverage of key populations in Armenia

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Background: The National Programme on the Response to the HIV Epidemic in Armenia for 2017-2021 adopted United Nations’ 90-90-90 targets. Among the challenges for reaching these targets is new case detection among key populations (KPs). Within Global Fund to fight AIDS, TB and Malaria (GFATM) HIV grants for the last 5 years testing among KPs is done with HIV rapid blood tests. The current legislation permits HIV blood testing only within licensed laboratories, which limits testing coverage particularly among hard-to-reach KPs. To mitigate this challenge community testing with saliva tests for KPs was introduced in August, 2017.

Description: Six-months pilot project in capital city Yerevan envisaged testing of KPs (MSM, PWIDs, CSWs) with “OraQuick HIV-½” tests procured with GFATM support in August 2017-January 2018. The project was aimed to increase the uptake of testing services among KPs. Outreach workers working with KPs underwent a 3-day training on tests application and counseling at the National Center for AIDS Prevention (NCAP). Beneficiaries were tested either at the implementing NGO premises or in the field. Testing and pre- and posttest counseling were provided on 24/7 basis. Positive feedback was received from implementers and beneficiaries during monitoring visits.

Lessons learned: During the pilot 138 beneficiaries were tested in all KP groups. Overall, 17 HIV-positive cases were detected with further linkage to NCAP for care (8 cases detected within health care settings during the previous semester). Virtually all cases (16) were new beneficiaries. The results of the project suggest that a) application of saliva tests at the community level allowed reaching primarily beneficiaries, who avoid testing within health care settings due to stigma and discrimination; b) provision of testing unbound to regular day-time working hours was another advantage for testing expansion.

Conclusions/Next steps: The pilot project proved that community-based saliva testing attracts new hard-to-reach beneficiaries into prevention projects. The project results and positive feedback from the KP communities shaped country consensus on future testing approach in Armenia. Scale-up of community-based testing with saliva tests was considered by country stakeholders as a measure to alleviate low case detection among KPs in Armenia in the GFATM proposal development process.
WEPEE596  
Estimating health workforce requirements for achieving the UNAIDS 90–90–90 targets in three regions of Ukraine and developing strategies to address projected gaps

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Background: Health workforce is a key resource required for a major scale-up of HIV testing, treatment and care services in Ukraine. We aimed to estimate the needs in human resources for health (HRH) for achieving the UNAIDS 90–90–90 targets in three regions of Ukraine representing medium (Poltava and Kherson) and high (Mykolaiv) HIV burden oblasts.

Methods: Study design included five steps for estimating HRH for HIV requirements for the period up to 2020:
(a) defining HIV service package components and annual frequencies of service provision per person;
(b) chronometric: study of time spent on each service component and proportion of services provided by different groups of health cadres (observation of 154 health workers at 59 facilities during 5 days: 44,735 cases of service provision measured);
(c) predicting targets using Box-Jenkins models for service coverage for two scenarios: continuation of on-going trends and achieving the UNAIDS 90–90–90 targets;
(d) measuring HRH for HIV requirements in full-time equivalents (FTE) based on chronometric data and coverage targets;
(e) estimating gaps.

Results: In Poltava region, the availability of HRH for delivery of HIV services was estimated as 122.0 FTE, while HRH for HIV availability was lower in Kherson (78.6 FTE) and Mykolaiv (64.0 FTE) regions. To achieve 90–90–90 targets by 2020 and ensure major scale-up of opioid substitution therapy (40% coverage of people who inject opioids), the required HRH would be 232.0 FTE (95% CI 211.1–252.9) in Poltava, 144.9 FTE (95% CI 125.4–164.4) in Kherson, and 256.7 FTE (95% CI 224.4–288.9) in Mykolaiv regions. In all regions, projected needs for physicians and psychologists/social workers were much greater than for nurses.

Conclusions: To address projected gaps in HRH for HIV for achieving the UNAIDS targets (Kherson and Mykolaiv regions), regional authorities need to implement rapid decentralization strategies. Health service delivery standards need to be reviewed/adopted and enforced to address potential inefficiencies. As supply of new cadres might be limited, task-shifting options from specialized providers to primary healthcare practitioners and nurses with shorter training and fewer qualifications must be fully embraced, including through legislative amendments and provision of required training for those who assume new HIV tasks.

WEPEE597  
Reaching more men with HIV testing through PMTCT program in Southern regions of Tanzania

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Background: With the global adoption of the 90–90–90 HIV epidemic control strategy, the first 90 is very crucial and an entry point into the cascade. In Sub Sahara Africa, most of the clients receiving HIV care are women and reaching men has been a challenge. Male partner testing using the Ante Natal Clinic (ANC) platform has been one of the ap-
proaches that could improve access to HIV testing for men. We evaluated the effect of PMTCT program in influencing male partner’s testing in facilities evaluated with USAID funded projects; the former (TUNAJALI II 2012-2017) and follow on (USAID Boresha Afaa 2016-2022) in Morogoro, Iringa and Njombe. Tanzania.

Description: The National PMTCT program and PFPAR through USAID in 2013 and subsequent years supported roll out of PMTCT Option B+ to scale up ART services among pregnant and breastfeeding women. This was preceded by awareness campaigns encouraging women to come with their male partners for ANC services. The healthcare providers were trained and oriented on couple counseling and pregnant women who came with their male partners were prioritized. Monthly supervision and mentorships were conducted by trained mentors and program staff to promote quality of ART delivery. Annual PMTCT program data (October 2013-September 2017) from 653 supported health facilities from Morogoro, Iringa and Njombe regions were extracted from DHIS2 into excel and analyzed using STATA. Comparison of proportion of male HIV testing yearly with respect to women attended ANC was conducted.

Lessons learned: A total of 635,440 pregnant women attended ANC services, 545,429 (86%) were tested for HIV and 4% were HIV positive. Over the period 275,349 male partners had attended for HIV testing and positivity was 3%. Increasing proportion of male partner (31%, 40%, 47% and 53%) brought by their female partners over the period was 22% (p<0.001). The increase was gradual with more men testing in each subsequent year.

Conclusions/next steps: ANC clinic has the potential as the platform for reaching men with healthcare services especially for HIV testing. This entry point for optimizing HIV testing to reach more men should be emphasized as one of the approaches toward achieving the first 90.

WEPEE598
Mobile health and behavioral PMTCT intervention among community health workers improves exclusive breastfeeding and early infant diagnosis in India
A cluster randomized trial


Background: During the roll out of Option B+ prevention of HIV mother-to-child transmission (PMTCT) services in India, we assessed a strategic, integrated mobile health and behavioral intervention that aimed to enhance the capacity of community outreach workers (ORW) in the national program, to optimize PMTCT services uptake.

Methods: From April 2015-March 2017, a cluster randomized trial was conducted in four districts of Maharashtra, India. Integrated counseling and testing centers (n=192), their ORWs (n=124) and their assigned HIV pregnant/ breastfeeding women (n=1191) were randomized to standard of care (SOC) vs. COMmunity Home Based INDia (COMBIND) PMTCT intervention (Figure 1) that had 4 strategies: 1) Specialized ORW interactive motivational counseling training; 2) Strategic feedback to ORWs; 3) Targeted feedback to HIV+ women; and 4) Use of an mHealth platform (eMOCHA) to facilitate communication with ORWs and women using educational videos and smart form-based counseling scripts. To account for multilevel structure of the data and to assess the effect of COMBIND intervention on study endpoints (Table 1) univariable and multivariable random-effects logistic regression model with random effect for districts and ORWs was used.

Results: Of 884 eligible for outcome assessment, 487 women assigned to SOC were cluster randomized to COMBIND arm, and 397 women (65 ORWs) were assigned to SOC arm. Median age was 25 (IQR, 22-28) years; median CD4 count was 420 (ICR 248-697) cells/ml. HIV+ pregnant women in COMBIND arm showed increased uptake of exclusive breastfeeding (EBF) at 2 months (aOR, 2.10; 95% CI 1.06-4.15), and early infant diagnosis (EID) at 6 weeks (aOR, 2.19; 95% CI 1.05-3.98). We also found a trend towards higher uptake of EBF at 6 months (aOR, 1.24; 95% CI 0.95-3.16) and EID at 6 months (aOR, 1.54; 95% CI 0.94-2.53) (Table 1).

Conclusions: While uptake of key PMTCT services were high in both COMBIND and SOC arms, uptake of EBF and EID among HIV+ pregnant/ breastfeeding women was 2-fold higher in the COMBIND arm compared to the SOC arm. Our study provides evidence that a scalable mHealth strategy supporting strategic motivation and education of ORWs and HIV+ pregnant women can improve implementation of key components of PMTCT services.
WEPEE599
Difference-in-difference estimate of effect of PEPFAR human resources for health investments on HIV treatment results, fiscal year 2016-2017

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Background: In order to accelerate the global fight against HIV and achieve the UNAIDS 95-95-95 fast track targets, PEPFAR supports human resources for health (HRH) who provide HIV prevention, care and treatment services directly to patients in most long term strategy countries. The effect of increasing support for HRH on HIV treatment programs has not been estimated globally. PEPFAR is the largest bilateral funder of global HIV programs.

Methods: Our units of analysis were geographic subnational units (‘SNUs’, such as districts) nested in countries where PEPFAR programs directly support both HRH and HIV treatment. PEPFAR implementing partners report annually on the full-time equivalent (FTE) person-time that PEPFAR compensates for HIV services, as well as total patients on antiretroviral therapy (ART). HRH FTE was a zero-inflated non-normal variable that we split into quartiles for modeling. We fit a mixed effects negative binomial model in Stata for total patients currently on ART, as a function of fiscal year, overall quartile of PEPFAR-supported HRH FTE, and SNU treatment prioritization level. To reduce selection bias and unobserved confounding, we further estimated a difference-in-difference (DID) effect as the interaction term between year and HRH FTE quartile. We modeled a random intercept for country.

Results: 1,618 SNUs across 19 countries were included in our model. Higher PEPFAR support of HRH was associated with higher total ART patients. Moreover, the DID coefficients showed that the highest relative net increase in ART patients between FY16 and FY20 was in SNUs with the third and fourth highest quartile of HRH FTE per country (1.52 times [95% CI: 1.10 - 2.03] and 1.43 times [95% CI: 1.01 - 2.03] higher than first quartile, respectively. Table 1). This association is similar when looking only at lay cadres.

Conclusions: DID estimation suggests that higher levels of PEPFAR support for HRH facilitated a higher net increase of patients on ART over time, and clinical HRH, rather thanlay workers, may be most responsible. Lack of global subnational confounder data, including total HRH not supported by PEPFAR, is a limitation to address in further analysis.

WEPEE600
Trend analysis of HIV/TB integrated services utilization and coverage in Uganda Harm Reduction Referral Points in Kampala, Gulu, Mbarara and Mbale

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Background: TB and HIV co-infection places patients at sharply increased risks of mortality and morbidity. Strengthening access to TB/HIV co-infected patients with needed ART and TB treatment and monitoring is a priority to health service providers. Through implementation of the HIV and Harm Reduction Project in Uganda, a Global Fund-funded project started in 2016. Most at Risk Population Initiative (MARPI)-Mulago through its regional branches has been providing health services or act as Drop in centres for People who use and inject drugs.

Methods: Using routine aggregate HIV/TB program data, an observational, one year trend analysis was conducted in January 2017. Quarterly health facility TB/HIV reports were the data sources. TB/HIV integrated services indicators analysed included: number of TB registered cases, percentage of TB cases tested for HIV, HIV positivity rate among TB patients, percentage of TB cases who were started on cotrimoxazole prophylaxis, and percentage of TB/HIV co-infected started on ART.

Results: From January 2016 to December 2016, the number of TB registered cases varied between 350 and 700 per quarter. The analysis revealed an increasing trend in HIV test coverage in TB registered patients (from 41% in the first quarter of 2016 to 70% in December 2016; a similar pattern was observed in cotrimoxazole prophylaxis initiation (63% to 90% in the same period).

Conclusions: Although this trend analysis has limitations to establish causation, the implementation of HIV and Harm Reduction Project in 4 districts of Uganda and the expansion of ART services with integrated TB services for Drug users has contributed to a scale-up in TB/HIV services utilization in other referral MARPI points in other districts. HIV patients have obtained growing access to TB services over time and TB/HIV co-infected patients are being identified and are more widely accessing ART, which will undoubtedly have a positive impact on health outcomes.

WEPEE601
Optimizing HIV case finding and linkage to care and treatment among adolescents in western Kenya through a comprehensive case finding intervention package

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Background: Low HIV testing uptake among adolescents affects identification of HIV-positive adolescents and their effective linkage to care and treatment services. To address this gap, an innovative package was implemented to improve HIV testing uptake and linkage to care among adolescents aged 10-19 years in Western Kenya.

Methods: This quasi-experimental study used program data at pre- and post-intervention periods to describe effects of an innovative adolescent package at 139 health care facilities (HCFs). The study population was adolescents aged 10-19 years divided into early- and late-age cohorts (10-14 years and 15-19 years). Three types of HCFs were included: hospitals, health centers, and dispensaries. The innovative adolescent package included staff capacity building, program performance monitoring tools, an adolescent-focused HIV risk screening tool and adolescent-friendly HCF hours. Implementation began in July 2016. Data collected included numbers of adolescents tested for HIV, tested HIV-positive.
and were linked to care services. Data were analyzed with descriptive statistics. Pre- and post-intervention demographic and testing data were compared using the Poisson mean test, while Chi-square testing was used to compare the linkage to care rates.

Results: Pre-intervention data were collected from January to March 2017, and post-intervention data collected from January to March 2017. During the pre-intervention period, 25,520 adolescents were tested and 198 were HIV-positive (0.8%) compared to 77,644 adolescents tested with 534 being HIV-positive (0.7%) during the post-intervention period (Seroprevalence was unchanged but p<0.001 - for absolute numbers tested and testing positive). HIV positivity was highest in TB clinics followed by maternal and child health and in-patient clinics. The HIV positivity was also high in nutrition clinics among younger adolescents. The proportion of HIV-positive adolescents linked to care increased from 61.6% to 94.0% (p<0.001). This increase was seen for both males and females, both early and late adolescent cohorts, and in all HCF types (all p-values < 0.001).

Conclusions: Implementation of the adolescent service package in western Kenya improved new HIV case identification and linkage to treatment services among adolescents aged 10-19 years. The package addressed factors associated with increased testing such as staff training, program performance monitoring and provision of adolescent-friendly HCF hours.

WEPEE602
Making the impossible possible: Progress in scale-up of voluntary medical male circumcision for HIV prevention supported by the United States President’s emergency plan for AIDS relief through 2017

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Background: Voluntary medical male circumcision (VMMC), which offers men with lifelong partial protection from HIV and other sexually transmitted infections (STIs), has become a cornerstone of the global HIV prevention portfolio through support by national and global programs, such as PEPFAR. VMMC was introduced in 14 southern and eastern African countries, which scaled-up services progressively between 2007 and 2011. Since then, the PEPFAR program has experienced rapid growth and is contributing to epidemic control in these countries.

Description: All PEPFAR-supported programs report key metrics, including total VMMCs performed and disaggregations of client age range, technique, HIV test results, and post-operative follow-up. These indicators provide an overview of accomplishments and key characteristics of the program.

Lessons learned: From 2007 through 2017, 15.2 million VMMCs were performed with PEPFAR support (Figure 1): representing over 80% of global procedures performed. 2010-2014, annual performance approximately doubled each year. After temporarily slowing of performance during 2015-2016, 2017 represented the highest single year of VMMCs with over 2 million, representing about 61% of total VMMCs performed through 2017. The highest single year of VMMCs performed since program inception, contributing nearly one-fourth (22%) of all PEPFAR-supported circumcisions performed to date.

In 2017, 48% of VMMC clients were between the ages of 15-29 years, a priority age group for immediate impact on HIV incidence. Over twenty-four thousand clients tested positive for HIV at VMMC sites. Device-based techniques constituted a majority of circumcisions, except in Rwanda where they dominated (63%). Post-operative follow-up rates were over 80% overall, ranging from between 60% in South Africa to 100% in Rwanda.

Conclusions: VMMC has undergone an historic scale-up within global health, enabled by dedicated resources, targets setting, leadership, rapid expansion of surgical skills and responsibilities to non-physicians, and public outreach campaigns. Models estimate that the VMMCs conducted through 2016 will avert at least 500,000 infections by the end of 2030. VMMC has also helped prevent HIV and STIs among women. The PEPFAR program’s achievements demonstrate the feasibility of rapid expansion of circumcision, but global strategy must continue evolving to maximize impact, achieve revised UNAIDS targets including circumcising 27 million men during 2016-2020, maintain safety, and meet broader UNAIDS and PEPFAR objectives.

WEPEE603
Can a short-haul specimen referral system work efficiently to access “point-of-care” early infant diagnosis testing? Lessons from Lesotho and Zimbabwe

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Background: Specimen referral systems can increase access to diagnostic services but are also vulnerable to logistical and system efficiency challenges. An efficient specimen referral over short distances (<1 hour) was adopted to increase access to point-of-care (POC) early infant diagnosis (EID). We compared key clinical and service delivery outcomes observed within testing facilities (POC model) to those within referring facilities (referral model), in Lesotho and Zimbabwe.

Methods: We used data from POC EID testing forms routinely used across all 109 facilities (27 testing facilities; 82 referring facilities) having access to POC EID from February to October 2017 across Lesotho and Zimbabwe combined. Key POC EID clinical outcomes (percentage of results returned to caregivers at facility and percentage of HIV-infected infants initiated on treatment) and key service delivery outcomes, including intermediate turnaround times (TAT; between specimen collection, transport, processing, result transmission facility, and return to caregiver) and total TAT (from specimen collection to result return to caregiver at facility) were aggregated per facility. We assess differences between the two delivery models using the Wilcoxon rank-sum test on summary statistics (median, range intervals, proportions) from aggregated facility results returned to caregivers at facility and percentage of HIV-infected infants initiated on treatment) and key service delivery outcomes, including intermediate turnaround times (TAT; between specimen collection, transport, processing, result transmission facility, and return to caregiver) and total TAT (from specimen collection to result return to caregiver at facility) were aggregated per facility. We assess differences between the two delivery models using the Wilcoxon rank-sum test on summary statistics (median, range intervals, proportions) from aggregated facility results.

Results: In both POC and referral models, there were no significant differences in percent results returned (100%), or in the proportions of HIV-infected infants initiated on treatment (100%), despite the latter having a small but significant distribution difference (Table 1). The total TAT median observed in the referral model (2 days [0-28]) was only two days longer than in the POC model (0 days [0-3]), with a significant difference in the TAT groups’ distributions (Figure 1 and Table 1). Whereas both models experienced same-day specimen transportation, caregivers took significantly longer (1 day vs 0 days) to collect the result from facility in the referral model (Table 1).

Conclusions: A short-haul POC EID specimen referral system showed no significant differences in key clinical outcomes, and a significant increment of only 2 days in the final TAT. (mostly due to time required for caregivers to collect results) as compared to patients seen at POC testing sites, and may be considered to increase access to POC EID.
WEPEE605
Adaptive social and behavior change communication strategies achieve modification in social norms around uptake of voluntary medical male circumcision services in traditionally non-circumcising communities of Tanzania
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Background: In 2009, Jhpiego collaborated with the Tanzania Ministry of Health to start offering voluntary medical male circumcision (VMMC) for HIV prevention to males ages 10 years and older in Iringa, later expanding to Njombe and Tabora regions. At inception, male circumcision (MC) prevalence in Iringa, Njombe, and Tabora (all traditionally non-circumcising regions) was 29%, 25%, and 38%, respectively, compared to 67% nationally. As of September 2017, the program had performed 721,444 VMCCs, contributing to an MC prevalence of 80%, 62%, and 67%, respectively, in the three regions, compared to 80% nationally.
Description: Social and behavior change communication (SBCC) strategies achieved modification in social norms around uptake of voluntary medical male circumcision services in traditionally non-circumcising communities, implemented at the beginning when coverage was low among all age groups; a catch-up phase mobilizing female partners to influence VMMC uptake among older youth and men; and a sustainability phase leveraging parental advocacy to cultivate future demand for infant and adolescent VMMC services, implemented as coverage reached 80% among males ages 15-29 years. The program used experiential learning approaches backed by independent operational research on motivational incentives, message dissemination and timing options, service environment, and the role of community-owned resource persons as drivers of VMMC uptake. The main SBCC strategies corresponding to each phase were mass media campaigns promoting self-reinforcing messages; community mobilization at village level incorporating social routines and schedules; and setting-based one-to-one interactions to address individual needs and support linkage to services.
Lessons learned: SBCC strategies responsive to context factors and incremental service coverage, augmented by experiential learning and operational research, helped VMMC to evolve from a cultural novelty to a normative practice in these communities. Figure 1 shows how SBCC strategies adapted as VMMC evolved in the program.

WEPEE604
Patient’s preferences for differentiated HIV service delivery in a routine program setting in Uganda: A cross sectional survey
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Background: The World Health Organization recommends implementing Differentiated Service Delivery Models to improve the quality of HIV care and efficiency of service delivery. Current models of care are typically facility-based, with limited choice of other options for people living with HIV (PLHIV). We evaluated PLHIV’s preferences for facility- vs. community-based care, and desire to be engaged in making a choice as to how to receive treatment.
Methods: We conducted a cross sectional survey that included PLHIV who were receiving facility-based care at three clinics in Uganda: an urban clinic (Mulago AIDS Clinic, Kampala), a peri-urban clinic (Mbarara Municipality clinic) and a rural clinic (Bwindiwa Health centre IV, Mbarara District). Consecutive adults presenting for care at the three clinics were included unless they were unable or declined to provide informed consent. Data on age, sex, median CD4 cell count and duration in HIV care were extracted from clinic records. We administered a questionnaire to assess preferences for facility- vs. community-based ART, and for being engaged in the decision related to model of care (vs. having health care providers decide on their behalf). We summarized data using appropriate descriptive statistics, and compared survey responses by clinical characteristics, clinic location, gender and other variables using the chi-squared test.
Results: During November and December 2016, 532 of 654 PLHIV with complete data were included in the analysis. Majority 337 (63%) were women, median age 39.5 years (IQR, 33.6-47.5) and median CD4 count 502 cells/mm3 (IQR, 359-657). 517 (97.2%) clients had been in HIV care for at least six months. Most PLHIV visited the clinic every 2 months (N=323, 60.7%) or every 3 months (N=190, 35.7%). The majority (N=465, 87.4%) preferred community-based care. Nearly half (N=242, 45.5%) preferred being engaged in a choice for the ART delivery model. PLHIV in the urban clinic were more likely to prefer choosing a model for ART delivery (OR 1.33, 95% CI 1.17 - 1.56) compared to PLHIV in peri-urban and rural clinics.
Conclusions: Most PLHIV preferred community-based care and many desired to be engaged in making decisions for the models of HIV service delivery, particularly in the urban clinic.

Table 1: Comparison of key POC EID clinical and service delivery performance indicators observed in facilities (of the POC and the referral models)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>POC Model</th>
<th>Referral Model</th>
<th>p value *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of facilities analyzed</td>
<td>27 testing facilities (2,670 specimens)</td>
<td>82 referring facilities (2,076 specimens)</td>
<td>_ _ _</td>
</tr>
<tr>
<td>Percentage of results returned to caregiver (median)</td>
<td>100% [91-100]</td>
<td>100% [75-100]</td>
<td>p=0.996</td>
</tr>
<tr>
<td>Percentage of HIV-infected infants initiated on treatment (median)</td>
<td>100% [0-100] (IQR)</td>
<td>100% [75-100] (IQR)</td>
<td>p=0.018</td>
</tr>
<tr>
<td>Blood collection to reception at testing site (including sample transportation)</td>
<td>0 days [0-0]</td>
<td>0 days [0-2]</td>
<td>p=0.004</td>
</tr>
<tr>
<td>Blood collection to processing at testing site</td>
<td>0 days [0-0]</td>
<td>0 days [0-1]</td>
<td>p=0.059</td>
</tr>
<tr>
<td>Median TAT from:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing to result sent to requesting unit</td>
<td>0 days [0-0]</td>
<td>0 days [0-5]</td>
<td>p=0.008</td>
</tr>
<tr>
<td>Result at Requesting unit to result received by caregiver</td>
<td>0 days [0-1]</td>
<td>1 days [0-24]</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Blood collection to result communication to caregiver</td>
<td>0 days [0-3]</td>
<td>2 days [0-28]</td>
<td>p=0.001</td>
</tr>
</tbody>
</table>

*The significance threshold was set at 0.05
WEPEE606

Scaling up pediatric HIV treatment coverage in Uganda through a prioritized approach

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Background: Among the 193,500 children living with HIV in Uganda in 2014, only 27% were on treatment, compared to 52% of adults. Efforts needed to be accelerated to improve pediatric coverage; balancing resource availability and prioritizing areas with the greatest gaps. However, there was a lack of peds surveillance data, with 2005 AIDS Indicator Survey (AIS) data being the most up to date information available.

Description: Using available ART data, a district prioritization exercise was conducted to determine districts and facilities with the highest pediatric scale-up potential, defined as the number of children needed to be put on ART to reach parity with adult coverage rates. The underlying hypothesis was that HIV-positive children were likely to be where HIV-positive adults lived, and we could maximize early impact by focusing on the districts with high adult coverage and relatively low pediatric coverage rates. A target proportion of pediatric patients relative to adult patients was determined based on the underlying goal of scaling up pediatric coverage to adult levels. For each district and facility, the current pediatric scale-up potential, defined as the number of children needed to achieve HIV coverage rates, was determined and ranked from largest to smallest potential.

Lessons learned: The district prioritization exercise revealed that 30 of Uganda’s 112 districts held 75% of the total pediatric treatment scale-up potential of 51,000 children, with 19 districts holding 53% and the remaining 11 districts holding 22%. 15 out of Uganda’s 5,065 facilities with active pediatric patients held 25% of the total scale-up potential alone, suggesting the opportunity for a targeted and prioritized approach. Based on these findings, Ministry and partners agreed to prioritize facilities in 19 districts accounting for 53% of the scale-up potential, representing 26,694 children.

Conclusions/Next steps: This approach shows that targeting and prioritization can be used to improve resource allocation of funding in resource-limited settings and have high impact. This consortium has been funded by ELMA Philanthropies, and has moved from contributing to 35% of national pediatric identifications in Q3 2015 to contributing 41% of pediatric identifications as of Q3 2017.

WEPEE607

How many are eligible for PrEP? Implementing New Zealand’s new publicly funded and targeted PrEP policy

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Background: New Zealand (NZ) will be among the first countries internationally to launch a publicly funded PrEP programme in March 2018. Eligibility focuses on gay and bisexual men (GBM) with a recent history of condomless anal intercourse with casual partners, rectal bacterial sexually transmitted infection and methamphetamine use (criteria 1), and regular sexual partners of people with diagnosed but untreated or suppressed HIV (criteria 2). PrEP could have a substantial population-level impact on HIV transmission and be cost effective if targeted and scaled-up rapidly but a key question is the size of the eligible population.

Methods: We drew on nine sources to estimate the PrEP-eligible population:
(i) Statistics NZ data;
(ii) PHARMAC data on the number of adults receiving funded ART;
(iii) expert advice;
(iv) estimates of the HIV Care Cascade;
(v) active surveillance of diagnosed and undiagnosed HIV in a community sample of GBM;
(vi) passive surveillance of new HIV diagnoses;
(vii) NZ Health Survey data;
(viii) HIV behavioural surveillance among GBM;
(ix) behavioural data among people living with HIV from the HIV Futures NZ study.

From these we derived three estimates relating to:
(a) GBM (criteria 1 and 2);
(b) non-GBM (criteria 2);
(c) total eligible.

Results: We estimated that 17.9% of currently sexually active HIV negative GBM would be eligible for PrEP in New Zealand under criteria 1 or 2, equating to 5,816 individuals. We estimated that 31 non-GBM individuals would be eligible under criteria 2. In total 5,847 individuals would be eligible for PrEP, comprising 99% GBM and 1% non-GBM. A number of data sources were imperfect, including poor information on transgender populations potentially eligible.

Conclusions: The estimated PrEP-eligible population in New Zealand is modest. Public health actors can apply estimates of the PrEP-eligible population to make a number of strategic decisions. Policy makers can utilise enumeration to monitor the speed, scale and gaps in coverage once implementation begins. Sexual health and primary care services can apply enumeration to forecast anticipated demand for PrEP and plan accordingly. The process of enumeration also identifies knowledge gaps that can subsequently be addressed to improve accuracy.
WEPEE609

Combining online and offline strategies: 15 years of lessons learned from the hepatitis B vaccination program for Dutch men who have sex with men and sex workers

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Background: Men who have sex with men ( MSM ) and female, male and transgender sex workers ( SW ) are at increased risk for sexual transmission of hepatitis B in the Netherlands. Subsequent to a successful pilot, national partners have been collaborating with local public health services to provide a targeted hepatitis B vaccination program ( HBV ) among MSM and SW since 2002.

Description: Retrospective analysis of program data was conducted. Participant characteristics and results of integrated HIV testing and VIA were summarized. Association between HIV status and outcomes of cervical cancer screening were explored using SPSS.

Lessons learned: Overall, 6,527 women were screened for cervical cancer between October 2016 and September 2017. Their mean age was 33 years ( range 14-88 years ). Overall, 39.5% ( n=2,577 ) were aged below 30 years, 49.5% ( n=3,228 ) were aged 30-49 years, and 11.0% ( n=715 ) were aged 50 and above. Of the total screened, 3.6% ( n=234 ) were found to have positive findings ( mild, moderate or severe dysplasia ) on unaided VIA, while 96.4% did not have any abnormalities. A total of 11 women had precancerous lesions ( CIN II, CIN III, carcinoma in situ or cervical cancer. Additionally; 12 women had benign lesions including cervicitis ( n=2 ), condyloma acuminata ( n=5 ), warts ( n=4 ), herpes ( n=1 ), and Nabothian cysts ( n=1 ) and folicles ( n=2 ). Access to treatment was moderate, with 58.8% of those with positive findings on VIA, benign lesions, precancerous lesions, or cervical cancer accessing treatment within the 12-months period analyzed. Furthermore, 17.9% ( n=1166 ) of the 6,527 screened women were HIV positive. HIV positive status was associated with positive findings on VIA ( OR=1.206, 95% CI: 2.552-4.375, p 0.0001 ), and with precancerous lesions and cervical cancer ( OR=1.903, 95% CI: 1.825-25.128, p 0.001 ).

Conclusions/Next steps: Cervical cancer screening using VIA reached a large number of women when offered through integrated HIV services. Given the higher risk of dysplasia, precancerous and cervical cancer among HIV positive women, the integration VIA within HIV services model is a promising strategy for cervical cancer prevention, which can be enhanced with cytology, HPV or pap tests in future.

WEPEE611

Comparative yield of community active tuberculosis case finding approaches in Zimbabwe

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Background: Zimbabwe is ranked among the top 30 high burden countries for TB, TB-HIV and drug-resistant TB, with estimated treatment coverage at 81% in 2018. As part of efforts to find missed cases within the framework of the post 2015 end TB agenda, the country has adopted innovative active case finding approaches.

Description: In 2017, The Union in collaboration with the Ministry of Health and Child Care supported three models of active case finding namely: 1) Targeted active case finding among high risk communities using a mobile X-ray van 2) Intensified contact investigation using community health workers ( CHWs ) on motorcyces in two high burden districts and 3) Door to door screening for TB through a network of CHWs in two rural districts. We set out to compare the yield of the different active case finding approaches.

Lessons learned: For the period February–December 2017, 60,807 clients were screened for TB through the X-ray van and 1,080 diagnosed with TB. The number needed to screen ( NNS ) was 56 at a cost of $781 per case diagnosed. Through contact investigation for the period August working from home and migrant MSM and SW. To reduce costs and improve effectiveness in the coming years, the HBV program will place more emphasis on service provision in online communities and a more effective interplay between campaigns, outreach and direct vaccination.
WEPEE612
Rates of ART initiation and time from HIV diagnosis to ART initiation in selected Namibian health facilities one year before the national rollout of Namibia’s Treat All guidelines

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Background: Research shows that reducing the time between a confirmed HIV diagnosis and subsequent ART initiation can expedite viral suppression and reduce loss to follow-up for people living with HIV (PLHIV). This abstract describes current trends in time-to-initiation based on data collected from HIV clinics in Northern Namibia as part of a larger study assessing the effects of the national implementation of Treat All guidelines—under which all PLHIV are immediately eligible to begin ART.

Methods: We conducted a secondary analysis of routine health records from 10 purposefully-selected ART clinics, supported by the USAID HIV Clinical Services Technical Assistance Project (UTAP). The dataset contains patient demographics, dates of HIV diagnosis and ART initiation, and longitudinal data on clinic visits during the 12-months preceding the national introduction of Treat All. We examined a subset of 147 PLHIV whose diagnosis occurred between 1 April-13 December 2016. To assess how changes to ART guidelines and practices affected time-to-initiation, we stratified the records into three 90-day cohorts based on date of diagnosis.

Results: Of the records analyzed, 63% (n=91) were women, median age was 34 years. On average, patients transitioned onto ART within 72 days of HIV diagnosis; half started ART within 51 days, and 7% started within one week. Neither sex nor age were associated with ART initiation or time-to-initiation. Nearly 90% of patients in all three cohorts initiated treatment by 31 March 2017 (p=0.269), and median time-to-initiation decreased sequentially (Chart 1). The log-rank test indicates this trend is significant (χ²=159.6; p<0.0001).

Conclusions: High treatment initiation rates and the decreasing trend in time-to-initiation suggest that the facilities surveyed are making progress toward ensuring that 90% of all diagnosed PLHIV are linked to treatment. Factors influencing this trend may include UTAP’s continuing technical support, ART service decentralization, expanding CD4-based ART eligibility from 350 to 500 (cells/mm³), and preparations for Treat All. We will repeat this analysis using data collected after the first 12-months of Treat All implementation.

WEPEE613
Accelerating implementation and scale-up of comprehensive programs for HIV prevention, diagnosis, treatment and care for key populations: Critical to HIV epidemic impact

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Background: Key populations (KP) face disproportionate barriers to accessing services compared to other populations and have the highest incidence of HIV infection. To achieve epidemic control, national program coverage of KP must be accelerated to ensure HIV transmission is stopped and KP PLHIV are identified, initiated and remain on treatment. Scaling quality KP programming is thus essential and means must be in place to accelerate the impact of those programs on the HIV epidemic.

Description: In late 2015, the USAID- and PEPFAR-supported LINKAGES project developed a method for accelerating the scaled delivery of quality interventions for KP in 17 countries in Africa and the Caribbean. This included development of a common core KP program and implementation guide that covered size estimation, mapping, KP engagement, structural interventions, peer outreach, clinical services, program management, and monitoring/data use. The step-by-step guide, designed to be adaptable at country level, served as the basis for development of country operational plans, as well as training, technical assistance (TA) and monitoring and evaluation. Frequent, rapid, and targeted TA was provided to countries to support implementation of the common core program. A technical checklist aligned with the guide allowed for frequent evaluation of progress.

Lessons learned: The common core ensured that a standardized package of essential KP services could be delivered consistently in each country, while allowing for adaptation to various settings. The method promoted constant course adjustments to respond to changing KP locations and denominators, differentiated service delivery models that could be adjusted by location/population type, constant community engagement, and a culture of data use at site level to track individuals

(Time elapsed between HIV diagnosis and ART Initiation)

(Figure 1. Average scores on quality KP program implementation in the seven core program areas)

[Figure 1. Average scores on quality KP program implementation in the seven core program areas]
throughout the HIV cascade. Implementation quality was assessed using the checklist linked to the common core. In a sample of 6 countries, quality implementation scores improved in all seven areas of the common core, from an average score of 40.7 in December 2015 to 91.4 in May 2017.

Conclusions/Next steps: The described method and standard package have been successful at improving and scaling KP services across multiple country contexts and can be used and adapted anywhere for similar results. These lessons could also be transferred to other health and development challenges.

WEPEE614
A ten-year trend analysis of inpatient diagnoses of cellulitis, endocarditis, osteomyelitis and pneumonia for intravenous drug users between 2006 and 2015

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Background: The re-use of syringes in the context of persons who inject drugs has an increased risk for the development of soft tissue, endovascular, bone and pulmonary infections. Since 1992, the New York State (NYS) Department of Health’s AIDS Institute has implemented the harm reduction strategy of expanded syringe access. We analyzed the global impact of syringe access on emergency department (ED) and hospital inpatient utilization for the aforementioned infections.

Methods: Reviewing the New York State Statewide Planning and Research Cooperative System (SPARCS) data, we examined trends of adult (≥18 years old) ED and hospital inpatient utilization and mortality between 2006 and 2015 for soft tissue, endovascular, bone and pulmonary infections among persons who inject drugs. Multivariate regression was then applied to predict the likelihood of inpatient mortality. Zero-order correlations were applied between two variables to calculate the confidence levels.

Results: From 2006 to 2015, the number of discharges among persons who inject drugs decreased 22.4% (from 23,652 to 19,872, p < 0.0001). Among patients who use injection drugs, cellulitis-related to injection drug discharges also significantly decreased from 5,354 to 5,354 (13.5%, p < 0.0001) during this period. The mortality rate for persons who inject drugs-related discharges increased from 793 to 822. Expired patients who inject drugs had the highest average length of stay (ALOS), but they also declined from 13.6 to 11.2 days.

When controlling for patients expiring during hospitalization, the ALOS averaged 69 days through the decade. As expected, no significant changes were noted in aspiration pneumonia rates. Osteomyelitis maintained the highest ALOS of 16.3 days in 2006 to 12.7 days in 2015. The multivariate result showed patients who inject drugs with endocarditis are 1.4 times more likely to be admitted to inpatient through emergency department (odds ratio 1.434; 95% confidence level 1.399-1.469, p < 0.0001).

Conclusions: The expanded syringe access harm reduction strategy has health care impact beyond decreasing HIV and HCV transmission dynamics.

WEPEE615
Implementation of the community adolescents treatment supporters programme with Africaid

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Background: World Health Organization (WHO) in 2015 recommended that HIV treatment to children, adolescents and young people (CAYPLHIV) should be started regardless of CD4 cell count or disease stage ‘Treat All’ approach has been adopted by the Zimbabwe Ministry of Health and Child Care and has been cascaded to Goromonzi district in Mashonaland East Province.

Methods: ‘Treat All’ is anticipated to increase the number of CAYPV enrolled in HIV treatment and care. HIV programs in high prevalence areas are overstretched and seek efficient ways to deliver care and treatment to meet clients’ diverse needs and lower barriers to care while optimizing efficiency. The 2015 Africaid operations research in rural Zimbabwe measured the effectiveness of the peer-led model and community approach to strengthening adherence and retention. Compared adherence and retention among those receiving standard of care and the Africaid supported clients receiving standard of care plus Community Adolescents Treatment Supporters (CATS) services showed improved adherence in the latter. From these results, the model was cascaded to Goromonzi District and has been implemented from October 2016 to date.

Results: 32 CATS were trained, mentored and have provided differentiated services to 2,378 CAYPLHIV below 24 years. The CATS model has resulted in 856 newly diagnosed CAYPLHIV and 70% were linked into care under ‘Treat All’ initiative. Improved adherence as evidenced by viral load (VL) was witnessed among those receiving CATS services. 81.7% of 2,378 had a viral load; 1,927 which amount to 81.5% had a VL below 1000 copies/mm and 15 had a VL above 1000 copies/mm which is 0.77%. Then 64.8% of 2,378 having been referred for services thus improving retention. CATS are well integrated with strong systems so that they can refer their peers who are in need of further support including mental health.

Conclusions: Working with CATS programs, MoHCC recommended to work with more expert clients to ensure timely linkages of CAYPLHIV for this has shown a greater improvement especially on adherence. This also works best for differentiated care implementation. Linkage to care was significantly associated with the period of engaging expert clients in the project.

WEPEE616
The benefits and utility of surge strategies with HIV-positive patient tracing exercises: The Zomba, Malawi experience

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Background: Meeting the UNAIDS/PEPFAR 90-90-90 targets are necessary but often difficult to achieve for HIV treatment and care sites in resource-limited countries like Malawi. The USAID-sponsored EQUIP consortium, with its implementing partners (IP), currently provide comprehensive rapid scale-up of antiretroviral therapy (ART) services across 28 health facilities in Malawi. EQUIP’s improved Integrated (ID) program provides direct service delivery in Zomba and Machinga districts of southeastern Malawi.

Description: In July 2017, EQUIP placed 17 of DI’s 28 Zomba health facilities under remediation based on gaps in specific indicators of the cascade, namely: < 75% of those testing HIV-positive were not initiated on ART. Between 13-30 September 2017, EQUIP Central’s technical team joined members of EQUIP Malawi and DI representatives in Zomba to implement a surge strategy to delineate how many HIV-positive patients from site registers had not been ART initiated. This information was used to commence with a tracing exercise from 23-29 September to bring those not initiated and lost to follow-up (LTFU) back into treatment.

Lessons learned: Of the 1,057 patients from 17 facilities needing tracing, HIV diagnostic assistants (HDAs) were able to actively trace 1,028 (96.3%) patients in 7 days. From the 1,028 traced patients, 400 (38.6%) were already on ART at their initial site or another nearby. From the remaining 520 traced patients who were physically locatable, 130 (25%) returned to the clinic and initiated ART. These 130 (25%) patients were from the group of the 140 patients who told their HDA that they definitively would come back to the clinic for treatment, and thus did so. From onset of the surge through the tracing exercise, sites’ linkage and ART initiation rates were markedly higher than in previous months.

Conclusions/Next steps: Our expert HDAs knew their catchment areas and were quickly and efficiently able to trace >95% of LTFU patients. The tracing exercise further revealed data challenges, specifically incom-
pleness of patient data registers, client tracking processes, and patient referral systems. This necessitated mentoring on ART data collection tools and enhanced monitoring and evaluation training to reconcile HIV-positive and ART registers to ensure that all sites adhere to WHO’s test and treat strategy.

WEPEE618
Community task force making a difference: Increasing TB case notification rates through community-led TB campaigns (TBC) in 11 regions in Tanzania

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Background: Tanzania ranks 15th among 22 TB high-burden countries and 6th in Africa. Since April 2016 Save the Children Tanzania has been implementing a Global Fund-supported TB/HIV program in partnership with four local sub-recipients in 14 high TB/HIV-burden regions. Despite reaching DoTs coverage of 100% and treatment success rate of 83%, TB case detection remains at 33%. Two thirds of people estimated to have TB are not reached by the health system. Challenges include poorly equipped diagnostic facilities. Low community awareness, distance from communities to diagnostic centres, break down in the referral supply chain with no mechanisms for escorted referrals. The program supports the Government of Tanzania’s goals of increasing TB case detection efforts and reducing the incidence of TB by 25% and mortality by 50% of TB and Leprosy by 2020.

Description: A key intervention undertaken to achieve these goals are community-led TB Campaigns modeled along Combination HIV Prevention Campaigns aimed at increasing community TB awareness, strengthening active case-finding and community uptake of TB/HIV collaborative services. Using a campaign slogan dubbed, “I am a TB Case Hunter: How about you?”, 11 one-day TB campaigns were conducted from 14th November to 16th December 2017. This consists of community-friendly social mobilisation strategies and campaign actions including public education through mass-media, folk-media/theatre to mobilise communities to campaign grounds to receive TB Health Education, TB-screening and on-site sputum examination of presumptive cases in collaboration with District Laboratory technicians.

Lessons learned: In the 11 one-day campaign events, 2766 community members were screened for TB; specimens of 1298 (46%) presumptive TB cases were processed on-site; 376 (29%) were confirmed as TB cases. The results show that delivering TB services through community-taskforces using community-friendly campaign-actions generates community-demand for services and increases TB case-notification by combining leadership engagement/advocacy with service-delivery at community-doorsteps in a fun environment.

Conclusions/Next steps: By leveraging the visible participation/involvement of a broad spectrum of community stakeholders including Health-Care workers, EX-TB patients, CSOs and PLWHIV Networks, the TB campaigns validated the Engage-TB model. A targeted scale-up of this approach therefore has significant promise in ending the TB epidemic in Tanzania.

WEPEE619
The uptake of the PrePex and Shang Ring male circumcision devices among adolescent and adult males in sub-Saharan Africa, a systematic review

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Background: Voluntary medical male circumcision (VMMC) programs have been implemented in fourteen countries in sub-Saharan Africa since 2007. The uptake of services has been suboptimal in some of these countries. Circumcision using device methods was postulated to increase the uptake of services. We conducted a systematic review to establish the uptake and acceptability of the PrePex and Shang Ring male circumcision devices in VMMC program countries.

Methods: A comprehensive literature search was carried out to identify studies reporting uptake or acceptability of either the PrePex or Shang Ring device methods. The search was limited to English language articles of studies among adolescents and adults in VMMC implementing

WEPEE617
Key populations leading the way: Innovative strategies for increasing HIV testing yield in high risk communities in Guyana

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Background: Guyana’s 2014 Biological and Behavioural Surveillance Survey reports significantly higher HIV prevalence among KPs compared to 1.6% in general population. Transgender persons prevalence rate at 8.6%; sex workers at 5.5%; and men who have sex with men at 4.9%. There are persistent programmatic challenges to reaching and testing most at-risk KPs due to high levels of stigma and discrimination. Consequential, is low uptake of HIV testing services (HTS) and treatment services among KPs. This threatens Guyana’s ability to help its people and achieve UNAIDS 90/90/90 targets.

Description: To address challenges, Advancing Partners and Communities (APC) Project in Guyana, a USAID funded programme led by JSI, introduced a personalized KP social network strategy. APC-supported peer educators, themselves KPs, belonging to social networks of most at-risk KPs reach them individually to encourage testing and linkage to treatment. KP peer educators provide HIV education in high risk communities for the most at-risk from their social networks and refer for HTS provided by KP-led NGOs. Efforts to improve HIV testing yield include personalized HTS and those testing HIV-positive are referred to a treatment site and accompanied if they choose.

Lessons learned: Identification of most at-risk KPs, testing them and their partners, and linking positives to HIV care and treatment services yields the best outcomes. HTS quarter one results between 2017 and 2018 show a decrease of testing by 18% but an increase in HIV positive diagnosis by 14%. The results directly correlates to APC’s strategy. In quarter one of 2017, 14.3% of newly diagnosed KPs linked to HIV treatment - 7% female sex workers (FSW), 7% men who have sex with men (MSM). In quarter one 2018, 43.8% KPs linked (12.5% FSW, 25% MSM & 6.3% transgender).

Conclusions/Next steps: The concept of a personalized approach for peer-led HTS and linkage is labour intensive but effective. Working in conjunction with KPs to develop tailored and flexible approaches that nimbly respond to challenges can lead to innovative strategies which achieve the best results to locate, diagnose and link most at-risk KPs.

(HTS_TST_POS to TX_NEW from 17 Zomba, Malawi Remediation Sites by Week: 1 Aug - 30 Oct 2017)
countries. Two reviewers independently reviewed and abstracted data from each article. Upoke was defined as selection of a device, either the PrePex or Shang Ring, when offered a choice between the device and another method of circumcision. Uptake estimates were pooled in a meta-analysis and stratified by device method and participant age. Acceptability of device methods among recipients was summarized using four criteria and presented as proportions.

Results: Of the 391 total articles retrieved, 25 studies met the inclusion criteria. Of these, 7 articles reported uptake of device method. The pooled uptake estimate was 75% (95% CI 62% to 89%). PrePex uptake was estimated to be 73% while the Shang ring estimates were 82%. By age group, uptake of device methods among adolescents was 82% compared to 72% by adults. Majority (21) of the studies reported at least one criteria used to assess acceptability. Acceptability of the two device methods was high: 95% of participants reported satisfaction with a device procedure. The devices were not associated with lengthy periods from work. Almost all (97%) participants circumcised with the device methods indicated they would recommend a device procedure to a friend or relative.

Conclusions: Our findings showed a high uptake and acceptability of the two circumcision devices methods that have been prequalified by WHO for use among adolescents and adults. These findings support the likelihood that circumcision uptake could be assisted by introduction of the two device methods in countries where coverage remains suboptimal.

WEPEE620

From tokenism to concrete practice- the story of lived realities of PLHIV through MIPA forums in Zimbabwe

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Background: The 1994 Paris Declaration, the UNGASS Declarations of 2001, 2012 and 2015 all had a common thread that PLHIV are critical to an ethical response to HIV and AIDS and they should be meaningfully involved in the HIV response. Greater/meaningful involvement of People Living with HIV and AIDS (GIPA/MIPA) was considered to be important because:

- HIV people bring a unique perspectives of their personal experiences, to the development and implementation of HIV and AIDS programmes.
- Reaffirms the protection and promotion of the rights of PLHIV to participate freely, without discrimination, in the development process.
- Helps to reduce stigma and discrimination, as they challenge the myths and misconceptions about HIV and AIDS.

Zimbabwe is one of the Countries that took this concept seriously and established a MIPA desk within the National AIDS Council. It is through this desk that MIPA Forums were established.

Description: MIPA Forums were established at districts, provincial and National levels. For and by PLHIV and meet quarterly to discuss issues affecting PLHIV such as availability of medicines, access to services and programmes and impacts of certain policies on PLHIV. The national MIPA Forum brings together PLHIV from Women, Adolescents, Religious Leaders, Key Populations and representatives who sit on national, international boards and Government officials to discuss how to achieve the three 90s.

Lessons learned:
- There is a very strong voice of PLHIV community from all sections of PLHIV guiding the planning of the national response at all levels.
- PLHIV have been empowered and have represented the country and region at various international boards.
- The health outcomes for PLHIV have greatly improved as indicated by 90% Viral Suppression at 12 months and 87.7% adults ART retention by December 2017.
- There has been mutual exchange of information between PLHIV and key service providers.

Conclusions/Next steps: PLHIV are critical in shaping the national response as they bring on board their lived experiences. MIPA Forums have proved to be the best vehicle of harnessing the knowledge and skill of PLHIV to shape the national response and they need to be strengthened to achieve the 90-90-90 goals.

WEPEE621

National mentorship to improve testing uptake for HIV-exposed children in Malawi

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Background: Malawi adopted Option B+ for the prevention of mother-to-child transmission (PMTCT) of HIV in 2011. Without treatment, fewer than half of HIV-positive children survive past two years, making early identification critical to reducing mortality. As such, known HIV-exposed children are routinely tested at 2 months, 12 months, and 24 months. However, by 2015 testing uptake for HIV-exposed children in Malawi was less than 50% at each of these milestones. In April 2016, the Malawi Department of HIV/AIDS and Clinton Health Access Initiative developed a half-day in-service guided mentorship for PMTCT service providers.

Methods: Mentorship focused on reviewing and strengthening patient flow, testing procedures, and documentation practices. Existing national PMTCT mentors were oriented to a mentorship checklist and deployed to public health facilities in teams of three. In addition to the checklist, mentors were provided with facility-specific data sheets to identify areas for improvement. The mentorship model was first piloted in 5 districts in southern Malawi, with 80 facilities receiving 2 rounds of mentorship over 6 months. In February 2017, this model was scaled nationally, reaching more than 400 facilities that collectively accounted for 95% of all exposed infant testing volume. National mentorship continued quarterly through 2017 and is expected to continue through Q2 of 2018.

Results: Compared to testing uptake prior to mentorship (Q1 2016), the most recently available data (Q3 2017) indicates that uptake increased substantially across exposed-child testing milestones. Uptake at 2 months increased by 100% (35% to 73%), uptake at 12 months increased by 38% (53% to 73%), and uptake at 24 months increased by 18% (56% to 66%).

Conclusions: The national mentorship program contributed to a substantial improvement in uptake across exposed-child testing milestones. Additional efforts are needed to ensure that HIV-exposed children remain HIV-free, including efforts to retain HIV-positive mothers on treatment throughout breastfeeding and follow up with mothers and children who miss testing milestones.

WEPEE622

Scaling up voluntary medical male circumcision services in Lusaka District of Zambia

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Background: Male circumcision (MC) prevalence in Lusaka Province is 23% and HIV prevalence is 18%; the highest in the country. 80% of the population of the province reside in Lusaka District and has thus become a target for the scale up of HIV prevention services including MC. Historically MCs in Lusaka District have been dismal in comparison to its large population with only 33% of the annual target achieved in 2016.
Description: Jhpiego is implementing a 5-year CDC funded project under PEPFAR, providing MC services to reduce HIV transmission, thereby contributing to the control of the epidemic. The project plans to increase MC coverage to 80% in its supported districts which includes Lusaka. Services were scaled up through restructuring demand creation and service delivery strategies in 2017; this included: targeted demand creation using GIS mapping data; engagement of resident community mobilizers and facility environmental technician cadres; decentralization of services to health posts through regular outreaches; a roster of service delivery providers for continuous deployment; as well as daily MC monitoring by program managers.

Lessons learned: This approach resulted in continuous client flows and seamless service provision. A review of MC uptake in Lusaka district from routine program data shows a dramatic improvement with over 4000 MCs done quarterly since April 2017 when this approach was implemented as compared to about 1000 MCs in the previous 5 quarters of the project. The project has contributed 15.3% of the MOH annual target for Lusaka district (67,566) after 3 quarters in 2017 as compared to only a 5.5% contribution in 2016. The project also exceeded its annual COP target by 15%.

Conclusions/Next steps: The project is now consolidating the principles of this approach as part of its standard implementation procedures and scaling this approach to its other districts of operation. These successes will also be shared with relevant stakeholder groups i.e. MOH, TWGs and other implementing partners for potential use across the country.

Methods to improve service quality, support and tailoring of services

WEPEE624
Implementing the Test and Treat policy: Increasing access to quality HIV care services at 11 USAID / Strengthening Uganda’s Systems for Treating AIDS Nationally (SUSTAIN) supported hospitals

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Background: Uganda adopted the UNAIDS 90-90-90 strategy in 2015. The second and third 90s stipulate that 90% of people with diagnosed HIV infection should receive sustained antiretroviral therapy (ART), and 90% of these should achieve viral load suppression. However, only 48% of the 36.7 million people living with HIV (PLHIV) had received ART (World Health Organization [WHO] 2019), the majority initiating treatment with advanced HIV infection. Uganda’s Consolidated Guidelines for Prevention and Treatment of HIV (2016) recommend that every HIV positive person should be started on lifelong ART despite their WHO clinical stage or CD4 count—“The Test and Treat” policy. Contrary to this guidance, staff at health facilities countrywide including 11 USAID SUSTAIN supported hospitals were not trained on the new guidelines. By December 2016, 271 PLHIV in care were not on ART (pre-ART) at the 11 hospitals. Other barriers included low ART stock-out, poor client flow and low staff - patient ratio.

Description: In February 2017 USAID SUSTAIN and the Ministry of health conducted a training of trainers followed by 3-day hospital-based trainings of medical, laboratory and data personnel, counselors, community
linkage coordinators, clinic volunteers and peer patients. We oriented them on the guidelines and gave them desk job aids, guideline booklets and standard operating procedures. We supported the ART clinic staff to establish quality improvement (QI) projects and assign roles to the QI team to implement the ‘Test and Treat’ policy. Using a Ministry of health assessment tool, we reviewed implementation of the guidelines at one month and conducted mentorship and follow on assessments at three months post-training. We checked progress, identified gaps and made action plans to address them in the following month. Table 1 highlights these QI changes.

<table>
<thead>
<tr>
<th>Description:</th>
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<tr>
<td>A multi-disciplinary team selected and assigned roles to accelerate new ART enrollment including conducting pre-ART counselling, forecasting and ordering adequate ART retro-viral drugs for both new and old clients.</td>
</tr>
<tr>
<td>Continued Medical Education for all ART providers on the Test and Treat policy.</td>
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<tr>
<td>Generating a list of clients eligible for ART using the Uganda electronic medical records system.</td>
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<tr>
<td>Labeling HIV patient files with colored stickers that notify clinicians of clients who are not yet initiated on ART.</td>
</tr>
<tr>
<td>Data review meetings to assess progress on enrollment of pre-ART clients on ART.</td>
</tr>
<tr>
<td>Daily health education sessions for clients on Test and Treat policy and referral of clients for adherence counselling.</td>
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| (Table 1: Changes tested to increase initiation of HIV positive clients on ART at 11 USAID SUSTAIN supported sites) |

**Lessons learned:** Training and engagement of multidisciplinary teams increased enrollment on ART. Post-training mentorships support adaptation to policy change.

**Conclusions/Next steps:** Systematic, implementation of quality improvement approaches through multidisciplinary teams enabled hospital teams to implement the Test and Treat policy.

**WEPEE625**

*Modern response to modern living - addressing HIV service needs in spa and massage parlors for men having sex with men (MSM) in India*

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**Background:** HIV prevalence among MSM in India reported is at 4.3% in 2016. Despite of strategic HIV interventions from National AIDS Control Organisation (NACO), the prevalence among MSM remains significantly high. Punitive laws on homosexuality, stigma and taboo associated with MSM creates larger challenge on reaching to hidden MSM across India. The traditional sex sites have disappeared over times and the physical contacts have shifted to virtual contacts and sexual encounters are secretly done during spas and massage parlors in many countries including India.

**Description:** Samarth, meaning ‘empowered’ in Indian language is a programme based on the principle of ‘test-treat-adhere-prevent’ cascade for MSM and transgender population in India. The model aspires to establish strategies to support hard to reach clients for early testing to treatment linkages (after confirmatory test) for reactive clients and to repeat tests for people with negative results in every six months. Health camp approach has been taken to reach out to spas and parlors where MSM get door step services for HIV screening. People with positive screening results are then counseled and accompanied to government HIV testing centers and linked to treatment facilities if confirmed HIV positive.

**Lessons learned:** Confidentiality is extremely important for the population they engaged in sex work as masseur. The Samarth clinic outreach is ‘peer-base’ and distributes condoms for safe sex and conducts health camps in nearby areas for them to access HIV services without apprehension. The spa owners and landlords of the rented space are the major stakeholders in the HIV prevention intervention.

**Results:** Samarth conducted 77 HIV screening tests in the intervention areas in three months. Nine people were screened positive, confirmatory test provide all nine positive who were then linked to treatment. Strategic events and activities needs to be planned on regular basis to engage these newly identified outreach sites for MSM activities.

**Conclusions/Next steps:** Samarth clinics have taken health camp approach by addressing HIV testing needs of the MSM community. Accompanied referrals were provided to test HIV is very important. Samarth is developing spa and massage parlor based male sex workers outreach guidelines to complement national HIV programme.

**WEPEE626**

*Institutionalizing pharmacovigilance in an HIV treatment centre: Lessons from Baylor-Uganda*

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**Background:** Pharmacovigilance augments patient safety and rational use of medications. Almost 50% of hospitalized patients in Uganda are prone to experience adverse drug reactions (ADR). The rate of ADR reporting to the national pharmacovigilance Centre is still low. This study aimed to assess interventions which would enhance and sustain ADR reporting in an HIV treatment Centre.

**Description:** The study took a Pharmacovigilance scope as prescribed by WHO; with emphasis on medication errors, ADRS and misuse of medicines.

To track medication errors, the facility established a quality control (QC) and Quality assurance (QA) in the pharmacy. Prior to medicine dispensation, a QC process was applied at recording of consumption, packing of prescribed medicines and medicine counselling all by different staff. QA or final review of both medicines and prescription was also done by a pharmacist or delegated staff. Identified errors were categorized, documented and client recalled for rectification if necessary.

For ADRs, a system to collect, report and effect preliminary analysis was established at the health facility. All filled Pharmacovigilance forms were collected by a focal person who made submission to the Pharmacovigilance National Centre. Periodic feedback about individual Healthcare Provider (HCP) reporting rate was provided and response monitored overtime.

A perspective of product design was taken to assess misuse of medication. Piloting the capacity of HCP and clients to distinguish medicines with similar colour and packaging material in an HIV treatment centre.

**Lessons learned:** Between January and June 2017, the QC and QA unit averted 50% (2/4) errors due to sudden regimen switch, 75% (15/19) due to wrong doses and 61% (11/18) due to less or excess pills. ADR reports increased from 7 (2013) to 32 (2014) and from 12 (2016) to 26 (2017), all associated to QC and QA feedback. Product design contributed to 36% and 70% of medication misuse among HCP and clients respectively.

**Conclusions/Next steps:** A deliberate effort to strengthen pharmacovigilance among HIV treatment facilities is required because it will inform clinical practice and improve patient outcomes. Pharmaceutical manufacturers should also standardize their products in terms of color and packaging to mitigate medication misuse associated with product design.
WEPEE627
Advantages and challenges in providing medical 
& mentoring services through the pediatric HIV 
telemedicine initiative. A qualitative research

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Background: In October 2013, a pilot Pediatric-HIV Telemedicine Initiative was started at the Pediatric-Centre-of-Excellence-for-HIV-Care (PCoE) of Maharashtra state to provide video-linked delivery of expert medical and mentoring services as adjunct to existing services at peripheral ART-centers, as most are not manned by pediatricians/ HIV-specialists. Complicated patients are referred, but often do not reach higher centers due to several constraints. We assessed acceptability and feasibility of Telemedicine in patients, their caregivers & health-care providers.

Description: Scheduled and Need-based real-time video-conferences [VC] are conducted with patients, their caretakers along with the treating team at the Telemedicine-linked peripheral ART centers, so also mentoring sessions and mortality reviews for overall capacity building. The study period was October 2013 through June 2016. We conducted 6 Focused-Group-Discussions [FGD] (48 participants) and 18 In-Depth-Interviews [IDI] with medical officers, counselors and pharmacists in 6 selected ART centers (3 Linked and 3 Non-linked).

Overall experience about care, problems faced, possible solutions were discussed; at Linked-centres, specifically about acceptability and challenges of telemedicine; at Non-linked centres, if telemedicine would be acceptable and beneficial, and if so, how. The data was analyzed using thematic frame-work approach using NVivo software.

Lessons learned: Children and caregivers were comfortable communicating and found the technological aspects attractive; some reported it was as satisfying as being seen by a doctor in person. The reported advantages were: prompt consultation without having to travel to other cities saving time, money and effort. The challenges reported were: additional time spent and technical difficulties. The healthcare providers found it to be very useful.

The group counseling sessions wherein several children and caregivers interact, learn and motivate each other were particularly advantageous. Patients and healthcare-providers at Non-linked centres were aware of telemedicine from various sources and were eager to have it at their centres as well.

Conclusions/Next steps: We found that teleconsultation improved geographical and financial access to paediatric HIV care and was an effective, feasible, acceptable and desirable adjunct approach for patients, their caregivers as well as their healthcare providers. Healthcare providers wanted these services to not only continue in their centers, but also be initiated in the Non-linked centers.

WEPEE628
Differentiated service delivery: Harnessing the reach of faith-based organizations to deliver quality HIV services in Zambia

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Background: Zambia aims to reach HIV epidemic control by 2020, using the 90-90-90 yardstick. However, the health system is currently overextended with long wait-times for clients accessing HIV treatment services. In order to absorb and provide quality care for over 970,000 PLHIV who will be on ART for epidemic control, the country must institute differentiated service (IDS) to decongest the public sector.

Description: The USAID-funded USAID DISCOVER-Health Project implemented by JSI partners with the Ministry of Health (MOH) to take integrated HIV, reproductive health, family planning, and maternal and child health services into high-density under-served communities. The Project decongests over-burdened higher-level facilities through a network of 124 community-based newly established ART facilities. Finding the space to establish services was a big challenge - faith-based organizations offered their space, networks and reach, presenting a highly successful partnership, trusted by beneficiaries.

Through this partnership, services are provided through 32 newly-established prefabricated clinics at community level in Church grounds, offering free public-sector services. The Project also provides services through MOH health posts and community-based organizations for a total of 104 operational sites.

Lessons learned: A retrospective review of selected HIV indicators including quality of care indicators from inception of the project in 2015 to December 2017, revealed the following: Active clients 8,646 (90%), mortality 0.3%, LTFU 6.9%, Trans-outs 8.9%, viral suppression 90%. These indicators are better than the national mortality, LTFU and viral suppression estimates of 1.6%, 20%, and 77%, respectively. Strong church and community networks and partnerships (social capital) strongly facilitate service coverage and uptake, and influence good adherence to ART, and ultimately good health outcomes.

Conclusions/Next steps: DSD through leveraging faith-based platforms that have strong influence on and are trusted by community members, has shown demonstrable effectiveness in addressing key barriers to accessing ART and other services. Such partnerships take quality services where people live and respond to the expectations and needs of clients by reducing opportunity costs - distance, transport costs and travel-time. Importantly, this reduces the burden on higher-level facilities and contributes to quality HIV epidemic control.

WEPEE629
Responding to real needs - experiences from Wajood programme in India

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Background: In India, HIV prevalence among transgenders and hijras (TGH) is around 7.5% (NACO 2016) which is manifold higher than the HIV prevalence among the general population (0.26%) (NACO 2016). While some progress has been made in responding to HIV in this population, a key issue for transgender women (TGW) still remains lack of sexual health services and enabling environment. India HIV/AIDS Alliance implemented “Wajood” programme in 5 states of India to increase the access to sexual health, violence mitigation and social welfare among transgender women and hijras.

Methods: Qualitative impact assessment study was conducted under Wajood programme and data were collected in 5 states where the programme was implemented. 12 focal group discussions (FGDs) (2 per site) and 10 in-depth interviews (IDIs) were conducted in these sites. Respondents for the study were selected purposively to maximise the validity and transferability of the data. Each FGD had 8-10 TGHs. The baseline survey was carried out in 2015 in the same states. Comparative content analyses were carried out using baseline and endline findings on the selected theme.

Results: Increased awareness on sexual and reproductive health (SRH) services including sex reassignment surgery (SRS) and availability of the SRH services in the Wajood implemented sites was seen.

Conclusions: Based on the findings from both qualitative study and secondary data analysis, Wajood is doing a commendable job of supporting the TGH community, however formulation of specific HIV guidelines or policy paper need to be developed for the community. Preparation of national clinical guidelines on gender transition and provision of services, especially SRS and hormonal therapy in government hospitals and provision of information and counselling on gender transition could be included through HIV prevention intervention.

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WEPEE630

Supporting antiretroviral therapy multi-month scripting and dispensing at facilities in Zimbabwe: Effect on supply chain management

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Background: Treatment scale up has led to health facility congestion in high HIV burden countries due to monthly dispensing requiring frequent clinic visits. This practice has resulted in treatment interruptions and/or complete disengagement from care. Extending antiretroviral (ART) medicine refill intervals has successfully reduced frequency of clinic visits, in many settings. The goal of multi-month scripting and dispensing (MMSD) is to reduce healthcare worker workload, improve long-term retention in care and enhance ART clients’ participation in their health. This results in improved adherence and retention required to realize the benefits of ART which include optimum individual health and reduced transmission. Adequate medicine supply is a prerequisite for MMSD program scale up. The effect of strengthened support for MMSD on ART supply chain management was observed in Zimbabwe.

Description: Strengthened support was part of a cluster-randomized trial to assess the effectiveness of differentiated models of ART delivery for stable ART clients in 5 USAID-priority districts. MMSD was supported in 30 selected facilities from July-December 2017 to reduce congestion on the over-burdened facilities. MMSD was offered to stable clients who had been on treatment for more than six months, were free of opportunistic infections or serious drug side effects and responding well to therapy. Implementation was done in a systematic approach to ensure uninterrupted supply of ART. Quantification, forecasting, use of the pull system of ordering and stock control systems were strengthened to support ART MMSD.

Lessons learned: Through efficient medication quantification and stock forecasting, procurement was improved. Strengthening facilities on the use of the pull system of ordering resulted in improved stock management. The average stock levels of first-line ART in the facilities increased from 2.5 months’ to above 3.6 months’ Frequent stock outs of second line ARVs observed before the support were eliminated. The proportion of clients on MMSD increased from 59%-76%. The biggest increase was observed in the proportion of clients receiving 6-month supply from 0.075%-3.4%

Conclusions/Next steps: Strengthening of ART MMSD implementation resulted in an improved supply chain management system in the supported facilities. Systematic implementation of MMSD did not result in any medication stock-out but improved stock holding of the facilities.

WEPEE631

The use of the Clinical Monitoring System as a tool for monitoring the treatment gap in the State of Rio de Janeiro

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Background: The Clinical Monitoring System (SIMC) is an electronic tool built to cross-reference data from two databanks: the Laboratory Examination Control System (SISCCEL) responsible for the storage of viral load test results and CD4 and CD8 T lymphocyte counts, and the Drug Logistic Control System (SICLOM), where antiretroviral drug dispensing is registered. The SIMC lists people who have already been linked to a public health service and have undergone HIV follow-up exams but have not started antiretroviral therapy. The SIMC is a system for viewing and monitoring: 1. Treatment gap - people living with HIV (PLHA) who have not yet started antiretroviral therapy; 2. People who had their antiretroviral therapy (ART) initiated or modified 6 or more months prior and have detectable viral load; 3. People who abandoned treatment.

Methods: From the treatment gap list it is possible to identify people who could be in ART, subsequently look for them and offer treatment. In July 2016, the STD/AIDS Management of the State of Rio de Janeiro in partnership with the Ministry of Health began monitoring the municipalities with the highest treatment gap. The monitoring was initiated in partnership with the 08 municipalities that concentrated 82.2% of the treatment gap in the state. During this period, municipalities were encouraged to use SIMC as a tool to improve the quality of care. Each municipality designated a qualified professional to issue a SIMC treatment gap report with subsequent search for patients for ART initiation.

Results: The chart below shows the systematic reduction of GAP treatment that in the 18-month interval was about 50% of the number of people.

Conclusions: The data show a significant reduction of the treatment gap after the use of the tool. The next step is to expand its use to monitor treatment withdrawal and detectable viral load after 6 months of treatment. SIMC can contribute in a relevant way to and have a positive impact on the quality of life of PLWHA and AIDS mortality rate.
WEPEE632
Improvement collaboratives led by ministries of health to achieve global 90–90–90 targets: Examples from Namibia and Zimbabwe
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Background: HEALTHQUAL, with Ministries of Health (MOH) in Namibia and Zimbabwe have launched Quality Improvement (QI) collaboratives to improve gaps in the HIV treatment cascade to achieve 90–90–90 targets. Collaboratives are embedded within national MOH, and supported and co-led by local government. Each collaborative is led by MOH and layered onto existing structures, activities and programs, integrating into existing public health services.

Description:
1) A collaborative topic is selected.
2) A Design Meeting is convened to define collaborative aim, measures for monthly submission to track performance in run charts, select sites, draft the driver diagram, compile change ideas, define a timeline; 3) Pre-work is conducted to develop a readiness assessment tool, finalize data collection strategy, conduct site visits, identify site QI teams and focal people, finalize terms of reference, collect baseline data, finalize the driver diagram, and construct storyboards; 4) 3 Learning sessions (LS) occur during a 15-month collaborative each over 2-3 days, where teams share QI work; 5) During action periods, teams implement tests of change and submit data on Collaborative measures. Coaching is delivered by the QI team to guide and accelerate QI work.
6) After the final LS, summary work of the Collaborative is documented, shared with leadership, and disseminated.

Lessons learned: Improvements in HIV care and treatment outcomes have been achieved through QI Collaboratives. In Namibia, rates of viral load (VL) monitoring increased by 21%, rates of VL suppression increased by 8%, and loss to follow up rates decreased by 7% in 24 facilities over 7 months. In Zimbabwe, February to September 2017, the aggregate proportion of new-to-care clients who were initiated on ART on the same day of diagnosis increased by 13%; the proportion of previously-in-care clients who were initiated on ART on the same day of being brought back to care increased by 9%. A cumulative 1238 previously-in-care clients were brought back to care across all of the 27 Collaborative sites, and 85% were initiated on ART on the same day.

Conclusions/Next steps: QI Collaboratives offer a fast-paced paradigm from which Ministries of Health can improve gaps in the HIV treatment cascade and achieve patient outcomes aligned with the 90-90-90 targets.

WEPEE633
The continuum of HIV prevention and care among MSM and TW in Lima, Peru
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Background: High patient volume and human resource constraints affect the quality of care and services available to patients on ART especially those newly initiated on treatment or with treatment challenges. Long waiting times have social and economic effects on patients and affect their adherence and retention. Decongesting public ART facilities enables health providers to focus their time and effort on patients with the greatest need and subsequently contributes to improved quality of care. Community pharmacies present potential ART dispensing sites that can help reduce public facility workloads and waiting time, contributing to better quality of care and improved adherence and patient retention.

This study sought to establish the willingness of stable patients to pick up their ARV refills from community pharmacies while still accessing clinical care at public health facilities.

Methods: A cross-sectional study was conducted in four high volume urban health facilities providing ART in four provinces in Mozambique between October and November 2017. Structured interviews were conducted with 406 (254 male and 152 female) patients who had been on treatment for at least six months and were collecting their medicines from the health facility pharmacy: for patients under 5 years, the caregiver was interviewed. Descriptive data analysis was conducted using STATA; correlations were assessed using Fisher’s exact tests.
WEPEE635

Methadone dispensing systems in Medically Assisted Therapy for drug use harm reduction and linkage to HIV treatment and counselling: A case for secure, accurate and automated methadone dispensing

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Background: Evidence shows Medically Assisted Therapy (MAT) is effective in reducing illicit drug use and HIV transmission among opioid dependent persons. However, the need to dispense methadone (a controlled drug) via observation daily to growing queues of clients on long term treatment is challenging for countries with human resource constraints. A user-friendly, affordable, efficient and secure automated dispensing system is essential for accurate dispensing since a wrong dose to a wrong patient may be fatal.

Description: Methameasure is a methadone dispensing system developed in the UK and piloted in UK, Canada and Australia. However, no country rolling out MAT in Africa has used Methameasure. Kenya rolled out MAT since 2014 in 4 counties, with support of UNODC, University of Maryland and ICAP. By mid-2017 six MAT sites had adopted Methameasure machines on variable ways of patient verification. This paper describes the performance of Methameasure at 4 MAT sites, with a comparison to the system roll out in the USA and Canada.

Results: Methameasure and MethaMeasure recording. Testing the acceptability of community pharmacies suggests that with the necessary infrastructure and policy support, they may be an effective strategy to decongest public ART facilities, provide information and improve access to and quality of HIV treatment services. This study will be followed by a pilot of community pharmacy distribution to test their efficacy.

Conclusions: The acceptability of community pharmacies suggests that with the necessary infrastructure and policy support, they may be an effective strategy to decongest public ART facilities, provide information and improve access to and quality of HIV treatment services. This study will be followed by a pilot of community pharmacy distribution to test their efficacy.
Methods: YMMS and People living with HIV and AIDS (PLWHA) are marginalised and hidden population that is hard to reach. The understanding of the linkage to care will enable to success in the HIV care continuum. In-depth interview is used with a semi-structured questionnaires developed by an expert panel. 20 YMMS diagnosed with HIV were recruited using snowball sampling from drop in centre, HIV clinic and MSM communities of the social media. The interview was transcribed into verbatim and analyzed.

Results: YMMS were lost to follow up if they were not engaged to treatment after the initial testing. Various types of HIV test including self-test are available at present. The biggest leak was noted to be the testing of HIV status among high-risk population and the linkage to care in Hong Kong. YMMS failed to perform the test and to engage in the care continuum. The situation was worsen if they were tested at home or referred by general practitioners not familiarise with the HIV care and referral process. YMMS were more engaged in care if they attended a gay friendly non-government organisation for testing. The immediate psychosocial concerns in dealing with the diagnosis and treatment must be addressed in order to promote engagement of care. Prompt referral and shortening of the confirmation procedures would facilitate the engagement with treatment. As Hong Kong is providing free treatment to all PLWHA, the cost of the drug is less a concern. However, the HIV status may affect the employment and personal health insurance that deter some PLWHA fearing of disclosure of HIV status. More study is needed to review the structural barriers and its solutions.

Conclusions: To achieve the 90-90-90 goal treatment target to end the AIDS Epidemics by 2020. More efforts are needed to strengthen the treatment cascade through understanding the leakage.

WEPEE638
Implementing a performance based incentive system for outreach workers in a community based HIV care and treatment project in Zimbabwe

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Background: FHI360-Zimbabwe’s HIV Care and Treatment project implemented in 10 districts relies strongly on support from stable HIV patients on treatment called outreach workers (OWs) to identify index cases at facilities, obtain consent for home visit and peer support to linkage newly identified HIV positive clients. OWs are typically provided fixed monthly stipends ($25-$50) for supporting the project. With the aim of increasing the number of newly identified HIV positive clients and linked to care, we report findings from a pilot of a performance-based payment initiative designed for OWs in two districts of Midlands, Zimbabwe for the period July to November 2017.

Description: The performance-based payment initiative was piloted in two high target districts namely Kwekwe and Gokwe South after sensitizing OWs. The performance of the system was assessed starting July 2017. During the pilot, an amount of $15 was paid to the OWs for index cases identified, and OWs received an additional $0.50 per every household tested that resulted in a newly identified person living with HIV, and an additional $1 for linking that client to care. Data was collected and analysed weekly, and monthly performance trends were produced for the two districts.

Lessons learned: A total of 55 outreach workers supported the districts. The project almost doubled the number of new positives identified from 312 to 586 in July and September, respectively reaching a peak of 642 in October. Performance was generally higher in sites located in urban areas than rural areas. District leads reported that rural areas have poor phone networks, bad roads and long distances resulting in some index cases not being reachable.

Conclusions/Next steps: Performance-based payment has demonstrated potential in increasing the number of HIV positives identified through the ZHCT project by motivating OWs. We recommend the project to roll-out this initiative while paying attention to area specific limitations such as transport and other communication constraints.

WEPEE639
Making a pivot to maximize impact: Age of clients at PEPFAR-supported voluntary medical male circumcision programs for HIV prevention, 2017

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Background: Targeting voluntary medical male circumcision (VMMC) to males 15-29 years of age maximizes immediate HIV incidence reduction. Since 2016, PEPFAR has prioritized this age group for VMMC for HIV prevention in 14 southern and eastern African countries. However, uptake has historically been higher among 10-14-year-olds, and the new age focus has raised feasibility concerns.

Description: All PEPFAR-supported programs report numbers of men circumcised by standard age bands. Data are collapsed to less than 15, 15-19, and above 30 years of age.

Lessons learned: In 2017, over 3.4 million PEPFAR-supported VMMCs were conducted. Globally, 55% of clients were over the age of 15 (see Figure 1). Of those, 87% were aged 15-29 years. Rwanda had the greatest proportion of men over 15 years (73%) while Botswana had the lowest (26%). Tanzania conducted the highest number of VMMCs among men over 15 years (373,518 VMMCs). Globally, comparing 2017 to 2016, programs increased from 1.4 million to over 1.5 million clients aged 15-29 years: ten countries saw increases. Of these, four made considerable progress in increasing this age band in comparison to 2016. 5-10% more clients were aged 15-29 years in Malawi, South Africa, Swaziland and Tanzania. Seven countries had decreases in proportion 15-29 years of age, between 5 and 34% (absolute). Trend variations were noted between implementing partners operating in the same country.

Figure 1: Number of newly diagnosed HIV positive clients identified and linked to care by month.
to other HIV prevention interventions. As VMMC continues to scale up, countries with VMMC coverage gaps among men over 15 years will need to implement effective strategies to target these men, while countries with high coverage among this group will need to continue a shift towards younger men to maintain gains in VMMC coverage.

**WEPEE640**

Is MSM population effectively covered by HIV prevention services in high burden townships of Myanmar: Findings from programmatic mapping?

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**Background:** In line with the Myanmar’s National Strategic Plan for HIV/AIDS, programmatic mapping was conducted for men with sex with men (MSM) to identify the characteristics of hotspots, barriers to access, service delivery gaps, and social networks in 46 high priority townships in 2018 to inform HIV prevention programming at sub-national level.

**Methods:** In each township, data collection was done through a field team consisting mainly of local MSM peers. It started with a list of known hotspots compiled with inputs from stakeholders, service providers and MSM representatives. On-site structured interviews, in-depth interviews and focus-group discussions with key informants were conducted.

**Results:** Hotspots were grouped into six categories: public spots, beauty salons, restaurants, entertainment sites, socializing spots and others. Of the total 2,538 MSM hotspots mapped, the largest proportions were beauty salons (37%), public spots (28%) and social spots (25%). Largest proportions of MSM were found in public spots (32%), social spots (25%) and beauty salons (21%). Most beauty salons were gathering sites for all MSM types, and owners of beauty salons were leaders in MSM communities/sub-communities. Sex took place in 45% of all hotspots. Outreach services covered 51% of all hotspots within one month before the mapping. Condoms were available at 62% of all hotspots. Prominent MSM community leaders, many of them respected by local MSM communities, were identified. The use of information technology for socializing and finding sex partners was common and growing, especially among hidden MSM. The most popular platforms were BeoTalk, Facebook, Viber, Grindr and WeChat. There were exclusive MSM groups and local groupings on social media for easy networking among local MSM.

**Conclusions:** Findings highlighted the urgent needs to improve prevention service coverage and to design interventions deploying information technology. Service delivery modality channeling through less stigmatizing health programs and through networking with MSM community leaders should be considered in program design. In addition, prevention programs targeting specific hidden MSM subgroups, drama artists and migrants, should be established.

**WEPEE641**

Preferences for HIV self-testing distribution and linkage to care models: Results from discrete choice experiments in Zimbabwe

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**Background:** New HIV testing strategies are needed to reach the UN’s 90-90-90 target. HIV self-testing (HIVST) can increase uptake, but users’ perspectives on optimal models of distribution and linkage to post-test services are uncertain. We explored preferences in rural Zimbabwe using discrete choice experiments (DCE).

**Methods:** DCEs are a quantitative survey method that present respondents with repeated choices between packages of service characteristics and allow the relative strength of preferences for each service characteristic to be estimated. Embedded within a population-based survey following door-to-door HIVST kits distribution by community volunteers (CVs) in Mazowe and Mberengwa districts, we administered two DCEs: one on distribution preferences and another on post-test/confidentiality testing preferences. Using the DCE, we simulated changes to confirmatory testing uptake at local public hospitals and Population Services International (PSI) outreach clinics attributable to hypothetical changes to service characteristics. Analysis among the general population and key groups used multinomial logit to identify subgroup heterogeneity in preferences.

**Results:** The distribution and linkage DCEs surveyed 296 and 496 participants, respectively, with 43% and 38% men in each. Free kits distribution by local CVs, and provision of multiple kits to whole households were strongest preferred attributes particularly relative to low user-fee (US$0.25 cents) and mobile clinic distribution. Men significantly preferred individual rather than whole household kit distribution. Testing support options (in-person or telephone) were less important, although never-testers valued phone helpline.

The strongest linkage preferences were for free services, within a short walking distance, with HIV treatment immediately available (Figure 1).

![Figure 1. "Linkage to care" DCE results. Service characteristics with a positive utility were preferred; those with a negative utility were disliked.](image-url)
Men reported higher willingness to link to care than women. Aversion to service fees increased with age. Simulations suggested that antiretroviral therapy (ART) availability at PSI outreach clinics would increase linkage at this location, with lesser effects from extended opening hours and reduced congestion. Negative effects of service fees were strongest among men and the never-tested group.

**Conclusions:** Community-based approaches incorporating free distribution of HIVST by local volunteers, and convenient access were the strongest relative preferences identified. Accommodating linkage preferences to reach “resistant testers” with HIVST may maximise uptake of post-test services. Ensuring consistent ART at mobile PSI outreach clinics is likely to increase initial linkage rates.

**WEPEE642**

**Bringing HIV care close to people, the experience of decentralization in Norilsk, Russia**

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**Background:** Norilsk is a city with high HIV prevalence located far beyond the Arctic Circle. The most remote city districts, Kayerkan and Talnakh are located 30 and 40 kilometers from the AIDS clinic. Harsh weather conditions and remote location make medical services inaccessible for patients, leading to lower rates of HIV testing, challenges with retention in care and treatment adherence. The program intends to optimize service delivery by establishing access to HIV care at local clinics.

**Methods:** In 2015, AHF’s program supported Norilsk hospital in their efforts to arrange the regular presence of HIV physicians at 2 local outpatient clinics in Talnakh and Kayerkan. The decentralization model includes onsite provision of ARVs by nurses, utilizing task shifting, providing social services such as patient follow up, bi-weekly blood sample collection, quick initiation of ARV treatment within 14 days from confirmation of eligibility. The analysis compares the situation prior to decentralization in 2015 with December 2017.

**Results:** The number of clients grew four times from 237 in 2015 to 840 in 2017 in both sites. Talnakh increased its number of patients to 597 and Kayerkan to 243 patients in December 2017. HIV treatment coverage increased from 30 clients in Talnakh in 2015 to 298 clients in 2017. Similar increase was noted in Kayerkan from 30 clients to 63. 169 clients who previously refused or interrupted treatment were returned to care by the social teams in Talnakh and Kayerkan. The number of patients who initiated ART in 14 days increased from 13 clients in 2015 to 161 in 2017. CD4 level at ART initiation increased from 230 in 2015, to 289 in 2017. Average travel time to the clinics reduced from 90 minutes to 10 minutes.

**Conclusions:** The approach of decentralization of HIV service delivery resulted in providing easy access to HIV services. The approach led to an increase of the number of patients who are using HIV treatment services, who started HIV treatment and helped with earlier ART initiation. The intervention has a potential to be used as an effective HIV service delivery model in remote locations.

**WEPEE643**

**Improving HIV testing services at selected USAID-funded sites in Haiti: Strategies, lessons learned and implications for the National AIDS Control Program results from EQUIP**

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**Background:** Targeting high-risk populations for HIV testing services (HTS) can potentially increase yield. Provider-initiated testing and counseling (PTC) can foster uptake of HTS and facilitates access to HIV services. Barriers to PTC program success include lack of training and mentorship for healthcare providers, and monitoring and evaluation. In Haiti, HTS are primarily reported as voluntary counseling and testing (VCT). PTC is underreported and capacity for data disaggregation by testing modalities is limited.

EQUIP-Haiti details the outcome of its combined interventions aiming at improving HTS yield at selected sites in support to Haitian Ministry of Health (MOH).

**Description:** EQUIP-Haiti assisted the MOH in revising the national HTS algorithm and in updating registers for data disaggregation into different HTS modalities: VCT, index case testing, and PTC. EQUIP-Haiti conducted a training needs assessment at 39 sites nationwide. The core competencies to strengthen included, standardized filling of registers, pre- and post-HIV test counseling; standardized filling of notification card, and a comprehensive HTS training package was developed. Two HTS training sessions were conducted for 54 providers and were innovative because HTS providers were never trained before on HIV national guidelines and registers’ filing. Following the HTS trainings, EQUIP-Haiti conducted regular mentoring visits to enhance providers’ skills and improve HTS data quality.

**Lessons learned:** The need assessment helped tailor HTS training package to provider’s training needs. The revision of the national HTS algorithm and data collection tools facilitates monitoring and supervision. Training sessions to strengthen providers’ competencies reported 30% increase of median score, which represented a milestone, while onsite mentoring is critical for standardized HTS implementation. Revision of HTS registers to integrate testing modalities led to improved data disaggregation.

The following results observed after the interventions were: VCT=37%, PTC=54%, and index case contacts testing-9% compared to 63%, 35% and 2%, respectively before the interventions. HTS yield increased as evidenced by a positivity rate of 4.10% compared to 3.23% before the interventions.

**Improvement in the implementation of all three categories of modalities for HIV Testing Services (HTS) reported by USAID funded health facilities (n=63)**

**Conclusions/Next steps:** Tailored trainings and on-site mentoring of providers markedly improved HTS yield. Improving HTS data quality and reporting will help the MOH in HTS strategic and programmatic decisions towards reaching the goal of testing 90% of people living with HIV in Haiti.

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**ABSTRACT BOOK**

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WEPEE644
Reaching the un-reached for achieving First go in the 90-90-90 cascade, family testing approach from Maharashtra, India

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Background: Disclosure of HIV status to the family members is a slow process. Though, the focus was on the individual client in the National programmes initially, since 2012, there is a greater emphasis on partner/spouse counseling and testing. Due to this about 85% of partners/spouses have been tested since 2012 at the testing centers; however, there was a backlog in testing of partners/spouses prior to 2012.

Thus, we initiated a community based programme to identify and test the spouses and children (in whom the female partner was found to be infected) in April 2017 in Maharashtra, India.

Description: The staff at the anti-retroviral treatment (ART) centres with support from PLHIV groups reviewed the records to identify family members that have not been tested. The data manager from each centre provided the list to the counsellor and the outreach workers (ORWs). The ORWs identified the PLHIV in the community and the counsellors counseled the index PLHIV about spouse testing. All the spouses came to the ART centre were counselled and tested for HIV. If the spouse was found to be positive, then the couple was counselled for child testing.

The data manager maintained a record of the number of family members eligible and those who were tested. The doctor at each site monitored the progress every month and reported it to the State AIDS Control Society.

Lessons learned: We found that 126,621 family members (spouses/children) were eligible for HIV testing as of May 2017. Of these, 84,597 (67%) were already tested; thus, 41,024 family members needed to be counseled. The data manager maintained a record of the number of family members eligible and those who were tested. The doctor at each site monitored the progress every month and reported it to the State AIDS Control Society.

Conclusions/Next steps: Intensive family tracking, counselling, and testing has helped in identifying and reaching out to individuals who are-at-risk but have never been tested for HIV. Thus, these programmes should be institutionalized in the existing ART programmes to reach out to the first go in the 90-90-90 cascade.
WEPEE646
Switching from the forceps-guided to the dorsal slit technique in a Voluntary Medical Male Circumcision (VMMC) program: Experience from Tanzania

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Background: Prior to 2014, forceps-guided (FG) technique was the main method used in the scale-up of VMMC due to its time efficiency compared to sleeve resection (SR) or dorsal slit (DS) circumcision techniques. In July 2014, WHO recommended discontinuation of the FG technique among young adolescents due to an associated inherent risk of glans injury. Beginning in August 2014, the Strengthening High Impact Interventions for an AIDS-Free Generation (AIDSFree) Project, funded by PEPFAR and USAID, stopped using FG among those under 15 years and gradually phased out the FG technique among all VMMC clients. This action necessitated refresher training for all VMMC providers to ensure they had adequate skills to perform DS or SR techniques. We analyzed the impact of this change on client numbers and trends in reported adverse events (AEs).

Methods: De-identified VMMC client-level data were examined from October 2013 until September 2016. We analyzed the data according to the circumcision technique performed by age group each fiscal year and any adverse events during or following the procedure.

Results: There was a progressive switch to the DS technique, with a gradually higher proportion of clients circumcised by the DS technique at the end of fiscal year 2016 (Table 1). While FG was the most common technique used earlier in the program, DS became the method of choice for those under 15 beginning in 2014-2015, and the most frequently performed technique among all clients in 2015-2016. The moderate and severe AE rate per 100,000 procedures also declined across the analysis period from 5.3 in 2013-2014, 2 in 2014-2015, and 1.3 in 2015-2016. There were 2, 1, and zero instances of glans injuries in 2013-2014, 2014-2015, and 2015-2016, respectively.

![Table 1: Analysis of VMMC techniques by Client Age from October 2013 to September 2016 in Tanzania](image)

Conclusions: The VMMC program in Tanzania has successfully transitioned from using the FG to the DS circumcision technique since the 2014 WHO recommendations. The data demonstrate that, with proper training, it is possible to completely change the surgical technique to enhance safety of the VMMC procedure. The reported number of AEs gradually declined over time, demonstrating increasing safety and quality of VMMC services.

WEPEE647
Lessons learned on improving the cascade of quality HIV/AIDS care through community and health system strengthening in Cambodia

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Background: To extend and sustain a comprehensive continuum of care through correct adherence and compliance at both public and community health facilities, we began providing four key interventions: building technical capacity, supporting quality assurance, supporting infrastructure and systems, and creating a community-enabling environment.

Methods: A qualitative method was used with different designs, a desk review, and in-depth interviews with 15 key informants.

Results: Overall, more than 90% of clients who test positive for HIV within one month from any Voluntary Confidential Counseling and HIV testing (VCTC) site had access to an ART site for continuum of care. All (100%) eligible clients with CD4 below 500/mm3 were initiated on ART. The ART coverage trend increased from 94% in 2011 to 99% in 2017. The proportion of clients who had a CD4 test in the past six months and the proportion with a viral load (VL) test was >90% and >95% respectively. Noticeably, the rate of undetectable VL increased from 91.7% in 2013 to 93.9% in 2017. Most importantly, the ART site returned on average 94% clients per month to care through the active mobilization of community participation and support.

Conclusions: The continuum of care and treatment for PLHIV at the sites we support appears to be successful in its effectiveness towards the goals and objectives (>90% of HIV positive receive ART, >90% have correct compliance and adherence, >90% have an undetectable viral load) and exceeds the set benchmark. Therefore, it is a good model for providing high-quality HIV/AIDS care to improve quality of life of PLHIV in Cambodia and could be replicated with significant confidence of meeting the “Three Zeros” in Cambodia by 2025.

WEPEE648
HIV performance measurement in correctional centres using a quality score: An example from Sierra Leone

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Background: HIV service delivery in correctional facilities is an important part of the AIDS response in concentrated or mixed epidemics with under prioritized populations. Correctional services are often overlooked in performance monitoring, supervision and oversight. Part of the problems is generic as the criteria for performance measurement is often lacking. Solthis' Empower project in Sierra Leone devised and used a template to follow up the performance of critical process indicators in HIV service delivery to inmates at the main correctional facility in Sierra Leone to promote rights based services for inmates, while supporting health workers in adhering to processes that facilitate this right.

Methods: We implemented a HIV quality of care (QOC) score at a male correctional service with an inmate capacity of about 1,904. Project interventions included participatory needs assessments involving management staff, health workers and inmates; trainings and clinical mentoring. The QOC score comprises 15 indicators to monitor the quality of ART service delivery at the correctional facility and consists of the indicators, how indicator is to be measured and source of verification. The indicators include: Prescription of non-recommended ARV regimens; start of ART in line with national guidelines; CD4 monitoring before ART; clinical staging; use of registries; timely reporting; documentation; adherence assessment; TB screening; and retention in care. Each indicator is given a score of 0, 0.5 or 1 based on a defined criterion of measurement.

Results: The QOC score improved from 7% to 50% in the first 6 months. By the end of the second year, it had improved to 60%. Lack of resources in correctional facilities means that access to services like HB, CD4 and viral load monitoring is still problematic for inmates. Privacy, stigma and confidentiality remain valid concerns affecting service delivery at correctional centres.

Conclusions: HIV service delivery at correctional facilities need an approach that combines results based monitoring with process supervision. Performance monitoring should include indicators that are context specific, easily measurable and verifiable. A HIV QOC score could be a valuable instrument in settings with similar contexts to highlight and fill gaps related to process and quality.
WEPEE649
Institutionalizing sustainable comprehensive sexuality education in a resource-limited setting: Lessons learned from teachers’ sensitization

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Background: Comprehensive Sexuality Education (CSE) otherwise known as Family life and HIV/AIDS education (FLHE) programme was introduced in 2003 by the Nigerian Government to equip in-school youths with the requisite knowledge, values and skills to improve their reproductive health practices and prevent HIV. Though FLHE topics have been mainstreamed into school curriculum in the Federal Government Colleges (FGCs), the coverage of the programme were not being tracked by the teachers. Lack of adequate orientation of teachers on the delivery of CSE, its data capturing and reporting were identified as responsible.

Description: The World Bank HIV Prevention Development Project (HPDP II) through National agency of the Control of AIDS (NACA) supported the Federal Ministry of Education (FMoE) to scale up implementation of FLHE. Teachers including vice principals, guidance and counsellors across 104 Federal Government Colleges were sensitized on FLHE for the 2015/2016 academic session. They were sensitized on the modalities for FLHE implementation such as curricular (classroom delivery), community awareness (modalities for central delivery of assembly talk) and peer education (songs, drama, dance) as well as data collection and reporting.

Step down sensitization workshops were held for minimum of 18 Teachers and 2 Management staff in each school in order to desseminate and deliberate on FLHE implementation strategies.

Lessons learned: 4,554 teachers and management staff (male: 2,261 and female: 2,293) were sensitized. School managements adopted the FLHE implementation strategies and the use of school registers for reporting.

About 97% of the FGCs started reporting after sensitization workshop. 104,329 students (37,762 male, 66,587 female) were reached with FLHE in the academic session.

Orientation is important for effective implementation, coordination and reporting of FLHE. The programme provided school management and teachers with understanding that FLHE can be implemented without additional resources for monitoring and record keeping.

Conclusions/Next steps: Strengthening FMoE for effective coordination FLHE implementation, data management on Education Management Information System and linkage with the National Health Management Information System. Advocacy to relevant stakeholders towards institutionalizing FLHE in Colleges of Education training curricula.

Prep: lessons learned from delivery

WEPEE650
Knowledge, attitudes and practices toward PrEP from MSM and transwomen in the largest suburban HIV epidemic in the United States

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Background: Nassau and Suffolk Counties, home to 40% of New York State residents (subsequently referred to as Long Island), has the largest suburban HIV epidemic in the United States. Long Island, with its dense geography, inadequate public transportation, and racial segregation, is leaving vulnerable populations such as men who have sex with men (MSM) and transwomen isolated in poor communities with inadequate HIV prevention resources. HIV pre-exposure prophylaxis (PrEP) initiatives on Long Island have focused on MSM and transwomen as primary targets for prevention efforts.

Methods: We conducted a cross-sectional, online survey of MSM and transwomen between August and November 2017. Community members were recruited via medical and social service providers, LGBTQ community-based organizations, universities, social media, and word-of-mouth. The survey assessed knowledge, attitudes, and practices about PrEP. We present descriptive statistics on participants self-reports.

Results: 201 individuals who self-reported being HIV-negative participated in the survey. The sample was mostly MSM (60%). White (80%), with at least a high school diploma (97%) slightly over half were Hispanic (56%). Many reported both condomless insertive (80%) and receptive (72%) anal sex, being high or drunk during sex (70%), history of a sexually transmitted infection (69%), and diagnosis of depression (61%). While the majority had heard of PrEP (90%), only 87 (44%) persons had ever taken it. Participants indicated they strongly agreed/agreed on the following as main reasons for not taking PrEP: needing PrEP to be free/covered by insurance (95%), and not knowing how to obtain a PrEP prescription (82%). Many had sex partners (82%) and friends (77%) who had taken PrEP. 5% of those with concern about side effects versus 13% of those with concern reported not being willing to take PrEP every day if they thought it worked (p<0.001).

Conclusions: This data demonstrates that PrEP guidelines may need different strategies to increase uptake and usage among MSM and trans+ communities; especially those residing in suburban areas where there may be less PrEP providers. Additionally, addressing barriers by promoting patient assistance programs and building a larger network of PrEP providers may prove beneficial in increasing uptake.

WEPEE651
“Now that PrEP reduces risk of transmission of HIV, why do you still insist that we use condoms?” The condom quandary among PrEP users and health care providers in Kenya

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Background: For decades, condoms have been the mainstay for HIV prevention. However, in 2015, the World Health Organization issued guidelines recommending use of pre-exposure prophylaxis (PrEP) by people with substantial HIV risk, in combination with other prevention interventions. With wide-scale implementation of PrEP, messaging on condom use by health care providers (HCP) is not well understood.
Methods: The Partners Scale-up Project is catalyzing PrEP delivery for HIV serodiscordant couples in HIV care clinics in Western and Central Kenya. We conducted in-depth interviews with 31 PrEP users and 37 HCPs to understand PrEP delivery processes. We used a combination of inductive and deductive approaches to identify themes relating to condom messaging and PrEP uptake.

Results: HCPs reported counseling PrEP initiators to use both PrEP and condoms in order to prevent unintended pregnancies and sexually transmitted infections. They counseled that PrEP would provide additional HIV protection if a condom breaks. HCPs asked PrEP users to be consistent with condom use especially during their first week of using PrEP. Few HCPs reported counseling that PrEP users could stop using condoms, outside of cases where conception was desired. However, HCPs were aware that many of their clients had not used condoms consistently, either before or after starting PrEP.

While all PrEP clients knew that condoms could prevent HIV before they started PrEP, many reported using condoms inconsistently due to desires for increased sexual pleasure, intimacy and conception. Some women also reported not using condoms to avoid conflict associated with asking their male partners to use them. Clients frequently reported starting PrEP as a welcome alternative to using condoms. However, some PrEP users reported getting confused by HCP insistence on continued condom use, in spite of the purported HIV protective factor of PrEP.

Conclusions: While HCP counseling on condom use in combination with PrEP sought to maximize prevention of all STIs, many PrEP users saw PrEP as an alternative to condoms. HCP insistence on continued condom use while taking PrEP may frustrate and discourage PrEP uptake.

WEPEE653 Fewer than one in six gay/bisexual PrEP users receive comprehensive PrEP monitoring

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Background: Bacterial sexually transmitted infections (STIs) associated with decreasing condom use among PrEP users are a growing concern. In the US, guidelines for clinical follow-up and monitoring of PrEP users recommend ongoing STI screening every 6 months, with newer evidence suggesting every 3 months. In addition, quarterly HIV testing and assessment of sexual risk behaviors is recommended. Little, however, is known regarding fidelity to such comprehensive PrEP monitoring among PrEP users.

Methods: A US national sample of PrEP-using GBM (n=362; M age=32.9 years; 53.4% White) were asked about their last PrEP visit. Comprehensive PrEP monitoring was defined as 1) blood-based testing for HIV and syphilis; 2) screening for chlamydia and gonorrhea via urine, rectal swab, and throat swab; and 3) assessment of sexual behavior and STI symptoms. Demographics (age, race/ethnicity, education, income, and health insurance status), any condomless anal sex (CAS; past 3 months), and healthcare provider type (specialty care/clinic versus primary care provider [PCP]) were regressed on having received comprehensive PrEP monitoring using fully-adjusted binary logistic regression.

Results: The majority of GBM had insurance (90.6%) and received PrEP-related care from a PCP (62.4%). Only 15.5% received comprehensive PrEP monitoring at their last visit. The majority (66.0%) reported being asked about sexual behavior, and 48.1% were asked about STI symptoms. Most (89.5%) received an HIV test, compared to only 47.8% who received a syphilis test. Urine, rectal, and throat STI testing were reported by 58.3%, 35.4%, and 35.4% of men, respectively. GBM who reported no CAS (AOR=3.81; 1.41-10.29, 95% CI) and those who received care from a specialty clinic/provider (AOR=3.51; 1.87-6.58, 95% CI) had higher odds of receiving comprehensive PrEP monitoring. There were no significant racial/ethnic differences in the adjusted model.

Conclusions: While most men had an HIV test and some discussion of sexual behavior at their last PrEP visit, most were not asked about STI symptoms, and only one-third reported rectal and pharyngeal STI test-
Conclusions/Next steps: The PrEP-PAPA model increased affordability, drug quality assurance and convenience. It is a feasible alternative to escalate PrEP delivery in countries where generics are not yet available. Community-based education and raising awareness of PrEP services are necessary to increase the efficiency of provider-assisted PrEP services.

WEPEE654
Improving PrEP implementation through multilevel interventions: A synthesis of the literature

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Background: Much research has emerged in the past decade on the myriad challenges to PrEP implementation worldwide. In the United States (US), this research has focused on barriers to effective PrEP implementation in communities disproportionately affected by HIV/AIDS, including gay and bisexual men and transgender women of color. While there is some agreement about what constitutes PrEP implementation challenges, this literature is disjointed and solutions to implementation challenges have been imprecise. This paper provides a comprehensive review of literature on PrEP implementation in the US and an analysis to support matching known challenges with precise solutions.

Methods: This integrative review summarizes research on PrEP implementation in the US between 2007-2017. Grounded in a socioecological framework, this review aims to identify and match patient-, provider-, and systems-level barriers to PrEP implementation with corresponding solutions. The review is focused on US-generated findings, but its analytic framework can inform PrEP implementation worldwide.

Results: Of 294 articles identified, 47 met our inclusion criteria. These papers reported barriers at three distinct domains: healthcare providers, individuals patients, and the healthcare system. At the individual provider- and patient-level, articles frequently identified cognitive variables -- knowledge, attitudes and beliefs -- as barriers to effective PrEP implementation. At the healthcare systems-level, reported barriers included communication & awareness, funding, capacity & access, pharmaceuticals, and population-specific barriers & stigma. We found that proposed interventions in the literature often do not correspond to identified barriers. For instance, while a number of papers (n=16) focused exclusively on provider-level barriers, these papers often offered solutions exclusively targeting patient behavior. Moreover, frequently cited barriers to PrEP implementation often cut across all three levels, as in the case of the so-called “purview paradox” (i.e. the challenge that neither HIV specialists nor primary care providers consider PrEP implementation to be within their clinical domain) and structural barriers (e.g. patient mistrust based on historical legacies of structural racism and transphobia).

Conclusions: Given the interconnected nature of the barriers identified in the literature, we recommend that future interventions employ a unified approach that does not target providers, patients, and healthcare systems in isolation, but rather matches interventions to specific barriers across socioecological domains.

WEPEE655
Tracking oral PrEP globally: Using initiation trend data to inform product introduction

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Background: Oral pre-exposure prophylaxis (PrEP) has gained acceptability as a major tool for prevention since it was approved by the United States FDA in 2012. To date, 48 countries have begun offering PrEP through demonstration projects, implementation initiatives, and national programs. However, the decentralized nature of PrEP initiation data has proven detrimental for tracking progress. In order to address this challenge, AVAC began tracking global PrEP initiation in 2014 to generate new insights for product implementation and to inform advocacy efforts.

Methods: The global PrEP tracker includes a comprehensive database of information on ongoing and planned PrEP demonstration projects, implementation initiatives and national programs. Data is collected from projects through the dissemination of a quarterly survey covering PrEP initiation numbers, demographics, geography, funding, service delivery settings, program types, tools created and resistance testing. Regular updates from manufacturers and government partners are compiled to determine the number of individuals accessing PrEP through national health systems.

Results: December 2017 data indicates the number of people initiated on PrEP increased by more than 35% over the past year to total 283,170 globally. North America and sub-Saharan Africa currently have the highest overall number of initiations, accounting for 75% and 13% of the total number of users respectively. Regionally, Asia, Oceania and sub-Saharan Africa saw the greatest increases in PrEP initiation in 2017, with South America seeing the only regional decrease in initiations. Of the programs that disaggregate by population, the majority of reported enrollees are men who have sex with men, followed by female sex workers and adolescent girls and young women. These findings are estimated based on available data and may not include updated or disaggregated information from every project. Studies without confirmed initiation numbers were excluded.

Conclusions: The ability to track PrEP uptake globally is crucial for advocates, implementers and funders to discern where gaps exist and identify national, regional and global trends. The global PrEP tracker provides a baseline estimate for PrEP initiations and allows for dynamic assessment of initiation data. Increasing the visibility of this tracker and refining the data collection methods will increase the accuracy of the estimates and deliver actionable insights.

WEPEE656
Site-level process to oral PrEP implementation

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Background: The South African National Department of Health (NDoH) began a phased implementation of oral PrEP in 2016. Through partner and stakeholder engagement, implementation tools were developed to facilitate roll-out. A standardized approach to assessing and preparing implementation sites is a key component of this approach. This paper describes the implementation process of site readiness tools and discusses lessons learnt.

Description: A site assessment tool was designed through a consultative process led by NDoH and the National PrEP Technical Working Group (TWG) to assist with assessment of potential implementation sites. The assessment is a semi-structured tool consisting of closed- and open-ended questions on the following service delivery domains: human resources, drug and commodities procurement and supply chain, services delivered, including laboratory services and community engagement, and data management. The tool was administered through facility observations and interviews with clinic management staff.
Lessons Learned: The tool was completed for 62 sites with a variety of target populations from March 2016 to December 2017. As of December 2017, 31 of the 62 (50%) assessed sites successfully fulfilled the criteria outlined and, following additional engagement, the sites began implementing oral PrEP. Eighteen sites are undergoing assessment. Sites assessed and not yet ready to implement are missing key assessment components. Of the 62 assessed sites, four (6%) lacked NIMART trained nurses and nine (15%) lacked professional nurses with dispensing licenses. Thirteen (21%) sites did not provide antiretroviral therapy (ART) on-site and twelve (19%) did not have signed Memorandums of Understanding (MOUs) with their respective Provinces and Districts.

Conclusions/Next steps: The assessment tool ensures a standardized readiness baseline, including services, personnel, systems, and funding, and clear understanding and expectations from NDoH for implementation and non-implementing partners engaged in oral PrEP implementation. The assessment tool allows for easy identification of potential implementation challenges, allowing for the development of tailored support plans and ongoing monitoring. Further, as additional HIV prevention options become available, NDoH can adapt the tool to ensure continued consistency for implementation readiness across varying sites.

Testing and treatment at scale: issues and lessons

WEPEE658
Who does HIV viral load testing reach first? Lessons from Tanzania’s first year of scaling up HIV viral load accessibility
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Background: Tanzania scaled-up HIV viral load (HVL) testing in 2016 through expanding laboratory capacity and specimen transport to processing hubs, with policies stating all ART patients should have HVL at 6, 12 and every 12 months after antiretroviral therapy (ART) initiation. This analysis examines factors associated with HVL testing among eligible patients during early scale-up.

Methods: Electronic medical records from the national care/treatment database (n=198 clinics, six regions) were analyzed descriptively, and with logistic regression. 86,260 patients on ART visiting a clinic that provided HVL testing from October 2016-September 2017, and who were retained at least six months, were analyzed. Patients with their first HVL test during the study period were compared to patients who did not receive an HVL test. Independent variables included age, pregnancy, sex, CD4, ART regimen and duration on ART.

Results: HVL testing reached 22% of eligible ART patients overall; 17% of youth (15-24 years) received HVL testing, significantly less than the 23% in children < 15 and 22% in adults ≥15 (p < .0001). Women recently or currently pregnant were more likely (33%, p< .0001) to receive HVL testing compared to non-pregnant women (22%) or men (21%). Patients with an unknown baseline CD4 were more likely to have an HVL test (23%), while patients with low baseline (< 200 CD4 were less likely (16%, p < .0001). HVL testing was more likely among patients on ART for more than one year (1-3 years: 19%, ≥4 years: 26%) compared to those on ART 6-12 months (14%; p < .0001), and patients on 2nd line ART were more likely to be tested (33%) compared to 1st line (22%). Selected adjusted odds ratios and 95% confidence intervals are presented in Table 1.

Conclusions: With HVL services still being scaled-up in Tanzania, these results describe how clinicians currently prioritize certain patients for HVL testing, such as those with a recent or current pregnancy, no baseline CD4 measure, on ART for longer, or on 2nd line ART already. As the program continues to scale-up, emphasis should be on ensuring adequate program support and clinician education to increase timely HVL monitoring for all eligible patients.
WEPEE659
A digital application for optimizing key population mobile testing in Jakarta’s Fast-Track response

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Background: Jakarta’s Provincial Health Office articulated ambitious testing targets to reach a 2017 goal of diagnosing 9,292 people living with HIV (PLHIV). With more than 50 percent of new infections occurring among key populations (KPs), impactful testing amplification strategies were needed to accelerate testing uptake among men who have sex with men, female sex workers, transgender women, and people who inject drugs. Test and triage modalities, including lay and self-testing, have not yet been integrated into government policy and could not be comprehensively utilized to enhance coverage. Uptake of static voluntary testing and counseling (VCT) services has been constrained by restricted operating hours and human resources limitations, within a deteriorating political environment for KP programming. A Fast-Track approach for optimizing HIV testing across Jakarta was required.

Description: The USAID- and PEPFAR-supported LINKAGES Indigenous Project introduced DOKLING, an electronic HIV testing scheduler and tracking platform, in April 2017. Through a mobile phone or web browser, KP civil society organizations (CSOs) can directly request mobile testing slots. Project introduced DOKLING, an electronic HIV testing scheduler and tracking platform, in April 2017. Through a mobile phone or web browser, KP civil society organizations (CSOs) can directly request mobile testing slots.

Results: In total, 29,533 HIV tests were conducted; 1,051 (3.6%) were positive. Of total tests conducted, 65.6% were amongst women and 77.0% amongst those greater than 15 years. Yield was 3.3% amongst women, 4.2% amongst men, 1.5% amongst those 15 or younger, and 4.2% amongst those older than 15. The average weekly number of tests performed increased 51.6% during the surge from 3,337 to 6,896 (p<0.001). The average weekly number of positive cases identified increased 34.3% during the surge from 157.6 to 220.0 (p<0.017). The testing strategy resulting in highest yield was index case testing (5.7%). The strategy with the lowest yield was extended evening facility testing hours (3.2%). Yield for all strategies except index case testing was highest in adult men.

Conclusions: This study shows that a multi-strategy approach to HTC can be an effective means of accelerating HIV case finding; index case testing is particularly effective. Additionally, increased supervision, enhanced infrastructure, and real-time data feedback are critical factors in the success of a surge testing initiative.

WEPEE660
The surge: A targeted, multi-strategy approach to accelerate HIV case finding in Malawi

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Background: The WHO recommends a strategic combination of community- and facility-based HIV testing and Counseling (HTC) service models to improve the identification of people living with HIV (PLHIV). However, there is a paucity of literature describing the impact of an approach that simultaneously implements multiple HTC case finding strategies within routine program delivery. This study describes the impact of "The Surge", a targeted multi-strategy testing approach on HIV case finding in Malawi, where 27.3% of PLHIV are unaware of their status.

Methods: The Surge was a simultaneous implementation of six HTC strategies (enhanced outpatient department screening, index case testing, extended testing hours on weekends and evenings, testing during mobile outreach clinics, targeted community testing events, and scaled-up facility-based provider initiated testing) over a 6 week period at 19 health facilities in Malawi. The Surge also included increased supervision, infrastructural enhancements to provide additional testing space, and creation of a data feedback loop that provided weekly performance reports to facilitate real-time programming adjustments. Routinely collected, de-identified data from Ministry of Health HTC registers were used to determine number of tests performed and positive cases identified.

Results: In total, 29,533 HIV tests were conducted: 1,051 (3.6%) were positive. Of total tests conducted, 65.6% were amongst women and 77.0% amongst those greater than 15 years. Yield was 3.3% amongst women, 4.2% amongst men, 1.5% amongst those 15 or younger, and 4.2% amongst those older than 15. The average weekly number of tests performed increased 51.6% during the surge from 3,337 to 6,896 (p<0.001). The average weekly number of positive cases identified increased 34.3% during the surge from 157.6 to 220.0 (p<0.017). The testing strategy resulting in highest yield was index case testing (5.7%). The strategy with the lowest yield was extended evening facility testing hours (3.2%). Yield for all strategies except index case testing was highest in adult men.

Conclusions: This study shows that a multi-strategy approach to HTC can be an effective means of accelerating HIV case finding; index case testing is particularly effective. Additionally, increased supervision, enhanced infrastructure, and real-time data feedback are critical factors in the success of a surge testing initiative.

WEPEE661
Can we achieve universal and annual HIV testing with home-based campaigns? Results from the ANRS 12249 TasP trial

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Background: Universal and regular HIV testing for early HIV-diagnosis is critical to reduce HIV incidence. Home-based HIV counseling and testing campaigns (HBHCT) have been shown acceptable and successful in high HIV prevalence setting, but little is known about the capacity of
such strategy to re-test people regularly. We aimed to describe time to, and factors associated with, repeat HIV testing through HBHCT in rural South Africa.

**Methods:** From March 2012 to June 2016, the ANRS 12249 TasP cluster-randomized trial aimed at evaluating the impact of a Universal Test and Treat (UTT) approach on population-based HIV incidence in a rural area of KwaZulu-Natal with about 30% HIV prevalence. In both arms, rapid HIV testing was offered at home every six month to all resident members aged ≥16 years old (about 1,000 individuals/cluster). Individuals who tested HIV-negative at first contact with TasP fieldworkers were included in the analysis. Times to HIV-retests since first HIV-negative test were described using Kaplan-Meier curves, with right censoring at the first positive rapid test, death, out-migration and end of observation. Factors associated with first HIV-reacted were identified using Cox regression with time-dependent variables, and taking account of cluster effect.

**Results:** 56,372 individuals with a first HIV-negative test were included in the analysis. From the first HIV-negative test, the probability of one repeat HIV test after one year was 61.2%, the probability of two repeat HIV tests after two years and three repeat HIV tests after three years were 52.3% and 53.4%, respectively (Figure 3). Factors associated with first repeat HIV testing were female gender (HR=1.23, 95%CI=1.18-1.28), being 30-59 years old (HR=1.12, 95%CI=1.05-1.18) or ≥60 years old (HR=1.18, 95%CI=1.07-1.29) versus ≤30 years old, being engaged but not married versus never engaged (HR=1.13, 95%CI=1.05-1.23), having low educational level (HR=1.20, 95%CI=1.12-1.28).

**Conclusion:** Home-based HIV testing campaigns could contribute to achieve the target of universal HIV testing and ultimately UTT but may not be sufficient considering the assumptions of the Granich's mathematical modeling (Lancet 2009). A combination of clinic-based and community-based strategies will be needed to maximise HIV testing coverage and specially reach men and youngest individuals.

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**WEPEE663**

Barriers and facilitators to improve antiretroviral therapy initiation among men who have sex with men and transgender women in Thailand

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**Background:** There remain numerous policy, provider, and client barriers to immediate antiretroviral therapy (ART) uptake following HIV diagnosis in multiple countries. Thailand is no exception. Although between 2014 and 2017 ART coverage increased from 49 to 60 percent, many people living with HIV (PLHIV) have not received ART or received it long after diagnosis. In response to this challenge, the aim of this study was to collect PLHIV client experiences and perceptions about ART initiation and barriers to treatment uptake in both key population-led health services (KPLHS) and mainstream health services where clients are referred for ART.

**Methods:** The study was conducted in seven KPLHS in the four provinces in Thailand with the highest HIV burden among key populations (Bangkok, Chiang Mai, Chonburi and Songkhla). Focus group discussions (FGDs) and in-depth interviews (IDIs) were conducted from March to April 2017. A total of 40 PLHIV clients (28 on ART, 12 HIV treatment naïve) provided informed consent to participate in the IDIs (n=16 clients) and FGDs (n=24 clients).

**Results:** Barriers to ART initiation and retention in HIV care and treatment services included:

(a) Service concerns, e.g., lack of privacy and confidentiality and readiness to disclose;
(b) Concerns about health benefits, e.g., how to access universal ART;
(c) Concerns about ART, e.g., antiretroviral side effects and ability to adhere to treatment;
(d) Concerns about stigma and discrimination; and
(e) Treatment literacy.

Facilitators to HIV care and treatment services included included good provider-patient communication; high treatment literacy; guided referral to treatment services; including assistance in the transfer of treatment benefits; counseling on disclosure of HIV status; and effective interventions to reduce stigma.

**WEPEE662**

How health workers motivated people living with HIV (PLHIV) to initiate antiretroviral treatment (ART) at high CD4 counts in three HPTN 071 (PopART) health facilities, Western Cape, South Africa

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**City of Cape Town Health, Cape Town, South Africa.**

**Background:** In 2016 South Africa adopted WHO recommendations of ART regardless of CD4 count for PLHIV. In 2016, ART coverage in South Africa was estimated at 56%. A shift toward increased uptake of ART at higher CD4 counts is required. Historically, health-messaging about starting ART have highlighted side effects, risks of acquired resistance, and triage of available treatment. CD4-count eligibility criteria and pre-ART counselling has reinforced a perception that PLHIV must be ‘sick enough’ to initiate ART. A shift in messaging is critical to increase uptake and ensure adherence. The study provides insight on ART messaging pre-national ART policy shift. How can we explain this policy shift to PLHIV and motivate them to initiate?

**Methods:** HPTN 071 (PopART) was a community-randomised trial in Zambia and South Africa. Patients at three health facilities in one arm of the trial in the Western Cape Province, were eligible for ART regardless of CD4 count outside of guidelines between June 2014 and September 2016. We conducted 134 randomly selected clinical patient folder reviews to characterise the sociodemographic profile of ART initiators under these conditions. We interviewed key informants (nurses, counselors, post basic pharmacist assistants, data capturers and health management staff, n=12) about their experiences explaining initiating ART at high CD4 counts. The evaluation design was exploratory through case descriptions.

**Results:** The mean age of patients initiating ART at CD4 count ≥500 was 34.6 (range: 17−65; SD = 9.13) and most were women (74.7%), married (65.3%), and employed (42%). These sociodemographic characteristics were very similar to patients initiating ART at CD4 counts <500. Key informants indicated no radical shift was necessary to explain ART regardless of CD4 count. Rather, they (i) used a variety of metaphors to emphasize the importance of building a strong foundation and not waiting until HIV weakened the body; (ii) reiterated that ART prevents opportunistic infections, and (iii) emphasized that management of HIV through ART is comparable to other chronic diseases.

**Conclusion:** Motivating patients to initiate ART at high CD4 counts is possible even in high burden settings. Messaging about reduced risk of onward transmission was not a core component of health workers’ narratives.
WEPEE664 Successful strategies to increase HIV case identification at public health facilities among males in Botswana

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Background: It is estimated that males account for a disproportionately high percentage of the unidentified HIV-positive individuals in Botswana. To achieve the UNAIDS 90-90-90 targets and reach epidemic control, innovative strategies are needed to increase HIV case identification among this priority population.

Description: Two strategies were employed to increase HIV case identification amongst men at 26 public health facilities in Botswana: extended hours testing, and use of a warm-line for scheduling testing appointments. Extended hours included evenings and weekends. The warmline was promoted through various traditional and social media outlets.

Lessons learned: Between June–December 2017, 73,258 HIV tests were administered, with 4,547 HIV cases identified in the supported facilities for a yield of 6.2%. The majority of tests (66,203, 90%) and cases (3,907, 86%) were identified during traditional facility hours (yield=5.9%). During extended hours, 7,055 tests were conducted with 635 cases identified (yield=10%). The percentage of males identified during extended hours testing was 63% compared to 37% during traditional testing hours. There were 682 HIV tests conducted following appointments through the warmline, with 86 HIV cases identified (Yield=10%). Sixty percent were male. During standard-hours, it took approximately 20.6 Health Care Assistant (HCA)-hours to identify 1 HIV case. This increased to 31.3 HCA-hours per case during after-hours testing.

Conclusions/Next steps: Innovative strategies such as afterhours and weekend testing and implementation of a warmline are effective at increasing overall HIV case identification as well as case identification among males. While the absolute number of cases identified through these modalities were lower in comparison to HIV testing conducted during traditional hours, these modalities resulted in higher yield and a higher proportion of male cases. These data support the use of extended HIV testing hours and a warmline to supplement HIV testing services during traditional health facility working hours. Attention to linkage to care is a critical consideration for extended hours testing.

WEPEE665 Monthly baseline CD4 count trends of newly diagnosed HIV patients from ‘test and treat’ demonstration sites in Namibia

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Background: Before the fifth edition of the ART Guidelines was launched in November 2016 by the Ministry of Health and Social Services of Namibia, patients were initiated using a CD4 count threshold of below 500. An initial phase of ‘test and treat’ demonstration project was conducted where all HIV-infected individuals presenting to the selected ART sites were immediately offered treatment with TDF/XTC/EFV/300 (tenofovir + lamivudine or emtricitabine) + efavirenz 600mg) regardless of their CD4 cell counts or WHO clinical stages. The objectives included determining acceptability amongst patients and health care workers as well as evaluating the baseline CD4 count trends of newly diagnosed patients.

Description: 11 HIV care and treatment sites in three regions of Khomas, Ongangwa and Zambesi, were selected to implement this strategy. Patients were offered HIV treatment immediately after testing positive and comprehensive adherence counseling offered. Routine pre-treatment including baseline CD4 count data was collected from July 2016 to June 2017 using the electronic Patient Monitoring System (ePMS). This data was extracted from the ePMS, exported to excel and analysed using SPSS statistical software. Except for the immediate initiation of ART, the test and treat patients received the same standard of care that’s being provided for all other patients in care and treatment in Namibia.

Lessons learned: There were a total of 2787 newly diagnosed HIV patients who were initiated on ART during the test and treat demonstration period of July 2016–June 2017 in all the 11 selected sites. The mean baseline CD4 count of the patients was 345.6 over the entire period. The mean CD4 count is lower than the 500 cut off used in the previous guidelines with no test and treat. Patients are still presenting themselves late for testing and treatment as demonstrated by low CD4 counts. The table below shows month on month mean baseline CD4 count.

<table>
<thead>
<tr>
<th>Month</th>
<th>Mean CD4 Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>433.4</td>
</tr>
<tr>
<td>October</td>
<td>440.8</td>
</tr>
<tr>
<td>November</td>
<td>419.4</td>
</tr>
<tr>
<td>December</td>
<td>434.0</td>
</tr>
<tr>
<td>January</td>
<td>438.4</td>
</tr>
<tr>
<td>February</td>
<td>424.5</td>
</tr>
<tr>
<td>March</td>
<td>390.4</td>
</tr>
<tr>
<td>April</td>
<td>475.7</td>
</tr>
<tr>
<td>May</td>
<td>484.5</td>
</tr>
<tr>
<td>June</td>
<td>360.5</td>
</tr>
</tbody>
</table>

(Trends of Mean CD4 by month)

Conclusions/Next steps: ‘Test and treat’ alone will not result in patients being initiated at higher CD4 counts. Health education and routine HIV testing should be enhanced in order to diagnose HIV earlier thus initiate patients with CD4 counts higher than previous guidelines.

WEPEE666 Implementing the HIV “Treat All” Guidelines in Namibia: Patient and health provider perspectives

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Background: In April 2017, the government of Namibia began a nationwide implementation of the World Health Organization’s Treat All guidelines, which recommends immediate antiretroviral treatment (ART) for anyone who tests positive for HIV. This study sought to understand the perspectives of clients and providers regarding ART service delivery during the first three months of Namibia’s implementation of the Treat All guidelines.

Methods: Three months after Treat All rollout began, research staff conducted 25 in–depth interviews with ART clients at ten health facilities in Northern Namibia. The team also facilitated six focus group discussions with 18 ART providers at these facilities. We double–coded and analyzed the IDIs and FGUs using ATLAS.ti 7 software.

Results: Most ART clients were satisfied with the knowledge of, interaction with, and treatment received from their main health provider. However, some expressed concern that their health provider was overburdened with a large case load. ART providers also commented that facility staff were generally overworked. Pharmacies, in particular, were a critical bottleneck. Although most ART clients were satisfied with individual interactions with pharmacists, many thought the pharmacies at their health clinic were significantly understaffed and caused long delays while clients waited for medication. Some clients suggested that facilities provide extended drug supplies to offset this problem. Insufficient logistical support was also a concern among many health facility staff, who noticed shortages in HIV testing kits and medication. Most ART providers expressed a need for better job–specific training, more staff, and proper compensation—particularly with the additional workload that some facilities reported following the Treat All rollout. Finally, both ART clients and providers identified client transportation costs—including monetary costs and time—as a potential barrier to ART appointment attendance.

Conclusions: Study results contribute to quality improvement of KPLHS by informing training of KPLHS staff on the importance of having trusting provider–patient relationships to help promote effective interventions to minimize stigma, improve self–efficacy, and promote adherence. These interventions are essential to reduce gaps in the HIV testing and treatment cascade and to maximize the individual and substantial public health benefits of universal ART in Thailand.
Conclusions: Although existing ART services provide a solid foundation for the rollout of the Treat All guidelines, numerous existing barriers may be exacerbated by expected increases in client load. As such, we recommend the following: expand implementation of community-level ART services, provide extended drug supplies to stable ART clients, evaluate the effects of the Treat All guidelines to understand implications for provider workloads and resource consumption, and expand human resources for health.

WEPEE667
Taking ART to the community to improve linkages to care of newly diagnosed HIV positive clients in a community based care and treatment project in Zimbabwe
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Background: The main challenge facing community-based HIV interventions is linkage to care for newly diagnosed HIV positive clients. By December 2016, 10 months into FHI360 Zimbabwe’s 5-year USAID-funded HIV care and treatment project, month to month ART initiation rates averaged 53% against an 85% benchmark. Data from a linkage database introduced by the project in March 2016 cited time constraints and distance to the health facility as the two main reasons why clients were failing to initiate treatment in time.

Description: Starting in February 2017, the project piloted a new approach in Makoni District designed to increase diagnosis and treatment initiation in community settings. This was done in collaboration with facility-based partners: Ministry of Health and Child Care and OPHID. The approach entailed transporting drugs to participating community locations, either on the day of testing to ensure same day initiation or on subsequent days based on appointments made with newly-diagnosed HIV positive clients. A WhatsApp platform was created to enhance coordination among partners. Clients initiated in the community were followed up for three months to ensure retention and adherence to treatment.

Lessons learned: Community ART initiation is important towards plugging leakages in linkage to care for newly diagnosed HIV positive clients. The ART initiation rate in the project rose from 43.18 in February 2017 to 80% in March 2017 when community ART was rolled out. This was sustained such that by September 2017, the rate had reached 122%, which was a result of a mop up exercise done in the community to identify and initiate all clients with a pending initiation status from the previous months.

- 55% (444/809) of clients initiated on ART in the period February to December 2017 was through community ART initiation.

Conclusions/Next steps: Community ART initiation improves linkage rates in community-based HIV interventions by addressing challenges faced by newly diagnosed HIV positive clients, including lack of time and long distances to health facilities for ART initiation.

- Scaling up community ART initiation to all project areas will help close leakages in linkage to care of newly diagnosed HIV positive clients.

Figure 1: FHI360’s improved ART initiation rates in Makoni District between February 2017 and December 2017

WEPEE668
Impact of a universal test and treat strategy on retention in a public sector health system setting: Swaziland’s MaxART trial, 2014-2017
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Background: The World Health Organization (WHO) recommends offering antiretroviral treatment (ART) to all HIV-positive individuals regardless of CD4 count or disease stage, known as “universal test and treat” (UTT). In 2014, Swaziland launched the MaxART Early Access to ART for All trial to determine the “real world” implications of introducing UTT in its public sector health system. We report the retention outcomes from this health systems implementation trial.

Methods: We conducted a stepped-wedge trial from September 2014-August 2017 in fourteen public sector clinics in Swaziland. Clinics were paired and randomly assigned to transition from the current national guidelines (standard of care or SOC) to a UTT strategy (intervention) stage at each four-month step. All ART-naïve clients >18 years old who were not pregnant or breastfeeding were eligible for enrolment. Multivariable-adjusted Cox proportional models were used to compare retention at study completion. We carried out two analyses. In the first, patient assignment to the delay time until UTT access was fixed at the time of enrollment, depending on the clinic’s intervention status at the time of the first patient visit. And the causal impact of the randomly assigned delay time was evaluated. In the second, exposure status varied according to the random assigned exposure sequence of the clinic at the first visit.

Results: A total of 3405 eligible clients were enrolled during the study period, of whom 1225 were ART-ineligible based on SOC at enrollment. The median age at enrollment was 33 years (IQR: 27-40) and 63% of the clients were women. For every additional six months of delay to UTT access, retention rates causally decreased by 7% (95% CI: 0.84-1.03, p=0.15). Similarly, when we treated the intervention as a time-varying exposure, clients enrolled in UTT were 60% more likely to be retained than those in SOC (IRR 1.60, 95% CI: 1.20-2.14, p=0.001).

Conclusions: Retention in care was better among clients enrolled under a UTT strategy than under the standard of care. These results suggest UTT may have a beneficial impact on the overall performance of public sector ART programs.

WEPEE669
Tuberculosis preventive therapy in PEPFAR countries
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Background: TB preventive therapy (TPT) lowers mortality in persons living with HIV (PLHIV) and has long been a key WHO recommendation. Programmatic uptake has been limited, but data to inform programming are sparse and frequency of use of alternative regimens are largely unknown. We reviewed PEPFAR data to document programmatic uptake and completion of TPT, disaggregated by age and gender, and use of new regimens.

Methods: We conducted descriptive analyses of the number of PLHIV initiated on and scheduled to complete a course of TPT (or at least 6 months of isoniazid) and the number of people who completed such a course disaggregated by sex, age (< 15 vs 15+ years), and type of TPT. We restricted our analyses to PEPFAR-supported countries that reported TPT initiation in more than 5% of all PLHIV currently on antiretroviral therapy (ART).

Results: Eight countries reported initiating TPT in over 5% of the total number of PLHIV on ART; four countries reported TPT initiation in more than 20% (Table 1). Among those, TPT completion rates were highly variable, from 28% in Lesotho to 85% in Kenya and Swaziland. Democratic
Republic of Congo, Kenya and Mozambique initiated TPT in the highest proportions of PLHIV on ART; treatment completion rates, however, were reported as 53%, 85% and 49%, respectively. Use of alternative regimens was extremely limited, but continuous isoniazid preventive therapy was used in 55% of TPT in Mozambique (Table 1). Completion rates varied by age and gender and country; but there were no clear patterns in variability (Figure 1).

Conclusions: TPT was low across PEPFAR-supported countries. Completion rates were highly variable but there were no consistent differences by age or sex. Though completeness of reporting could not be verified, these data suggest gross underutilization and poor completion of TPT in many countries. PEPFAR has recently altered its indicator requirements to better track program progress in TPT initiation and completion. In countries which have a policy of one-time TPT, it will be most helpful to follow progress by tracking the clinical cascade, from screening to initiation and completion of TPT, in newly enrolling patients.

Table 1. TB Preventive Therapy in Selected PEPFAR Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>TB Preventive Therapy Completion, % (numerator/denominator)</th>
<th>Number of PLHIV on ART</th>
<th>Proportion of PLHIV on ART that initiated TPT</th>
<th>Initiated Alternative Regimen</th>
<th>Initiated Continuous Isoniazid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democratic Republic of the Congo</td>
<td>53% (10466/19845)</td>
<td>57704</td>
<td>34%</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Haiti</td>
<td>67% (5082/7562)</td>
<td>85195</td>
<td>9%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kenya</td>
<td>85% (165914/193519)</td>
<td>1011712</td>
<td>19%</td>
<td>2</td>
<td>678</td>
</tr>
<tr>
<td>Lesotho</td>
<td>28% (2324/8368)</td>
<td>140658</td>
<td>6%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mozambique</td>
<td>49% (62503/128223)</td>
<td>909299</td>
<td>14%</td>
<td>36</td>
<td>18913</td>
</tr>
<tr>
<td>Nigeria</td>
<td>71% (43193/61161)</td>
<td>722072</td>
<td>8%</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Swaziland</td>
<td>85% (13976/16381)</td>
<td>145891</td>
<td>11%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vietnam</td>
<td>61% (2186/3590)</td>
<td>60113</td>
<td>6%</td>
<td>0</td>
<td>292</td>
</tr>
</tbody>
</table>

(Figure 1. Numbers of patients who initiated B preventive therapy, with completion rates, by age, gender and country.)

WEPEE671
Impact of universal test and treat policy on ART initiation among HIV positive patients in Johannesburg, South Africa

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Background: South Africa implemented Universal Test & Treat (UTT) guidelines in September 2016, eliminating the CD4<500 cells/µl antiretroviral therapy (ART) eligibility threshold. We compare time to ART initiation pre- and post-UTT and examine predictors of ART initiation within 30 days of HIV diagnosis.

Methods: We conducted a prospective cohort study, enrolling newly diagnosed HIV-positive adults (±18 years) at two primary health clinics in Johannesburg, South Africa. A baseline questionnaire on demographic and health seeking behaviour was administered at HIV diagnosis. Clinical information was collected from medical records up to 30 days after HIV diagnosis. We examined crude risk ratios (cRR) for predictors of ART initiation within 30 days of HIV diagnosis, comparing patients diagnosed under the CD4≥500 cells/µl ART eligibility threshold to UTT using log-binomial regression.

Results: This analysis includes 258 adults (61.2% female; median age 32.9 years (IQR: 27.4-37.8) at HIV diagnosis. Among those eligible for analysis (n=141), 27 (19.1%) did not return to receive their CD4 results, while 15 (10.6%) who received their CD4 results and were eligible were lost prior to ART initiation (Figure 1). Furthermore, 12 (8.5%) were not yet eligible to initiate ART and were considered to be in pre-ART care. Of those eligible and in care, 85.3% initiated treatment prior to UTT implementation, meaning that 54 (38.3%) were lost or ineligible by the time UTT was initiated in September 2016. Six months after removing the CD4 eligibility criteria, none of the pre-ART patients or previously lost had returned for ART initiation at these clinics and an additional 30 patients had been lost or transferred, resulting in an overall loss of 59.6%.

Conclusions: These results highlight a substantial gap in UTT policy implementation and the challenge to the 90-90-90 goals. This in-depth pilot study demonstrates that patients in the then pre-ART program or lost prior to ART initiation, are not returning for care at their diagnostic clinic under the new UTT guidelines. To achieve program success and the desired reduction in HIV transmission, it will be crucial to re-link this population to HIV care and treatment.

WEPEE670
Are previously diagnosed HIV-positive patients returning to the clinic to initiate ART under UTT guidelines? A case study of ART management in the context of UTT

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Background: South Africa has adopted Universal Test-and-Treat (UTT) guidelines in order to reach the 90-90-90 targets set by UNAIDS. To achieve this, in addition to increasing HIV testing, all previously ineligible HIV-positive patients and those lost to follow up must be reengaged with care. We examine whether UTT implementation resulted in initiation of previously lost or pre-ART patients.

Methods: We conducted a prospective cohort study, enrolling newly diagnosed HIV-positive adults (±18 years), regardless of CD4 count, at two primary health clinics in Johannesburg, South Africa. South Africa transitioned to UTT between April and November 2015 while ART eligibility criteria were at CD4<500 cells/µm3. Clinical information was collected from medical records up to 24 months following enrolment. We aimed to follow lost and previously ineligible HIV-positive patients through UTT implementation to assess whether these patients returned to initiate ART.

Results: We enrolled 348 adults (61.1% female) with a median age of 32.9 years (IQR: 27.2-37.8) at HIV diagnosis. Among those eligible for analysis (n=141), 27 (19.1%) did not return to receive their CD4 results, while 15 (10.6%) who received their CD4 results and were eligible were lost prior to ART initiation (Figure 1). Furthermore, 12 (8.5%) were not yet eligible to initiate ART and were considered to be in pre-ART care. Of those eligible and in care, 85.3% initiated treatment prior to UTT implementation, meaning that 54 (38.3%) were lost or ineligible by the time UTT was initiated in September 2016. Six months after removing the CD4 eligibility criteria, none of the pre-ART patients or previously lost had returned for ART initiation at these clinics and an additional 30 patients had been lost or transferred, resulting in an overall loss of 59.6%.

Conclusions: These results highlight a substantial gap in UTT policy implementation and the challenge to the 90-90-90 targets set by UNAIDS. To achieve program success and the desired reduction in HIV transmission, it will be crucial to re-link this population to HIV care and treatment.
Conclusions: We highlight a reduction in time to ART initiation after UTI implementation. However, our findings also identify important variables for further examination to close gaps in linkage to ART.

WEPEE672
Mobile and home testing identifies previously diagnosed HIV-infected men and women who are not taking ART in Botswana

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Background: Testing programs focus on identifying undiagnosed HIV-positive individuals. Identifying and offering antiretroviral therapy (ART) to previously diagnosed individuals not on treatment (“legacy positives”) may accelerate epidemic control.

Methods: The Botswana Combination Prevention Project (BCPP) is a randomized controlled trial in 30 matched rural or semi-urban communities. We describe legacy positive community residents by age, sex and testing strategy in the 15 intervention communities where mobile and home testing strategies were employed between October 2013 and September 2017.

Results: Among 61,129 participants whose HIV and ART status were assessed (documented results in prior 3 months or tested), BCPP identified 11,637 (19.0%) HIV positives, 3,252 (27.9%) of whom were not currently assessed (documented results in prior 3 months or tested). Of these, 1,874 (57.6%) were newly diagnosed and 1,378 (42.4%) were legacy positives. Of the legacy positives, 492 (35.7%) had previously taken ART (39.2%) females). More female than male legacy positives, 950 and 418 respectively, were identified, with the majority identified with home testing (Table 1, Panel A). A larger proportion of female than male positives not on ART were legacy positives in all age bands and for both testing strategies (Panel B). Within the legacy positives (Panel C), the oldest age categories represented the largest proportion of legacy positives for both sexes. While fewer male legacy positives were identified, the oldest age group represented over two-thirds of the males identified with both mobile and home testing.

Table 1. Legacy Positive Individuals Identified in 15 Rural and Semi-Urban Botswana Communities

<table>
<thead>
<tr>
<th>Panel A: Age and Sex of Legacy Positive Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
</tr>
<tr>
<td><strong>Female</strong></td>
</tr>
<tr>
<td><strong>Male</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: Distribution of Legacy Positives Not on ART (that are Legacy Positives, Identified by Testing Modality)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Testing-Modality</strong></td>
</tr>
<tr>
<td><strong>Home</strong></td>
</tr>
<tr>
<td><strong>Household</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel C: Age and Sex Distribution of Legacy Positive Individuals Identified by Testing Modality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Testing Modality</strong></td>
</tr>
<tr>
<td><strong>House</strong></td>
</tr>
<tr>
<td><strong>Male</strong></td>
</tr>
</tbody>
</table>

Conclusions: Legacy positives represented over 40% of HIV-infected individuals not on ART and are an important population to identify and support to initiate ART. Consistent with the HIV epidemic in Botswana, more female than male legacy positives were identified and identification rates increased with age. Women represented a large proportion of participants who had previously taken ART, likely due to the pre-Option B+ PMTCT era. Home and mobile testing identified previously-diagnosed older men in need of ART in rural and peri-urban Botswana. Older men are drivers of HIV transmission and more difficult to identify and initiate on ART throughout Africa. Linkage to ART strategies for legacy positives should be implemented in all testing programs to support epidemic control goals.

WEPEE673
HIV-indexing: Identifying and linking children living with HIV to treatment through a community-based model in Zambia

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Background: In Zambia, HIV testing among children remains low. The Ministry of Health estimated that about 52% of the infected children 0-14 years were on ART, as compared with 67% of adults. Identifying children living with HIV (CLHIV) with traditional HTS strategies like VCT gives very low positivity yields at 1.7% and linkage ART and care are equally low at 81%.

Description: In order to address these disparities, the USAID-funded USAID DISCOVER-Health Project implemented by JSI introduced indexing and notification in Project-supported HIV treatment sites that offer community-based integrated HIV, reproductive health, family planning, and maternal and child health services. In August, 2017, The Project trained 237 experienced psychosocial counsellors from 58 ART sites to conduct targeted indexing, including eliciting information from adults on ART about biological children or OVC under their care aged 0-12 years, who had not had an HIV test. All adults on ART were targeted for indexing to identify CLHIV. Through their guardians, non-biological children on ART were equally treated as an indexing link to siblings under the age of 12 years.

Lessons learned: Between August and December 2017, 745 potentially HIV-exposed children under the age of 12 years were identified through their 861 female adult ART clients and 73 siblings on ART. Of the 745, 486 tested HIV positive for a positivity yield of 6%. Among the 318 males, the yield was 6.3%, while among the 427 females the yield was 5.9%. Linkage to ART was 93%.

Conclusions/Next steps: HIV indexing is an effective strategy for ensuring higher HTS yields and higher linkage rates to ART among CLHIV. Therefore, through this approach, children living with HIV have a better chance at diagnosis and linkage to treatment and most importantly a healthy life. The Project has since scaled-up this approach to 102 of its 124 community-based ART sites.

WEPEE674
Successes in the rapid implementation of the HIV test and treat approach in a high burden setting - a view from Nairobi, Kenya

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Background: With a population of over 4 million and contributing over 11% of the country’s HIV burden, the USAID-funded Afya Jijini program works in collaboration with the Nairobi City County Health Management Team to strengthen access to quality HIV services with an emphasis on health facilities located in Nairobi’s informal settlements. Since 2016 the program has supported Nairobi County to roll-out Kenya’s newly adopted Test and Treat guidelines, moving the country closer to achieving 90-90-90 treatment goals.

Description: From October-December 2016, Afya Jijini supported 22 high-volume facilities with over 500 clients on HIV treatment. A treatment preparation system and adherence counselors were trained and placed in facilities to ensure newly diagnosed patients were linked to treatment and provided with adherence and psychosocial support.
Newly diagnosed HIV clients were counseled on the importance of early ART initiation and where possible, immediately enrolled on ART on the same day. For individuals not ready to enroll, support was provided for initiation within 2 weeks. Standard operating procedures and quality improvement teams were established to identify gaps in adopting the new guidelines. The project also provided on-the-job training to staff to adopt the new guidelines, including promotion of the differentiated care model to fast-track stable ART patients.

Lessons learned: Data from 9 facilities found 519 clients were enrolled on treatment. 417 (80%) were initiated on treatment on the same day as their positive diagnosis, 51 (10%) were enrolled after one day but less than two weeks and 51 (10%) enrolled after 2 weeks. 12-month retention rates were higher with same day enrolment (95%) compared to those enrolled after 2 weeks (71%), a 19% difference. (95% CI 7.847-32.8025; P=0.0001). There was no statistically significant difference in 12-month retention rates in clients enrolled on the same day (90%) and those enrolled between one day and less than two weeks (86%), a 4% difference. (95% CI 3.7211-16.3067; P=0.3783).

Conclusions/Next steps: Same day initiation on treatment was associated with a higher number of patients retained on treatment at 12 months. These lessons can be applied to other countries seeking to rapidly adopt these new guidelines.

WEPEE675

A comparative analysis of expanded HIV testing and linkage interventions in PEPFAR pivot areas in Mozambique, Tanzania, and Zimbabwe from 2015-2017

L. Bonanno, K. Clark

Background: To assist host governments to achieve epidemic control, PEPFAR programs must find undiagnosed people living with HIV/AIDS (PLHIV), in order to provide HIV testing services and link PLHIV to health facilities for antiretroviral treatment (ART). Understanding data down to the facility level is essential, to make programmatic adjustments. In Mozambique, Tanzania, and Zimbabwe, there are defined geographic areas with large ART coverage gaps with large volumes of undiagnosed PLHIV. Additional efforts were needed in these areas to further progress toward epidemic control, specifically for testing and linkages. Interventions included provision of additional health care providers, increase of community based testing programs, and renewed programmatic focus on identification and linkages.

Description: Quarterly programmatic data for HIV testing services and enrollment onto ART were analyzed for Zambezia province, the city Dar es Salaam, and the city of Harare from September 2015 until September 2017. Enrollment onto ART were analyzed for Zambezia province, the city Dar es Salaam, and the city of Harare from September 2015 until September 2017.

Lessons learned: In Mozambique, Tanzania, and Zimbabwe, all observed improvements in the numbers of people tested, PLHIV identified, and initiation onto ART, with variations among the different interventions and time periods. In Harare and Dar es Salaam, the additional interventions began in late 2015, and after a year of implementation, the percentage increases is more evident compared to the baseline. The implementation of the interventions in Zambia began in earnest in the last two quarters of 2016. When comparing to the end of 2016, the improvements are much more apparent. From 2015 to 2017, Harare saw a continuous improvement in linkage to treatment from testing positive, and Zambezia and Dar es Salaam both showed an uptick in linkage to treatment in the middle of 2017.

Conclusions/Next steps: Partnerships with the governments of Mozambique, Tanzania, and Zimbabwe were critical in the success of interventions to expand testing and linkages and focus resources where the HIV epidemic is greatest. National implementation of universal treatment policies was vital in ensuring that any PLHIV who was tested at the facility could receive ART. Even before additional financial and programmatic resources were made available, renewed urgency and emphasis on effective programmatic implementation can show dramatic improvements.

WEPEE676

Towards achieving the first and second goal for children newly-diagnosed with HIV in North-Central Nigeria: Intensified case-finding and quality improvement collaborative approaches

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1Institute of Human Virology Nigeria, Applied Health and Quality, Abuja, Nigeria. 2Institute of Human Virology Nigeria, Abuja, Nigeria. 3Institute of Human Virology Nigeria, Pediatric and Adolescent HIV Program, Abuja, Nigeria. 4Institute for Health Improvement, Abuja, Nigeria. 5University of California. HEALTHQUAL, Institute for Global Health Sciences, San Francisco, United States. 6University of Maryland School of Medicine. Institute of Human Virology, Baltimore, United States

Background: ART coverage for Nigeria’s estimated 270,000 children living with HIV (CLHIV) is only 21%, and identification of CLHIV in this relatively low HIV-prevalence (2.9%) setting has been challenging. We implemented pediatric intensified case-finding (PICF) and quality improvement collaborative (QIC) initiatives to improve numbers of CLHIV identified and linked to care in North-Central Nigeria.

Description: We piloted the initiatives at 15 primary, secondary and tertiary facilities in 5 peri-urban and rural communities in North-Central Nigeria. The PICF initiative established/expanded rapid HIV testing points at/to key points of service in each facility including tuberculosis, emergency, ART and inpatient units. Under the QIC, QI coaches guided Healthcare Workers (HCWs) to develop and share change ideas implemented in Plan-Do-Study-Act cycles. The pilot was implemented in April-December 2017; the first 3 months (April-June) and latter 6 months (July-December) were baseline and testing periods, respectively.

Lessons learned: During the pilot, 11,636 children 0-14 years old were tested, with testing coverage increasing from 26% to 93%. Compared to 11% at baseline, 0.5% (105 children) were found HIV-positive in the testing period. The highest yield service delivery points were TB (3.6%), family index testing (1.6%) via ART clinic and inpatient wards (1.3%), Immunization (0.0%) and outpatient clinics (0.7%) had the lowest yields in spite of large numbers of children tested (1,152 and 8,042 respectively). ART linkage improved from 23% to 81%. The most impactful change ideas for linkage were treatment referral escorts from primary to higher-level care, reorganization of clinic for better testing point-to-ART clinic level care, reorganization of clinic for better testing point-to-ART clinic transfer, and sensitization of HCWs to provide prompt ART. Nearly 40% (38/105) of newly-diagnosed children were identified at rural primary facilities.

Conclusions/Next steps: Overall, the PICF and QIC strategies tested were effective for identifying and linking CLHIV to ART. However, positivity yield was essentially unchanged. As testing is scaled up to more facilities, innovative and efficient strategies are needed to continue targeting most at risk children in order to maximize yield. The most impactful and high-yield change ideas should be refined and scaled up, including at primary healthcare facilities in rural areas that have proven to be robust sources of as-yet unidentified CLHIV.
WEPEE677
Challenges in transitioning donor-supported health workers to build resilient local capacity for sustainable epidemic control in Uganda

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1IntraHealth International, Kampala, Uganda. 2IntraHealth International, Chapel Hill, United States

Background: PEPFAR has supported Uganda’s gains in addressing HIV/AIDS through significant investments in hiring human resources for health (HRH) to reduce staff shortages in numbers and cadres. The increased workforce has contributed to improved outcomes—Government of Uganda (GOU) data show HIV prevalence declined to 6% (2016) from 7.3% (2011) and the number of children born with HIV declined by 86% between 2011-2015. However, the sustainability of the HRH investment faces challenges.

Description: With USAID funding, IntraHealth International conducted a longitudinal analysis using quantitative and qualitative methodologies to document HRH investments, absorption rates, retention rates, HIV service coverage and utilization trends.

IntraHealth deployed an online human resources information system (HRIS) to track, manage, deploy, and budget for absorption of PEPFAR-supported health workers. HRIS data were used to negotiate government absorption of critical PEPFAR-funded staff starting in 2015. Of 3,164 health workers hired between 2012-2017, 663 (21%) have been absorbed. PEPFAR HRH recruitment was premised on GOU commitment to prioritize absorption of the workers but ensure gradual transition so services are not disrupted.

Lessons learned:

- One bottleneck impeding absorption is mismatch in salaries, with some PEPFAR contract staff earning four times more than GOU counterparts: 36% of non-absorbed PEPFAR staff have salaries not matched to GOU salary structure.
- Multi-stakeholder engagement within an accountability framework is critical to accelerate transition of contract staff to government. This outlines the roles and responsibilities of each party, transition targets and timelines, budget required for absorption and a framework to monitor progress of commitments.
- Alignment of cadres and job titles for health workers involved in HIV/AIDS services but not in existing government structures (e.g., sample transporters) is a key barrier and requires policy decisions for such cadres to be absorbed.
- Increase in wage budget allocation by government is critical to accelerate absorption of donor-supported HRH.
- Transition of donor-supported HRH has potential to disrupt services and requires analysis of local capacity to sustain service provision after transition.

Conclusions/Next steps: Donor investments in HRH have had impact on AIDS epidemic control; however, it is difficult to sustain these gains if local capacity is not built through mainstreaming HRH into government.

WEPEE678
Retention on ART during Universal Test and Treat implementation in Zomba District, Malawi

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Background: The national HIV programme in Malawi adopted Universal Test and Treat (UTT) in 2016: all persons who test HIV positive are immediately referred for initiation of antiretroviral therapy (ART). Although there is strong evidence from clinical trials that early initiation of ART is associated with reduced morbidity and mortality, the impact of UTT on retention on ART in operational settings is not yet known.

Methods: We conducted a retrospective cohort study in 32 health facilities in Zomba district, Malawi. We compared standard programme outcomes of patients aged 10 years and older starting ART under the 2016 guidelines (UTT) to those prior to UTT roll out (Pre-UTT), with a follow up period of 12 months. Attrition from ART (the inverse of retention) was the composite of death, stop ART and lost to follow up. Patients who transferred to another clinic were excluded from the analysis. Multivariable Cox proportional hazards modeling was used to determine factors associated with attrition from ART at 12-months.

Results: Among 1,492 patients (mean age 34.4 years, 933 females, 63%) who initiated ART during the study period, 501 were in the Pre-UTT cohort, and 991 in the UTT cohort. At 12 months, retention on ART was 83.0% (95% CI 81.0-85.0%) during UTT, significantly higher than in the Pre-UTT cohort 76.2% (95% CI 73.9-78.5%; p=0.002). Kaplan Meier analysis shows that the probability of attrition from ART was significantly higher in the Pre-UTT cohort than during UTT (figure). Younger age group (age 20-24; aHR 1.91, 95% CI 1.09-3.35) and being pregnant or breastfeeding when starting ART (aHR 1.86, 95% CI 1.30-2.66), but not BMI, TB status at ART initiation, or health facility type (urban/rural), were associated with attrition from ART in both cohorts.

Conclusions: Retention on ART may improve during implementation of UTT in Malawi. New retention strategies for young adults and pregnant and breastfeeding women are needed to achieve the UNAIDS 90-90-90 targets. Larger and longer studies using national and regional cohorts will be required to determine the full impact of UTT on clinical outcomes in real-life circumstances.
Description: A social media platform using the WhatsApp group application for smartphones was created by a peer educator (PE) in Greater Accra to reach hidden MSM for HIV testing services (HTS). WhatsApp groups deliver instant messaging to a group of people, and members can remain anonymous. Seeking full consent, members were recruited into the platform using their telephone numbers which were previously obtained by a PE. Additional MSM joined the group via the PE and existing members. Educational HIV information and issues were posted on the platform daily to encourage MSM to access HTS. Members could ask questions and prompt responses were given.

Lessons learned: The WhatsApp platform substantially helped in reaching MSM who may particularly be concerned about being stigmatized within a short period of time. The number of MSM reached over a 3-month period increased from an initial 45 to 82 members: 38 of these members tested for HIV over the period. Creating a virtual space for hard-to-reach MSM where they are comfortable to share their stories with other MSM and get tailored responses to their questions almost instantaneously has been key to the high uptake of HTS. Members most commonly asked questions related to HIV and STI prevention. If this approach can be scaled up, there is potential to reach a high number of MSM with HTS.

Conclusions/Next steps: Peer education program should utilize innovative communication strategies using social media as a way of reaching or involving hard-to-reach MSM. There is potential to not only increase HIV testing but also linkage to care.

HIV self-testing for HIV and linkages to prevention and care

WEPEEEEE80
Successful implementation of HIV self-testing in the rural Shiselweni region of Swaziland

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Background: Current healthcare worker led HIV testing approaches are failing to reach all people in need for HIV testing such as men, and young people. Although WHO recommends HIV self-testing (HIVST) as a complementary testing strategy, it is rarely applied in the public health sector.

Thus, Medecins Sans Frontieres (MSF) and the Ministry of Health (MOH) of Swaziland aimed to demonstrate the feasibility of HIVST as an innovative testing strategy under routine conditions.

Methods: From May to October 2017, HIVST kits have been provided through different targeted testing strategies at 9 government health facilities and at community sites in the rural Shiselweni region of Swaziland. In supervised HIVST, clients performed and interpreted the test in the presence of a health worker whilst in unsupervised HIVST, clients took 1-2 HIVST kits home for testing. We also provided tailored HIVST education and information material, established a toll-free hotline to deliver the HIV self-testing kit to the designated store. After the designated store received the package, the system would send text messages to notify the client. At the counter of supervised centers, clients only need to tell the clerk the last 3 digit of phone number and pay US dollars to get the kit. Clients could receive full reimburse after logging their test results online; furthermore, they could join a lottery activity for coupons.

Results: The kits were so popular that Taiwan CDC had to execute “one person one kit” policy and limit its max supply on every day. Most of the time, the kits were booked out within 3 hours, then sold out in three months. In total, 6,862 kits were distributed through pay-at-pickup services provided by chained convenient stores. Of 3,121 (45.5%) who logged their test results anonymously on the website, 53 (1.1%) of respondents reported being newly HIV-positive. Of 1,986 who completed the questionnaire, 664 (33.4%) reported that this was their first time to do HIV testing. Compared with the homosexuals (21.4%), the bisexual (31.8%) and the heterosexual (55.1%) are with higher percentage of never testing for HIV.

Conclusions: The novel delivery services with confidential assurance and providing through about 5,000 chained convenient stores around Taiwan were well-accepted and led to a substantial proportion of first-time HIV testing.

WEPEEEEE82
Facility-based HIV self-testing in Malawi: An assessment of characteristics and concerns among clients who opt-out of testing

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Background: HIV self-testing must increase to achieve UN 90/90/90 targets in sub-Saharan Africa. A recent cluster randomized trial demonstrates that facility-based HIV self-testing (HIVST) among outpatient clients dramatically increases testing. However, a portion of clients offered facility-based HIVST still opted-out of testing. To improve HIVST strategies, pro-

WEPEEEEE81
Distribution of HIV self-testing kit through internet-based pay-at-pickup at convenient stores: Experiences in Taiwan

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Background: HIV self-testing is a novel and confidential way to help people know their HIV status. However, traditional venue-based access and delivery have limited its scale-up among vulnerable populations at risk. With permission of Taiwan Food and Drug Administration, Taiwan Centers for Disease Control launched a program to distribute self-testing kits through internet-based pay-at-pickup services provided by convenience stores and evaluate its acceptability.

Methods: The program was started on 11th April, 2017, with collaborations of major chained convenience stores to deliver up to 7,000 HIV self-testing kits at pay-at-pickup services. Clients only needed to log their nickname, mobile phone number and designate which convenient store to pick up the testing kit. Then the contracted delivery company would deliver the HIV self-testing kit to the designated store. After the designated store received the package, the system would send text messages to notify the client. The counter of supervised centers, clients only need to tell the clerk the last 3 digit of phone number and pay US dollars to get the kit. Clients could receive full reimburse after logging their test results online; furthermore, they could join a lottery activity for coupons.

Results: The kits were so popular that Taiwan CDC had to execute “one person one kit” policy and limit its max supply on every day. Most of the time, the kits were booked out within 3 hours, then sold out in three months. In total, 6,862 kits were distributed through pay-at-pickup services provided by chained convenient stores. Of 3,121 (45.5%) who logged their test results anonymously on the website, 53 (1.1%) of respondents reported being newly HIV-positive. Of 1,986 who completed the questionnaire, 664 (33.4%) reported that this was their first time to do HIV testing. Compared with the homosexuals (21.4%), the bisexual (31.8%) and the heterosexual (55.1%) are with higher percentage of never testing for HIV.

Conclusions: The novel delivery services with confidential assurance and providing through about 5,000 chained convenient stores around Taiwan were well-accepted and led to a substantial proportion of first-time HIV testing.
Partner-delivered HIV self-testing increases the perceived acceptability of index partner testing among HIV-positive clients in Malawi

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Background: Index partner testing is critical for reaching UN 90-90-90 targets. Partner referral slip (PRS) is the primary strategy for testing partners throughout sub-Saharan Africa; however, index testing remains low. HIV self-testing (HIVST) may overcome barriers to testing; however, there are no data on whether HIV-positive clients would be comfortable delivering HIVST kits to their partners. We examined HIV-positive clients’ perceived acceptability of HIVST as a strategy for index partner testing in Malawi.

Methods: The study was nested within a cluster randomized trial examining HIVST distribution to outpatient clients within health-facilities. Exit surveys were conducted with outpatient clients ≥15 years of age at 15 facilities in Central/Southern Malawi. Clients who self-reported previously testing HIV-positive and having a sexual partner in the past 12-months completed a separate survey module on client perceptions of index partner testing strategies.

Results: 452 clients (8% of RCT participants) completed the index testing module. Clients’ willingness to deliver index testing materials to partners increased by 11% when presented with the option to deliver HIVST kits over PRS. Overall, 65% of clients preferred delivering HIVST kits over PRS. Among those uncomfortable to deliver HIVST, common reasons include fear of partner responses (men:62%, women:60%) and feeling uncomfortable explaining HIVST to partners (men:24%, women:31%). When asked whether clients believed their partner would actually test for HIV through index testing, HIVST was associated with an 18% increase in anticipated testing compared to PRS. Overall, 63% of clients believed their partner would prefer testing with HIVST over PRS. HIVST was believed to decrease disparities in testing for male partners. HIV-positive women were less comfortable delivering PRS to their partners than HIV-positive men (AOR:1.86, p=0.03), however this gender-difference becomes insignificant when introducing HIVST (AOR:1.72, p=0.14). Similarly, male partners were believed to be less likely than female partners to actually test through PRS (AOR:1.60, p=0.04), and again, this gender-difference becomes insignificant when introducing HIVST (AOR:1.23, p=0.41).

Conclusions: Delivery of HIVST kits to sexual partners was perceived as acceptable among HIV-positive clients in Malawi. Importantly, HIVST may close gender-specific gaps in male partner testing. Additional studies are needed to assess actual use and linkage to care.
WEPEE684
Performance and usability of OraQuick® oral fluid-based rapid HIV self-test among key populations in Vietnam

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Background: Self-testing provides an opportunity to increase uptake of HIV testing, particularly among never or infrequent HIV testers. Studies in Vietnam have demonstrated interest in and acceptability of oral fluid-based self-testing; however the usability of an oral fluid HIV self-test by lay populations is unknown.

Methods: The practicability of HIV self-testing was assessed using OraQuick® Rapid HIV Self-Test, an oral fluid-based rapid HIVST, in 200 adults living in Hanoi and Ho Chi Minh City in Vietnam. The participants were inexperienced lay users from key populations including men who have sex with men, transgender women, female sex workers, and people who inject drugs, as defined by self-reported risk behaviors. Participants were observed performing the test, however, they did not report their results to site staff; they were provided mock devices to interpret a range of results. A post-test interview was conducted with participants to assess comprehension of the instructions and ease of use of the test.

Results: Nearly all participants (98.6%) read the instructions for use (IFU) and 100% were able to complete the test and read the result. Among those, 52% collected the sample correctly, and 76% waited for the appropriate time period prior to reading their test results. With the use of mock devices, 94% of participants correctly interpret a strong reactive test result, 85% correctly identified a weak reactive test result. 99.5% accurately read a non-reactive test result, and 80% incorrectly interpreted a weak reactive test result as non-reactive. Most participants (93.5%) understood the IFU, and 95.5% felt confident they would be able to perform this test again.

Conclusions: Participants read the IFU with ease, but were not able to correctly use the swab, or read the result within the recommended timeframe. Participants demonstrated strong confidence and acceptance of the OraQuick® self-test, indicating they would use it when available in the market, and would introduce it to others. The IFU can be improved to: stress the correct result read time; emphasize the correct sampling method; taking care not to swab the gums too many times; clearly denote differences between weak reactive and non-reactive test results.

WEPEE685
Assessing the feasibility of HIV self-screening in South Africa

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Background: Self-testing provides an opportunity to increase uptake of HIV testing, particularly among never or infrequent HIV testers. Studies in South Africa have demonstrated interest in and acceptability of oral fluid-based self-testing; however the usability of an oral fluid HIV self-test by lay populations is unknown.

Methods: The practicability of HIV self-testing was assessed using OraQuick® Rapid HIV Self-Test, an oral fluid-based rapid HIVST, in 200 adults living in Hanoi and Ho Chi Minh City in Vietnam. The participants were inexperienced lay users from key populations including men who have sex with men, transgender women, female sex workers, and people who inject drugs, as defined by self-reported risk behaviors. Participants were observed performing the test, however, they did not report their results to site staff; they were provided mock devices to interpret a range of results. A post-test interview was conducted with participants to assess comprehension of the instructions and ease of use of the test.

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Conclusions: Participants read the IFU with ease, but were not able to correctly use the swab, or read the result within the recommended timeframe. Participants demonstrated strong confidence and acceptance of the OraQuick® self-test, indicating they would use it when available in the market, and would introduce it to others. The IFU can be improved to: stress the correct result read time; emphasize the correct sampling method; taking care not to swab the gums too many times; clearly denote differences between weak reactive and non-reactive test results.
Ensuring continuity of services for mobile populations

WEPEE687

Ensuring continuation of antiretroviral treatment in a Test & Treat programme in a rural conflict affected area of South Sudan, the experience of MSF Spain


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Background: Access to antiretroviral treatment (ART) is limited in conflict affected settings, particularly in rural areas. In Yambio, ART coverage is estimated to be 10%. Innovative strategies are needed in these settings in order to increase access to HIV services while ensuring continuation of ART in case of security deterioration. Few data on the outcomes of HIV programs in security situations are available.

Description: In July 2015, MSF launched a Test & Treat (T&T) Pilot Project in rural areas of Yambio where the mobile teams provide HIV counselling and testing (HCT) and ART initiation at the same day. A contingency plan to continue these activities in case of security situations was developed including mapping of patients, key messages about “what to do in case of crisis” during counselling sessions, provision of a phone number to contact the team in case of drugs shortage and coordination with community health workers (CHW) and PLHWA associations to provide ART refill for 2 months and “run-away bags” with 3 months of ART in case security context deteriorates to a higher level. Data on retention in care and viral load suppression was regularly recorded for patients affected by conflict situations.

Lessons learned: From September 2015 to December 2017, 8 security situations have affected Yambio area by limiting the access of our mobile clinics for drugs refilling and clinical follow up. The contingency plan was activated in every situation and a total of 90 patients in 6 different locations received drugs refill through contingency. Among them, 71 (79%) were active by January 2018. 2 (2.2%) were transferred out, 1 (1.1%) died and 15 (16.7%) defaulted. Among the active patients, 58 (81.7%) had a suppressed viral load.

Conclusions/next steps: Higher rates of retention in care and virological suppression of patients affected by security situations show that community based Test & Treat services are feasible and suitable for conflict affected population when contingency plan is developed in advance.

Approaches to viral load monitoring at scale

WEPEEE688

Analysis and proposals of strategies to reduce the turnaround time (TAT) of viral load samples in Nampula Province

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Background: Mozambique implemented viral load (VL) testing in June 2015, with five referral laboratories serving 11 provinces. In December 2015, VL testing expanded nationwide to all health facilities (HF) through the creation of a sample referral network. This critical expansion of services increased demand for routine VL testing, but laboratory-processing capacity did not expand at the same rate. From January 2016 - September 2016, there was a backlog of 6,000 VL samples to be processed by the Nampula referral laboratory, with the mean TAT increasing from 28 to 43 days. To address this challenge, ICAP analyzed the existing systems within this laboratory to identify gaps and design strategies to reduce TAT and increase sustainability of VL testing services.

Description: Based on the results of a TAT analysis, ICAP in coordination with the Health Authorities and the VL laboratory at Nampula Central Hospital implemented the following interventions in January 2017: 1) creation of convergence points or “hubs” for samples and results at 10 high volume HF; 2) procurement of three motorcycles to strengthen sample referral network; 3) addition of four new data clerk positions to support data entry into the laboratory information system (IDSA/LAB); and 4) increased length of shifts from two to four hours for lab technicians, with associated payment for additional hours worked.

Conclusions: Time and laboratory processing capacity were analyzed before and after implementation of the strategies to evaluate the impact of these interventions.
**WEPEE689**  
**“Know your viral load”: Impact of viral load demand creation on viral load monitoring in Swaziland**

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**Background:** There is an ongoing effort from National ART Programs in low-middle-income countries to scale up access to viral load (VL) testing. Access to VL, however, is being challenged by inefficiencies across the VL testing cascade resulting in delayed timing of first VL. Here we describe the impact of “Know your Viral Load” campaign launched in Swaziland on July 2016 to educate clients to actively demand VL testing— the first step in cascade of VL testing.

**Methods:** From September 2014-August 2017, 3,068 clients initiated ART under the MaxART Universal Test and Treat (UTT) step-wedge implementation trial in 14 health facilities in Swaziland’s public health sector. The “Know your VL” campaign in July 2016 included messaging on the importance of and time frame for VL monitoring for clients in order to create demand. Reminder stickers were placed in appointment books, recording the expected month for repeat VL, actual test date, and VL results. This intervention was in addition to routine provider trainings. Secondary analysis was done to determine median times to first VL after 16 weeks on ART using Kaplan-Meier curves. The intervention effect was measured using a Cox proportional regression model with time-varying covariates.

**Results:** In clients initiating ART, median age was 34 years (IQR: 28-42) with 62% female. During the study follow-up, median time to first VL from ART initiation was significantly lower for the campaign group than in control, 208 days (95% CI: 203-212) compared to 257 days (95% CI: 248-266). After adjusting for covariates at ART initiation, the hazard ratio for first VL monitoring earlier in campaign group was 2.92 (95% CI: 1.62-5.27; p < 0.0001).

**Conclusions:** There has been an increased effort to scale up the laboratory system capacity of Swaziland to provide VL, however, clients have not always had the information and encouragement needed to demand their VL. Empowering clients to demand VL monitoring in addition to routine provider trainings leads to earlier access to VL monitoring. Therefore, achieving the UNAIDS 90-90-90 targets would also require an informed and engaged patient.

**WEPEE690**  
**Routine viral load testing and enhanced adherence counseling for ART monitoring at a public ART centre in Mumbai, India**

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**Background:** There has been an increased effort from National ART Programs in low-middle-income countries to scale up access to viral load (VL) testing. Access to VL, however, is being challenged by inefficiencies across the VL testing cascade resulting in delayed timing of first VL. Here we describe the impact of “Know your Viral Load” campaign launched in Swaziland on July 2016 to educate clients to actively demand VL testing— the first step in cascade of VL testing.

**Methods:** This is a descriptive study of PLHA on ART who received routine HIV-VL testing and EAC during October 2016—December 2017. Logistic regression was used to identify factors associated with VL suppression (VL<1000 c/ml).

**Results:** Among 3537 PLHA who underwent VL testing, 1484 (42%) were female and median age was 42 years (IQR: 35-48). Of those tested, 3369 (95%) were on first-line ART, 136 (4%) were on alternate first-line ART and 136 (4%) were on second-line ART. Majorities were referred for routine testing (3230 (91%)) and clinical failure (231 (7%) (Figure). Among 3320 referred for routine testing, 2957(92%) had VL suppressed. Of 263 with VL>1000 c/ml, 160 completed EAC during the study period and after repeat VL, 41 (25%) had VL<1000 c/ml. Among 119 with VL>1000 c/ml, 81 were switched to 2nd line ART. Among 231 referred for clinical failure, 117 (51%) had VL<1000 c/ml and 101 have been switched to second-line ART.

**Conclusions:** There has been an increased effort to scale up the laboratory system capacity of Swaziland to provide VL, however, clients have not always had the information and encouragement needed to demand their VL. Empowering clients to demand VL monitoring in addition to routine provider trainings leads to earlier access to VL monitoring. Therefore, achieving the UNAIDS 90-90-90 targets would also require an informed and engaged patient.
WEPEE691
Efficacy of intensive adherence counselling in reversing virologically-defined treatment failure in HIV-infected patients on long-term antiretroviral therapy in rural Uganda

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Background: The WHO currently recommends patients with a viral load (VL) ≥1,000 copies/mL undergo three monthly intensive adherence counselling (IAC) sessions, before repeat VL testing can direct changes to therapy. We examined the efficacy of IAC among HIV positive adults receiving ART for 14 years without prior VL testing.

Methods: We conducted a retrospective cohort analysis on data collected from patient charts at seven centres of The AIDS Support Organization (TASO). Our sample included adults (>18 years) on ART for ≥4 years with a VL ≥1,000 copies/mL recorded between January 2014 and June 2016, without previous VL testing. Participants attended three IAC sessions and underwent repeat VL testing within 3-6 months of the initial test. Multivariate logistic regression analysis was used to ascertain independent factors associated with suppression.

Results: A total of 634 patients, 411(64.8%) women and 223(35.2%) men, had VLs ≥1,000 copies/mL during the study period. The mean age was 41.4 years (SD 11.8 years) and the mean duration on ART was 6.8 years (SD 2.3 years). Two hundred forty-nine (39.3%) patients achieved a VL <1,000 copies/mL on repeat testing, after IAC. Participants with baseline VLs of 1,000-10,000 copies/mL were more likely to achieve suppression than those with >10,000 copies/mL (AOR=0.61, 95% CI[0.40-0.93]) or >40,000 copies/mL (AOR=0.60, 95% CI[0.39-0.91]) were associated with a reduced likelihood of suppression. Patients having adherence <85% (AOR=0.05, 95% CI[0.03-0.08]) or 85-94% (AOR=0.27, 95% CI[0.17-0.43]) following IAC were less likely to suppress compared to those with 95% adherence. Being widowed increased likelihood of suppression (AOR=1.83, 95% CI[1.0-3.35]) relative to being divorced, while receiving HIV care at TASO Soroti (AOR=0.12, 95% CI[0.05-0.25]) or Masaka (AOR=0.26, 95% CI[0.13-0.51]) decreased likelihood of suppression.

Conclusions: Only 40% of participants who were on ART for 14 years without prior VL monitoring and who received IAC were able to reverse virologically-defined treatment failure. Lower baseline VLs and higher adherence after IAC predicted suppression. Outcome variability between TASO centres suggests programmatic differences at sites with lower reversal rates may improve outcomes.

WEPEE692
Moving from CD4 counts to Viral load measures: policy, practice and patient experiences in rural Tanzania and Malawi: A mixed-methods case study

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Background: In 2014 the WHO suggested a changing role for CD4 monitoring in clinical care, recommending routine viral loads (VL) to monitor adherence, and using CD4 counts to screen for opportunistic infections. However, roll-out VL testing has been slow in many settings and little is known about how the switch from CD4 counts to VL monitoring is taking place in practice. We used mixed methods in Tanzania and Malawi to document the evolution of national policies, ill assess health facility level implementation, and ill understand health provider and patient perspectives on the utility of these tests.

Methods: Guidance on the use of CD4 and VL were extracted from National HIV policies covering the period 2013-17. A facility survey was conducted in 2017 in health facilities in Malawi (n=52) and Tanzania (n=41) within two health surveillance sites (HSSS). Eight indicators on CD4 counts and VL testing were extracted. In-depth interviews with 3-6 health workers and 7-11 PLHIV across countries explored understanding and experience of the tests. Interviews were recorded and transcribed. Thematic analysis was conducted and findings compared across settings.

Results: Unlike Tanzania, Malawi did not adopt a policy requiring CD4 testing for ART eligibility. However both countries adopted VL testing in 2014 (Malawi) and 2015 (Tanzania). The frequency for VL testing was well aligned with national policy. Turnaround times for VL testing were longer than government recommendations in both countries (30 days). (Figure 1).

In-depth interviews suggested that health workers were aware of the guidance for VL testing and recognised its utility to give a “better picture of the health of our patients”. However, in Tanzania health workers preferred CD4 counts, where available, reporting that the turnaround time was quicker. In both countries PLHIV that recalled having undergone tests generally referred to CD4 counts and valued it as a measure of their health status.

Conclusions: Although CD4 counts are being phased out, the coverage of VL testing has not matched national policy. The slow scale up of VL testing and corresponding health worker training and delays in processing test results may undermine PLHIV engagement in HIV care.
WEPEE693
Can adult peer educators (Expert PLHIV) be utilized in HVL sample transportation to scale up HIV viral load testing in resource limited countries? THPS experience in Tanzania

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**Background:** HVL test remains the gold standard for monitoring patients on antiretroviral treatment. However, paucity of HVL laboratories, human resource shortage and logistical challenges (sample storage and transportation) continue to be a barrier to access of HVL monitoring. In addressing the above challenges THPS embarked on meaningfully engaging PLHIV in HVL sample transportation in all its catchment regions. PLHIV engaged also empowered to serve as Volunteers in supporting non-clinical tasks at care and treatment clinics e.g. counseling, group/individual education sessions, and facilitating disclosure and referrals of newly diagnosed PLHIV.

**Description:** In 2016 (123:72 female and 51 male) peer educators received three days training including practicals on sample management, documentation, biosafety issues and results feedback. Out of 123 Peer educators 102 (68 female and 34 Male) qualified and competent selected, provided with special ID cards, uniform and given the task of transporting samples using Public Transport. National HVL monitoring tools were used in sample management. Data analysis conducted on weekly basis in the first month on total sample collected and transported, tested, rejected, results turnaround time and number of Peer Educators involved in sample logistics.

**Lessons learned:** A total of 14,534 HVL samples collected and transported between October 2016 to Sept 2017 which made an achievement of 80% towards achieving the set target of 17,588. It was found that almost all rejected samples were due to technical operational/machine error. No rejections directly related to sample transportation samples using Public Transport. National HVL monitoring tools were used in sample management. Data analysis conducted on weekly basis in the first month on total sample collected and transported, tested, rejected, results turnaround time and number of Peer Educators involved in sample logistics.

**Conclusions/next steps:** Trained PLHIV are capable of facilitating smooth running of HVL programs. And allows health providers to dedicate their time on clinical care; and because these Peer Educators are directly related with the consequence for this monitoring tests they serve as reliable agents. Adopting this practice in resource settings with limited numbers of HVL testing labs will facilitate scale up of HVL testing and hence reaching the UNAIDS global 90th 90.

WEPEE694
Lessons from scaling-up HIV viral load testing in Tanzania: The importance of monitoring the HIV viral load cascade

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**Background:** Access to HIV viral load (HVL) testing in Tanzania has risen steeply in 2017 with the scale-up of testing laboratories and expansion of the hub-and-spokes model to transport and process samples. Within the regions supported by the Elizabeth Glaser Pediatric AIDS Foundation, HVL testing has increased three-fold within six months: from 4,157 tests between October 2016-March 2017 to 12,159 tests between April-September 2017. While the focus on scale-up has been to ensure all HIV clients receive a HVL test, follow-up results along the HVL cascade are equally important.

**Methods:** This retrospective analysis evaluates the HVL cascade (figure 1). Data from electronic medical records from the national HIV database at 71 sites were analyzed, for factors associated with uptake of repeat HVL testing among those identified with high viral load (>1,000 RNA copies per ml). Variables included age, sex, treatment regimen, and facility level.

**Results:** From October 2015 till March 2017, 7,908 clients received a first routine HVL test, with a viral load suppression rate of 80%. Out of 1,645 clients with a high viral load, 710 (44%) received a repeat HVL test and 46% of these clients were then found virally suppressed. Likelihood of repeat test was higher among patients seen at hospitals (45%) compared to lower-level facilities (25%, p< .0001), and patients on 2nd line regimen (95%) compared to 1st line (42%, p<.001). Children and adolescents/youngs under 25 years were more likely to receive a repeat test (54%) compared to older patients (40%, p<.001). The likelihood of receiving a repeat HVL did not vary by sex (p=106).

![HVL cascade at 71 sites across six regions in Tanzania, October 2015 - March 2017](image)

**Conclusions:** While the scale-up of HVL in Tanzania has improved, the follow-up of clients with high viral load lags. As many differentiated service delivery models are implemented for stable clients, these findings call for stronger focus on models for clients with high viral load. Follow-up along the HVL cascade also requires more investments in monitoring and evaluation systems to be able to track these at-risk clients and document the outcome of enhanced adherence counseling and potential treatment switch.

WEPEE695
Reaching the third 90 with a simple viral load quality improvement program in health facilities in Malawi

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**Background:** The UNAIDS 90-90-90 goals call for 90% of HIV-infected individuals on antiretroviral therapy (ART) to have a suppressed viral load (VL) by 2020. Scale-up efforts have largely focused on laboratory systems, with less attention on facility-level strengthening of staff who facilitate VL testing. To address this gap, we implemented a quality improvement (QI) program at 14 health facilities in Malawi supported by Partners in Hope-EQUIP, a PEPFAR/USAID mentorship program.

**Description:** In April 2016, we performed an assessment in health facilities in Central/Southern Malawi to identify facility-level barriers to VL testing. Findings informed the development of VL tools used in a QI program that focused on patient and provider VL knowledge and clarification of site-level roles and responsibilities, including the designation of a VL “Focal Person” to oversee all VL activities. Tools include: (1) standard operating procedures for VL testing that incorporate the Focal Person (Figure); (2) VL educational materials; and (3) job aids for the Focal Person. Orientations lasting 3-4 hours were conducted by clinical men-
WEPEE666
Are adolescents and men the missing link? A review of viral suppression rates from a Kenya HIV program

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Background: Kenya has made significant investments to fast track the 90:90:90 initiative towards HIV epidemic control. The Kenya AIDS Strategic Framework is the guiding policy document, and the country is investing heavily to achieve the 90:90:90 goals. The Ministry of Health has put in place an effective Viral Load (VL) surveillance system to monitor treatment success. The VLs are done for clients after 6 months and 12 months on ART then annually thereafter as per the national guidelines.

Description: APHIAPLUS KAMILI, a USAID funded project supports HIV care and treatment services in Eastern and Central Kenya since 2011. As of September 2017, there were 39,677 clients active on Antiretroviral Therapy (ART) across 140 sites. All clients on ART get at least one viral load test per year. The project has trained and mentored service providers on specimen collection, patient follow-up and assists on specimen referral through a lab networking system. Viral load tests are posted online through a secure web system database and hard copies sent to facilities for client’s clinical management. This review analyzed the viral load test results from database all tests submitted from September 2016 to October 2017. Viral suppression is defined as VL results less than 1000 copies/ml.

Lessons learned: A total of 29,011 VL results were analyzed after all duplications and incomplete entries were removed. There were 23,673 (83%) clients who were virally suppressed. Viral suppression differed significantly by age, sex, region treatment regimen, and clinical indication on multivariate analysis. Male clients had lower viral suppression at 80% than female at 86% (p-value < 0.0001) and this was the same across most age groups. Adolescents had the lowest viral suppression across all counties. Viral suppression was at 90% (n=6,531) in age group 50 years+, with adolescents aged 15-19 (n=959) at 58% (p-value < 0.0001). 60% (n=1,280) in 10-14 years age band and 85% (n=18,116) for 25-49 years.

Conclusions/Next steps: The region had made substantial progress in tracking viral suppression across regions and age groups. However, a lot needs to be done to improve viral suppression in adolescents and men. Close monitoring and adherence support is needed among these populations to improve treatment outcomes.

WEPEE697
“It helps us to help the patient earlier”. A qualitative study from Zimbabwe exploring patient and health-care worker perceptions of receiving HIV viral load results by SMS

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Background: HIV Viral Load monitoring is recommended by the WHO as a more accurate available measure of antiretroviral treatment response, and has been progressively adopted in many low and high HIV burden settings. Scale up of VL testing requires huge economic, laboratory and programmatic investments and significant challenges exist, including timely return of results to health facilities and patients; completion of adherence counselling and timeous switch to second line treatment for those eligible. Medecins Sans Frontieres (MSF) introduced an mHealth intervention, where patients received a mobile phone SMS from the central laboratory to inform them that they should visit the clinic immediately to collect their VL results if VL>1000copies/ml or at their next scheduled visit if VL<1000copies/ml. The clinic received an SMS with the actual VL result.

Lessons learned: A simple QI program focused on improving VL knowledge among patients and providers and clarifying staff roles at a facility-level doubled VL testing over an extended period of time. Further investigation is needed on whether this program can be scaled in different settings across sub-Saharan Africa and on the duration of follow up required for sustained improvements in VL testing.

Tables: Mean number of monthly routine viral loads taken before and after QI program, by facility type

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Routine VL testing before QI</th>
<th>Routine VL testing after QI</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Hospitals (5)</td>
<td>96 (67)</td>
<td>187 (96)</td>
</tr>
<tr>
<td>Mission Hospitals (4)</td>
<td>79 (31)</td>
<td>199 (86)</td>
</tr>
<tr>
<td>Rural Hospitals (3)</td>
<td>71 (46)</td>
<td>168 (70)</td>
</tr>
<tr>
<td>Health Centres (2)</td>
<td>23 (12)</td>
<td>90 (51)</td>
</tr>
</tbody>
</table>

*p-value calculated using t-tests
**p-value calculated using t-tests
**WEPEE698**

**Improving viral load test sample quality, coverage and suppression on antiretroviral therapy patients through quality improvement: A before–after study from south-western Uganda**

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**Background:** To reach the ‘third go’ of viral suppression (VS), it will be essential to scale-up access to routine, quality viral load (VL) tests. One strategy anticipated to increase coverage of VL is with dried blood spot (DBS) testing and the quality of VL sample is essential for accurate results. To assess the impact of a comprehensive quality improvement (QI) intervention, we analyzed secondary routine program data before and after the intervention. Trends assessed were VL sample rejection rates, VL coverage, and VS.

**Methods:** National VL database was reviewed for our 264 supported sites in Southwest (SW) Uganda on key VL testing outcomes. January-September 2016 (before) and January-September 2017 (after) following implementation of QI activities to improve VL testing. This included 5-day training Healthcare workers (HCWs) using National harmonized VL training module between October-December 2017, targeted VL mentorships; avaling VL kits; continuous QI projects on identified VL cascade gaps. Aggregated data on samples rejected (rejection reasons), tests completed, and results extracted from VL dashboard, entered into Microsoft Excel for data analysis using descriptive statistics and assessed by gender and age. VL coverage defined as proportion of active ART clients eligible for VL with VL test and VS as number of clients with a VL test result ≤1,000 copies/mL as per national VL algorithm.

**Results:** Before intervention, 8.0% (n=2,786) of total samples were rejected commonly due to incomplete forms 59.3%, (n=1,652) poor sample quality 27.3%, (n=768); and non-eligibility 13.4%, (n=373). VL coverage was 69% (n=34,825), 92.5% VS (95.1% women, 91% men). After implementation, samples rejected decreased to 2.4% (n=768), VL coverage increased to 85.0% (n=111,224), 93.8% VS (95.1% women, 95.6% men). VS in adults (age>19 years) was 96%, children and adolescents 15-19 years 75%, 10-15 years 80%, 15-19 years 75%. After implementation, samples rejected decreased to 2.4% (n=268), VL coverage increased to 85.0% (n=111,224), 93.8% VS (95.1% women, 95.6% men). VS in adults (age>19 years) was 99.0%, children and adolescents 15-19 years 70%, 10-15 years 80%, 15-19 years 75%.

**Conclusions:** Based on the findings review/analysis at the end of the initial 90-days PDSA cycle: NHSC achieved 80% appointment adherence rate and was able to sustain and surpass it during the entire 2017. Furthermore, NHSC observed a 27% increase in viral suppression in previously unsuppressed patients.

**Lessons learned:** Based on the findings review/analysis at the end of the initial 90-days PDSA cycle: NHSC achieved 80% appointment adherence rate and was able to sustain and surpass it during the entire 2017. Furthermore, NHSC observed a 27% increase in viral suppression in previously unsuppressed patients.

**Next steps:** Implementation of a coordinated, patient-centered and patient-driven approach to appointment adherence monitoring and management allowed to achieve an overall improvement of patient participation in their care with the ultimate goal of achieving sustained viral suppression.

**WEPEE700**

“Ohubeka uthathe amapilisi”: Solving the adherence challenge in antiretroviral treatment amongst women in the Ngqushwa district, Eastern Cape, South Africa. A user-developed programme

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**Background:** Blanket approaches to bolster ARV adherence have left significant gaps. An example is the case of newly-post-partum HIV+ women, whose ARV adherence shows a sharp drop after delivery.

**Objectives:** To assess and develop a cost-effective on-the-job tool to support ART adherence in newly-post-partum women in the Ngqushwa District, Eastern Cape, South Africa.

**Methods:** Based on patient interviews and observations, a patient adherence tool was designed and administered to all patients to ascertain reasons for non-adherence. Self-assessment responses were collected, analyzed and presented to CAB, EIS staff and leadership.

**Results:** The following challenges were noted: 1. Appointment Adherence: appointments were missed due to transportation, work, family, etc. 2. Functional calendars and appointment booklets were offered to patients. 3. A 90-day PDSA (Plan-Do-Study-Act) cycle was developed to design a process change based on patient responses: a) Medical Case Managers (MCM) to make confidential reminder calls prior to appointments; b) MCM to identify barriers to appointment adherence (e.g. transportation) and make every effort to overcome; c) MCM to provide patients with a paper appointment slip and wall calendars to record appointments (CAB suggestion); and d) MCM help patients schedule appointments of cell phone calendars (CAB suggestion). Lists of missed appointments were generated weekly to contact patients on the same day to find out the reason for non-attendance and to reschedule.

**Conclusions:** Appointment adherence data was collected and analyzed on a regular basis. It was further drilled down to identify specific patient sub-populations (gender, age, risk factor) that may require additional designated efforts to improve adherence.

**Lessons learned:** Based on the findings review/analysis at the end of the initial 90-days PDSA cycle: NHSC achieved 80% appointment adherence rate and was able to sustain and surpass it during the entire 2017. Furthermore, NHSC observed a 27% increase in viral suppression in previously unsuppressed patients.

**Next steps:** Implementation of a coordinated, patient-centered and patient-driven approach to appointment adherence monitoring and management allowed to achieve an overall improvement of patient participation in their care with the ultimate goal of achieving sustained viral suppression.

**Innovations and lessons for supporting adherence**

**WEPEE699**

Empty exam rooms: Partnering with HIV consumer advisory board to improve medical appointment adherence, a New Jersey community health center experience

L. Rudychavaya-Hernandez

**Background:** NHSC, a private, non-profit urban community-based health center in Plainfield N.J. USA, provides HIV care/treatment to approximate 360 patients under the umbrella of Early Intervention Services. NHSC has an enthusiastic, well-established Consumer Advisory Board (CAB) to offer valuable patient perspective on the EIS program development, implementation and evaluation, including quality improvement. Based on 2016 year-end data, HIV patient appointment adherence rates were sub-optimal (60%). Poor appointment adherence can be directly linked to virological failure and disease progression. NHSC determined 80% as its acceptable internal quality indicator for medical appointment adherence.

**Description:** EIS program and CAB designed a quality improvement project around sub-optimal medical appointment adherence:

1. Appointment Adherence Self-Assessment tool was designed and administered to all patients to ascertain reasons for non-adherence.

2. Self-assessment responses were collected, analyzed and presented to CAB, EIS staff and leadership.

3. A 90-day PDSA (Plan-Do-Study-Act) cycle was developed to design a process change based on patient responses:
   a) Medical Case Managers (MCM) to make confidential reminder calls prior to appointments;
   b) MCM to identify barriers to appointment adherence (e.g. transportation) and make every effort to overcome;
   c) MCM to provide patients with a paper appointment slip and wall calendars to record appointments (CAB suggestion);
   d) MCM help patients schedule appointments of cell phone calendars (CAB suggestion).

Lists of missed appointments were generated weekly to contact patients on the same day to find out the reason for non-attendance and to reschedule.

4. Appointment adherence data was collected and analyzed on a monthly basis. It was further drilled down to identify specific patient sub-populations (gender, age, risk factor) that may require additional designated efforts to improve adherence.

**Lessons learned:** Based on the findings review/analysis at the end of the initial 90-days PDSA cycle: NHSC achieved 80% appointment adherence rate and was able to sustain and surpass it during the entire 2017. Furthermore, NHSC observed a 27% increase in viral suppression in previously unsuppressed patients.

**Conclusions:**

1. Appointment adherence data was collected and analyzed on a monthly basis. It was further drilled down to identify specific patient sub-populations (gender, age, risk factor) that may require additional designated efforts to improve adherence.

2. Lessons learned: Based on the findings review/analysis at the end of the initial 90-days PDSA cycle: NHSC achieved 80% appointment adherence rate and was able to sustain and surpass it during the entire 2017. Furthermore, NHSC observed a 27% increase in viral suppression in previously unsuppressed patients.

**Next steps:** Implementation of a coordinated, patient-centered and patient-driven approach to appointment adherence monitoring and management allowed to achieve an overall improvement of patient participation in their care with the ultimate goal of achieving sustained viral suppression.
WEPEE701
Using peer-to-peer psychosocial support and active client follow-up to improve adherence: Lessons learnt from the mothers2mothers program in Southern Africa

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Background: The ongoing scale-up of HIV treatment programs is undermined by poor treatment adherence challenges. Research has shown the use of reminders alone is not effective in promoting adherence and may even discourage clients who are struggling to adhere. Mothers2mothers has developed an integrated service platform (ISP) that uses peer-to-peer psychosocial support and education to pregnant women and new mothers. On a continuous basis, MMs track each client’s ART pickups and follow up with text messages, phone calls and home visits when an appointment is missed. During each one-on-one interaction with a client, MMs conduct an adherence assessment as part of their standard package of services. Finally, when clients are identified to have poor adherence, MMs provide intensified education and support, and refer the client for additional social support services when appropriate.

Lessons learned: A multi-country internal evaluation of the mothers2mothers program conducted in 2017 revealed that the ISP model is associated with high rates of adherence. Measured as the number of days in the past week that the woman took her medication, 94.5% of the sample had an average adherence rate of >99% (n=326) over multiple measurements. In addition, over 95% displayed high levels of self-efficacy in remaining adherent. Low levels of adherence are often associated with lack of male partner support and partner violence.
WEPEE703
A new patient-reported outcome measure to assess perceived barriers to antiretroviral therapy adherence: The PEDIA scale
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Background: Perceived barriers are one of the strongest predictors of nonadherent behavior and a potentially modifiable construct. We sought to develop and validate a new patient-reported outcome measure to assess perceived barriers to antiretroviral therapy (ART) adherence.
Methods: Based on open-ended interview questions with HIV-infected adults from a national study, a pool of 47 items was created. After pilot-testing and content validity, scale revisions resulted in a 40-item version of the Perceived Barriers to Antiretroviral Therapy Adherence (PEDIA) scale. The PEDIA was administered to 415 HIV-infected adults receiving ART for a maximum of 180 days, recruited from three healthcare facilities that are a reference in HIV treatment in the city of Belo Horizonte, Brazil. Analyses included exploratory factor analysis, internal consistency, temporal stability, item response theory analysis, and criterion validity analysis.
Results: The final scale version contains 18 items distributed in three dimensions as follows: cognitive and routine problems (4 items): medication and health concerns (6 items); and patient’s fears and feelings (8 items). Results of the Cronbach’s alpha (0.74) and temporal stability demonstrate that the PEDIA is internally consistent and yields stable scores over time. Test information functions suggested that the three dimensions were informative in assessing a broad range of the latent trait. Criterion validity was confirmed since a negative association was found between the total score of the PEDIA and adherence scores. Independently of other participants’ characteristics, the odds of being non-adherent was significantly higher for participants who scored 1 point more in the total scale (aOR=1.18; 95%CI: 1.11, 1.23), and in each dimension: cognitive and routine problems (aOR=1.63; 95%CI: 1.40, 1.90); medication and health concerns (aOR=1.32; 95%CI: 1.15, 1.51); and patient’s fears and feelings (aOR=1.12; 95%CI: 1.05, 1.20).
Conclusions: Our findings suggest that the PEDIA is a psychometrically sound tool for evaluating perceived barriers in adult patients initiating ART. It can be utilized in both research and clinical practice settings for early identification of patients at risk for non-adherence and for the development of behavior change interventions. The PEDIA may ultimately narrow the gap between providers’ and patients’ realities and improve the quality of care from the patient’s perspective.

WEPEE704
Improving HIV treatment uptake among HIV-positive female sex workers in Naivasha, Kenya
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Background: Stigma and discrimination (S&D), inadequate information on HIV treatment services, and inefficient key population (KP)-specific support mechanisms in the community negatively affect sex workers’ ability and decision to access care and treatment services. To increase use of HIV treatment services, LINKAGES/Kenya — led by FHI 360 and supported by USAID and PEPFAR — implemented the encounter initiative, a personalized process for linking HIV-positive female sex workers (FSWs) to antiretroviral therapy (ART) in Naivasha, Kenya.
Description: The encounter initiative involves two strategies: 1) small, personalized group meetings dubbed encounter groups and 2) client feedback forums focused on addressing S&D against KPs living with HIV (KPLHIV).
Encounter groups comprise of three people: the client (a KPLHIV who has not begun or has stopped taking ART), a clinician, and a trained KPLHIV champion who has been on treatment for at least 24 months. Meetings involve talking with the client about benefits of treatment and factors that hinder their access to treatment, and formulating a plan to link them to care. Up to three encounter meetings are conducted. KPLHIV are linked to care at nearby government-run ART centers and supported by the KPLHIV champion. Feedback forums are held with the KPLHIV to understand if they face S&D at the ART centers. If stigma is reported, the clinician organizes a sensitization meeting at the facilities to highlight the importance of providing stigma-free services to KPs.
Lessons learned: In January 2017, there were 112 KPLHIV enrolled within the program, of whom 30 (27%) were on ART. From March to December 2017, 99 KPLHIV who were not yet on ART or had stopped treatment were engaged in encounter groups and followed up with feedback forums. Seventy (71%) of those KPLHIV initiated ART thus raising overall uptake to 100 (72%) (Figure 1). The most commonly cited reason (75%) for poor uptake of ART was S&D from healthcare workers. To address this, we conducted two sensitization meetings at two facilities commonly mentioned.
Conclusions/Next steps: Establishing community support for KPLHIV is key in their initiating antiretroviral therapy. Additionally, interventions to address S&D and accommodate KPs will encourage use of HIV treatment services by sex workers.

WEPEE705
Towards 95% completion rates of Isoniazid preventive therapy in resource limited setting: case of Amref Kibera community health centre, Nairobi, Kenya
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Background: Tuberculosis is the most frequent life-threatening opportunistic disease in people living with HIV (PLHIV). World Health Organization recommends the routine use of Isoniazid for 6 months to treat latent tuberculosis infection in PLHIV. Globally, many HIV programs have IPT completion rates lower than 90%. In year 2016, IPT completion rate was 84.72% among PLHIV attending Amref Kibera Community Health Centre. Failure to complete IPT was highly associated with Lost to follow up (6.09%) and self discontinuation (5.68%). This study aims to demonstrate how 6 months IPT completion rates can be improved through improvised pre-packing of Isoniazid and pyridoxine in resource limited setting in Amref Kibera Health centre.
Methods: This is a before and after study with PLHIV started on IPT before and after initiation of Isoniazid and pyridoxine pre-packing intervention between December 2015 and May 2017. Baseline data on IPT completion rates was obtained from IPT register and generated into excel format. During intervention phase each client starting IPT was assigned a 6 months dose of IPT pre-pack. The number of drugs dispensed, date of collection and next refill date was documented on the packs. The packs were routinely monitored to detect treatment interruption. A customized tracking tool was used to document follow up outcomes. Prompt adherence counseling was done through phone calls and home visits. At the end of the 6 months therapy, all clients whose packs had drug reminders were traced back and interventions done as per the IPT national guidelines.
Results: During the intervention phase (September 2016 and May 2017), of the 177 patients started on IPT, 94.9% (168) successfully completed a full course of 6 months IPT in comparison to 84.72% (56) who completed IPT among 432 patients started on IPT between December 2015 and August 2016. The rate of self discontinuation and lost to follow up declined from 5.56% to 0% and 5.90% to 13% respectively.

Conclusions: IPT prepackaging offers individualized patient monitoring which significantly improved the 6 months IPT completion rates. We recommend for a global plan for IPT commodities to be pre-packed like the TB treatment drugs.

WEPEE706
Adherence patterns among patients enrolled in comprehensive HIV care programs in Kinshasa and Haut-Katanga provinces in the Democratic Republic of Congo

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Background: The Democratic Republic of Congo (DRC) has committed to reaching 70% antiretroviral therapy (ART) coverage in 2018, but the effectiveness of lifesaving HIV treatment is dependent on patient adherence. Understanding adherence patterns, including sex differences, is critical to designing effective adherence support interventions as part of HIV treatment programs.

Methods: This analysis aimed to identify demographic and geographic correlates of ART adherence, and used aggregate data from 151 ICAP-supported sites in Kinshasa and Haut-Katanga provinces in DRC, collected from 2005-2017. The aggregate data was originally collected from ART registers at ICAP-supported sites. Adherence interventions in these facilities included adherence clubs, support groups, buddy systems using mobile apps, and adolescent groups that discuss barriers to adherence. Using logistic regression, we analyzed whether adherence is associated with sex, province, and age group in the first 12 months of treatment.

Results: Between January 1, 2015 and December 31, 2016, 7,346 adolescents (ages 15-19) and adults (ages 20 and over) newly initiated ART. Between March 1, 2015 and December 31, 2017, 4,405 (60%) patients had reached 12 months on treatment and self-reported as adherent. In an initial multivariable analysis, interaction was found between sex and province, and age group and province, so all further analyses were stratified by province. When controlling for age group, males in Kinshasa were less likely than females to be adherent in the first twelve months on treatment (adjusted odds ratio (AOR)=0.75, 95% CI=0.66-0.86). No difference was found between adolescents and adults (AOR=1.08, 95% CI=0.95-1.21). In Haut-Katanga, no difference was found between males and females (AOR=1.84, 95% CI=0.91-3.86). In Haut-Katanga, adolescents were more likely than adults to be adherent (AOR=4.58, 95% CI=2.22-9.47). Conclusions: Differences between Haut-Katanga versus Kinshasa might be connected to overall higher socioeconomic status in Haut-Katanga, a result of the many precious stone mines in the region. Additionally, psychosocial support services targeted to adolescents in Haut-Katanga might explain age group differences in adherence. Option B+ for pre-adolescent mother to child transmission of HIV provides an avenue for many newly initiated women to receive enhanced support, which might explain sex differences in Kinshasa.

Adolescent and youth programming

WEPEE708
Factors associated with transactional sex among adolescent girls and young women accessing community-based combination prevention services in Tanzania

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Background: Sauti is a PEPFAR/USAID-funded HIV combination prevention project serving key and vulnerable populations, including adolescent girls and young women (AGYW); however, sex workers' programming targets only females ages 18 and above who exchange sex for cash or goods as their primary source of income. Trained biomedical providers offer services in the community at hot spots, which are defined as areas of high HIV transmission, or at home and resource centers.

Methods: We describe the characteristics of a population of out-of-school AGYW engaging in transactional sex, defined as self-reported exchange of sex for cash or goods (not as a primary source of income). Vulnerable AGYW are defined as ages 15-24 who are out of school and sexually active; the analysis covers 12 regions in Tanzania, from August 2015 to September 2017. Factors associated with AGYW engagement in transactional sex were determined using multivariate logistic regression analysis on routinely collected project data.

Results: Among 96,882 AGYW who accessed Sauti services over the 25-month period, 31.4% reported transactional sex. Among them: 64.6% were ages 15-19; 67.2% didn’t use condom in the last month; 56.9% didn’t use modern contraception; 4.2% and 1.4% respectively used alcohol or drugs during sex with a partner; 56% didn’t use modern family planning method; 56.9% didn’t use modern family planning method; 56%. Among 96,882 AGYW who accessed Sauti services over the 25-month period, 31.4% reported transactional sex. Among them: 64.6% were ages 15-19; 67.2% didn’t use condom in the last month; 56.9% didn’t use modern contraception; 4.2% and 1.4% respectively used alcohol or drugs during sex with a partner; 56% didn’t use modern family planning method; 56.9% didn’t use modern family planning method; 56%.
WEPEE709

Drug use, HIV, HCV infections among young people who use drugs (YPUD) in 3 cities of Vietnam

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Background: In South East Asia, including Vietnam, amphetamine-type stimulants (ATS) is replacing heroin as the most popular drug. HIV programs, targeting PWID have most clients in their 30s and 40s. Little is known about actual drug use behaviors and HIV/HCV risks among younger generations.

“Saving the Future project” (funded by the French’s 5% Initiative) implements innovative HIV prevention strategies among YPUD in Vietnam (15 to 24 y/o), regardless of their drug of choice and mode of use. An initial survey was conducted to learn about drug use and HIV/HCV risks and findings were used to develop packages mitigating the risks.

Methods: An RDS survey was conducted in 2016/2017 in Hanoi, Haiphong and Ho Chi Minh, 3 Vietnam biggest cities. Participants aged 16-24 y/o and urine test positive to at least one of the 4 most popular drugs in Vietnam: Methamphetamine, Cannabis, Heroin, Ecstasy. Participants responded to a questionnaire on demography, family, drug use, sexual behaviors, dependence. Blood sample was collected for HIV/HCV serostatus data. Study protocol was approved by a national IRB.

Results: 584 YPUD were enrolled, 42.1% were 16-18 y/o, 19.9% female, 12.1% transgender people. 61 self-identified as MSM, 84 reported selling sex (3 were male). Polydrug use is common: 31.8% tested positive to more than 1 drug. Methamphetamine use reported by 83%, 71% tested positive. Cannabis 69.2% and 43.2%, Ecstasy 25.3% and 18%. Only 31% reported injecting and almost exclusively Heroin. Methamphetamine injection is rare, occurred only when YPUD need to hide their drug use or as an experiment. Overall HIV/HCV prevalence was 6.3% and 9.4% (see table for details).

70.5% of YPUD reported ever had sex (80% reported at least one risky sex behaviors, 45% reported less likely using condom after consuming methamphetamine).

<table>
<thead>
<tr>
<th>YPUD characteristics</th>
<th>HIV prevalence</th>
<th>HCV prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants</td>
<td>6.3%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Methamphetamine user, never inject</td>
<td>5.9%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Current heroin injector</td>
<td>17.8%</td>
<td>35%</td>
</tr>
<tr>
<td>Cannabis smoking only</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MSM, never inject</td>
<td>16.4%</td>
<td>2%</td>
</tr>
<tr>
<td>Age 16 - 18</td>
<td>0.7%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Age 19 - 22</td>
<td>6.5%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Age 23 - 24</td>
<td>9.5%</td>
<td>14%</td>
</tr>
</tbody>
</table>

(HIV, HCV prevalence among YPUD in 3 cities in Vietnam by characteristics)

Conclusions: Methamphetamine is the most popular drug for YPUD, associated with HIV and HCV infection. Injecting is unpopular but associated with greatest risk for HIV and HCV. Being an MSM using drug is also associated with high HIV prevalence. Intervention should be differentiated for each segment of this population.
WEPEE711
Adolescent girls and young women as end users of HIV prevention in sub-Saharan Africa: Mapping ongoing and planned research along the HIV prevention journey to inform product introduction

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Background: New HIV prevention products are needed and existing ones need to be successfully introduced to address the disproportionately high rates of HIV among adolescent girls and young women (AGYW) in sub-Saharan Africa. For successful product introduction, a thorough understanding of factors that influence AGYW’s awareness, acceptance, uptake, adherence and championing of HIV prevention is essential. The landscape of AGYW and HIV prevention research is highly saturated, and a mapping of research along the prevention journey framework is needed to discover what is known, will be known and what gaps exist.

Starting in 2017, the HIV Prevention Market Manager project began tracking ongoing and planned work. This mapping builds on a previously published analysis, identifying the full scope of work in this area and mapping research questions to the journey framework.

Methods: A review of ongoing and planned research on HIV prevention and AGYW ages 13-28 in sub-Saharan Africa was conducted. The review maps research by study type, country and questions along the prevention journey framework—awareness, acceptance, uptake, adherence and championing. Structured interviews with product developers, researchers, marketing agencies, program implementers and surveys informed the mapping.

Results: The review identifies 84 organizations working on 104 ongoing and planned projects in 18 countries across sub-Saharan Africa. Research focuses primarily on acceptability and adherence, with oral PrEP the main product under study. The mapping found that South Africa, Kenya and Zimbabwe are the primary locations for research. Only 14% of all projects in sub-Saharan Africa gather information on those who influence potential HIV prevention users, with 54% of these projects including a focus on male partners, and only 4% including a focus on the health provider as influencer.

Conclusions: The mapping brought to light several gaps in research on AGYW as end users of HIV prevention products, such as the lack of research focused on providers. The mapping intends to be a living document, updated with new research on an ongoing basis, and can inform collaborations and act as a guide to funders and implementers when considering what is already happening, what gaps exist and what new work is needed to understand AGYW and HIV prevention.

WEPEE712
The SAGE-DREAMS project increases AGYW access to HIV testing services using school-based outreach: Evidence from Rakai district, Uganda

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Background: Recent UNAIDS (2016) statistics indicate that in Uganda, 57% of adolescent girls and young women (AGYW) aged 15-24 get infected with HIV each week. HIV prevalence is almost four times higher among AGYW than their male counterparts (UPHIA 2016-2017). The Strengthening School Community Accountability for Girls’ Education (SAGE) is a two-year project (October 2016-September 2018) implemented by World Vision, Inc., funded by PEPFAR as part of the DREAMS Innovation Challenge, managed by John Snow, Inc. (JSI). It aims to keep 45,000 AGYW in 152 secondary schools across 10 districts in Uganda, which acts as a social vaccine to reduce new HIV infection.

Description: Rakai district in Uganda has one of the highest HIV prevalence (78%) compared to the national average (6%) (UPHIA 2016-2017). The SAGE-DREAMS addresses socio-economic risk factors for HIV infection among AGYW using adolescent girl-led school-community approaches. To contribute to the national and UNAIDS 90-90-90 Global Strategy, the project adopted school-based HIV testing services (HTS) outreach strategies. The project mapped all health facilities providing HTS around target schools, supported health workers to conduct HTS in schools, and trained school administrators, teachers and adolescent girl leaders to mobilize students for HTS. After twelve school-based outreaches were conducted 2,765 out of the estimated 2,761 AGYW got tested for HIV and received their results, representing an 86% testing rate.

Lessons learned:
• School-based HTS enables AGYW to be reached in large numbers with support from the school administration, teachers and peer educators.
• Working with existing professional health workers eases the process of referral in case of AGYW found to be positive.
• School provides youth friendly spaces away from the health facilities as service points which reduces fear and encourages students to go for HTS.
• School-based HTS outreach approach strengthens relationships between health workers, schools and parents/caregivers.

Conclusions/Next steps: School-based outreach increases access to HTS for AGYW as per the findings in the twelve schools in the Rakai district in Uganda. The SAGE-DREAMS project will scale up this approach to reach more AGYW with HTS and these promising preliminary findings can be applied more broadly in Uganda and elsewhere.

WEPEE713
Strategies to identify and reach high risk young women with DREAMS services in Zimbabwe

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Background: Adolescence and sex work are independent risk factors for HIV. In many countries, including Zimbabwe, young women who sell sex (YWSS) are doubly criminalised as sex work and having sex below the age of consent are illegal. Consequently, they are particularly hidden and hard to reach with HIV prevention and care services. The DREAMS Partnership aims to reduce risk of HIV acquisition among the most vulnerable adolescent girls and young women, including YWSS, in 10 sub-Saharan African countries. We describe two methods used to identify and refer YWSS for DREAMS services (DREAMS) in Zimbabwe.

Description: DREAMS funds a ‘Core Package’ of evidence-informed approaches that go beyond the health sector, addressing structural drivers that increase girls’ HIV risk, including poverty, gender inequality, sexual
WEPEE714
Parenting programs a medium for addressing gender based violence and HIV risk reduction for DREAM girls

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Background: According to the Uganda Population Based HIV Impact Assessment (UPHIA 2016-2017), the prevalence of HIV among adults aged 15 to 64 in Uganda is 6.2%: 7.6% among females and 4.7% among males. HIV prevalence is almost four times higher among females aged 15-24 years than their male counterparts. The AIDS Support Organization (TASO) is implementing a 2 year DREAMS (Determined, Resilient, Empowered, AIDS free, Mentored and Safe) to empowerment Girls and Young women (AGYW) 10-24 years in three districts of Uganda. The goal is to reduce HIV incidence by 40% in two years. Strengthening families is one of the core packages offered through DREAMS. The interventions aim to strengthen the family economically and psychologically to their general health. Programs tailored to their specific needs are required.

Description: TASO’s Parenting intervention is a 14-week training program aimed at creating strong and positive relationships among girls and their caregivers. It helps families to gain a sense of belonging and reduces the risk of child abuse in families and helps teenagers to stay safe from violence and lack of education. In Uganda, a component of the core package for YWSS is the offer of oral pre-exposure prophylaxis. We used two approaches to identify hard to reach YWSS: 1) respondent-driven survey techniques (RDS), and 2) peer outreach. For the RDS, we conducted detailed mapping to understand sex work typology and geography then purposively selected 20 participants to initiate RDS recruitment. Once recruited, YWSS underwent survey procedures and were referred for DREAMS. For peer outreach, we initiated recruitment through 18 trained and age-matched, supported peer educators using youth tailored community mobilisation and as with RDS, YWSS were referred for DREAMS. In both approaches we used unique identifier codes (UID) to track YWSS across services provided by different implementing partners.

Lessons learned: From April-July 2017, RDS referred 1204 YWSS and from August-October 2017, the peer educators referred 2481 YWSS: 426 (35%) and 378 (15%) reached DREAMS, respectively (Table 1). There were challenges tracking YWSS across implementing partners because some YWSS intentionally altered information used to generate their UID when accessing different DREAMS services. Also with these strategies, we couldn’t capture or collect information on YWSS who refused participation.

Conclusions/Next steps: Peer referral whether through RDS or peer outreach is able to identify high risk young women and refer them to services. There is need to use robust UID and other systems to facilitate tracking of individuals and avoid double counting.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Referred through RDS (N=426)</th>
<th>Referred through peer outreach (N=378)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n % (RDS-2 weighted)</td>
<td>n %</td>
</tr>
<tr>
<td>Age ≤19</td>
<td>144 34.9</td>
<td>174 46.0</td>
</tr>
<tr>
<td>20-24</td>
<td>282 65.1</td>
<td>204 54.0</td>
</tr>
<tr>
<td>Educational attainment</td>
<td>Primary school or less</td>
<td>37 6.6 21 6.4</td>
</tr>
<tr>
<td>Some secondary school or more</td>
<td>389 93.4</td>
<td>309 93.6</td>
</tr>
<tr>
<td>HIV status</td>
<td>Negative</td>
<td>357 87.2 300 90.6</td>
</tr>
<tr>
<td>Positive</td>
<td>62 12.8 31 9.4</td>
<td></td>
</tr>
<tr>
<td>Condom use at last sex with any partner</td>
<td>No</td>
<td>137 31.0 230 69.3</td>
</tr>
<tr>
<td>Yes</td>
<td>289 69.0 102 30.7</td>
<td></td>
</tr>
</tbody>
</table>

(wePee714 Characteristics of YWSS who reached the DREAMS services)
WEPEE716
State of the art diagnosis on the implementation of comprehensive sexuality education in the English and Dutch speaking Caribbean

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Background: While comprehensive Sexuality Education (CSE) is accepted as an effective strategy to control threats related to sexual and reproductive health of adolescents and youth and equip them with life skills which support healthy sexuality and inter-personal relationships, the concept of comprehensiveness, gives rise to differential implementation. A State of the Art Diagnosis was commissioned in an effort to generate evidence on the progress and effectiveness of CSE implementation in the Caribbean.

Methods: This 3 month mixed method study was conducted with 72 respondents from the Ministries of Education and Health in 8 countries. The study used evaluative research methodology to assess, determine and compare the strategies and factors influencing the effective implementation of CSE. The national programmes were assessed against good practice standards of UNFPA and UNESCO.

Results: The implementation of CSE programmes in the regions demonstrated varying levels of success as well as significant challenges in substance, form and delivery. The programme development stage was reported as the foremost predictor of implementation efficacy (83%). When assessed against the good practice standards using bidirectional bar-graphs, programme development and implementation was sub-optimum (-75%). Adherence to programme standards was moderate to low (-52%). Gender sensitive and rights-based approaches received the highest score (68%). Resourcing and resource mobilization the lowest (-77%). Acceptability and appropriateness standards received the highest favourable score (57%) and Fidelity and coverage the lowest (-52%). Many respondents reported lack of evidence to support responses (34%) which may be tied to weak monitoring and evaluation frameworks. Many respondents reported lack of evidence to support responses (34%) which may be tied to weak monitoring and evaluation frameworks.

Conclusions: The study found that programme development and meso level issues were the main determinants of effective CSE implementation. The interrelationships between the macro, meso and micro levels of policy implementation, and the programme design and development phase are linchpins to realizing CSE implementation efficacy. Resulting action plans should aim to strengthen policy leadership and support, facilitate greater investment in CSE programme development and elevate capacity of CSE technicians to implement.

WEPEE717
PEPFAR partnership with girl effect; a branded approach to improving HIV outcomes among adolescent girls in Malawi

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Background: The power of brands to drive consumption and behaviour is widely recognised in the private sector. Leveraging its expertise in brand creation, Girl Effect launched Zathu in Malawi, a youth brand aiming to create behaviour change among adolescent girls and young women (AGYW) with regards to gender norms and HIV/AIDS prevention.

Description: As part of DREAMS, Girl Effect conducted extensive research which revealed that societal expectations of the relationship between boys and girls is a purely sexual one. This dynamic is unhealthy and puts girls at risk for HIV. In response, Girl Effect created Zathu, a youth brand that encourages positive male-female relationships. Zathu uses the influence of music, radio, and drama to show positive platonic relationships, championing self-expression and challenging stereotypical gender roles. By improving the perceived value of girls, Zathu aims to help close the gender divide and in turn impact health and poverty indicators such as seeking out health services.

Almost 6.7 million Malawians aged 10 and over are aware of Zathu. In the two DREAMS districts (Machinga and Zomba), there was an estimated 32% decrease in new HIV diagnoses among 15-24 year-old AGYW.

Lessons learned: This innovative partnership developed a measurement framework to demonstrate the influence of a youth brand for social change on improving girls’ agency and driving health outcomes. PEPFAR provides the technical HIV expertise to inform programming and delivery; Girl Effect adds its technical expertise in girl-focused programmes, innovation, youth brands, and media to create perception change and improve the demand for health services. This partnership combines interventions that are effective when implemented individually and have the potential to be even more impactful when implemented as part of a package.

Conclusions/Next steps: Utilizing a partnership model where private sector expertise is adapted to solve social issues is effective. The impact of Zathu will be further evaluated, including how the brand affects relationships between boys and girls, and its impact on behaviour change with regards to HIV prevention. A baseline will be used to understand how Zathu is supporting the strides DREAMS has made in reducing HIV incidence among AGYW.

WEPEE718
Outcome evaluation of Grassroot Soccer-Zimbabwe

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Background: Zimbabwe is amongst the countries with the highest HIV infection rate. Young people continue being greatly affected by this epidemic with nearly 13.5% of young people aged 13–24 living with HIV in Zimbabwe. Grassroot Soccer, Zimbabwe (GRS2) is an adolescent health organisation that leverages the power of soccer to educate, inspire and mobilize youth to overcome their greatest health challenges, live healthier, more productive lives and be agents of change in their communities. Since 2011, GRS2 in Bulawayo has been implementing three interventions in high schools which combine adolescent-friendly curricula, the power of soccer and local Coaches/Peer mentors to deliver HIV knowledge and prevention messages.

The purpose of the evaluation was to explore the outcomes of the three GRS2 SKILLZ Health programs; SKILLZ Generation, SKILLZ Holiday and SKILLZ Street. The evaluation was guided by specific elements that considered the scope and purpose of the evaluation namely; relevance, efficiency, effectiveness, utility and sustainability.

Description: The outcomes evaluation was conducted in Bulawayo, Zimbabwe from August 2017 to December 2017 for the three SKILLZ Health programmes implemented between 2011-2017. Quasi-experiment Design-Proxy Pre-Post Test design was used. Quantitative and qualitative data were collected using self-administered questionnaires on 332 randomly selected adolescents. Ten focus group discussions with adolescents and two with Coaches/Peer mentors were carried out while in-depth interviews were conducted with teachers, parents/guardians of the participants and partner organisations. Quantitative data was analysed using SPSS while qualitative analysis applied content analysis methods. Ethical approval was granted by the Medical Research Council of Zimbabwe (MRCZ).

Lessons learned: There was evidence of increased knowledge, behaviour change and attitudes on HIV and other reproductive health issues in both quantitative and qualitative analyses. Females scored 69.3% (‘High’)
on HIV and reproductive health knowledge when compared to males (30.7%). There was also a significant (p<0.001) increase in self-efficacy in resisting unwanted sex and negotiating safer sex practices; 18.5% had had sex with 41.7% of them reporting male condom use in preventing STIs and pregnancy.

**Conclusions/Next steps:** Participation in GRSZ increased knowledge of HIV and self-efficacy among adolescents suggesting that the programs’ curricular are relevant, efficient, effective and sustainable.

### WEPEE719

**Reducing HIV vulnerability among adolescent girls and young women: Beneficiary and implementer perspectives of the DREAMS program in Zambia**


**Background:** The DREAMS program is being implemented in high-risk communities in Zambia, and aims to substantially reduce HIV-risk among adolescent girls and young women (AGYW). DREAMS’ core intervention package consists of a set of evidence-based interventions implemented by a range of implementing partners in each setting. We present beneficiary and implementing partner perspectives of the initiation and roll-out of this innovative comprehensive program in Zambia, and offer insights for strengthening program efforts.

**Methods:** In-depth interviews were conducted with 15-24 year old program beneficiaries (n=20) and DREAMS implementing partner staff (n=12), at 3 and 6 month intervals after program initiation in two sites in Lusaka and Ndola districts. Data was transcribed, coded and analyzed using thematic content analysis.

**Results:** Program implementation was initially characterized by delays due to weak coordination systems across program implementing partners. Poor understanding of the different roles of partners and how they complemented each other resulted in poor referral of AGYW among partners. Consequently, in this led to early loss of interest in the program by AGYW. Once the program was rolled-out, at beneficiary level, the program reportedly had a positive effect on HIV prevention knowledge and behaviors. Some AGYW reported a reduction in the number of sexual partners, encouraging their partners to test for HIV, and insisting on condom use. For some girls, this assertiveness on HIV preventive behaviors even resulted in termination of relationships with non-yielding partners. AGYW also noted that joint parent-child sessions have helped break cultural sensitivities around discussions of sexual and reproductive health.

Other program components targeting structural risk factors, such as the loan and savings program, seemed to have had a tempered effect, due to limited access to the loan scheme and the inability by some girls to contribute funds hampered the intervention.

**Conclusions:** AGYW and their parents were actively engaged in HIV prevention efforts. Strong coordination systems, shared understanding of implementation roles, and frequent joint planning can support partners in implementing comprehensive programs. Additional targeted interventions to reach male partners of AGYW and structural efforts to alleviate household poverty may be needed to bolster AGYW in their HIV prevention efforts.

### WEPEE720

**Youth Care Clubs: Optimising clinic time, fostering peer support, improving adherence**


**Background:** Long waiting times are common in South Africa’s public health services. Peer support amongst adolescents living with HIV (ALHIV) positively effects emotional well-being and treatment adherence. We examined the efficiency gains, adherence and potential emotional benefits of a group model of ALHIV clinical and psychosocial care.

**Methods:** Wits RHI’s USAID-funded Adolescent Innovations Project (AIP) implements 31 Youth Care Clubs (YCCs) in 38 clinics in two health sub-districts. YCCs are closed peer groups, comprising 20 ALHIV on antiretroviral therapy (ART). They are available to newly diagnosed, virally suppressed and un-suppressed patients. At each meeting, the club facilitator conducts members’ routine health screens (e.g. TB, STIs, nutrition, and psychosocial wellbeing); offers contraceptive services, facilitates an adolescent issues-focused conversation and distributes pre-packed ART. Coordinated annual viral load testing is conducted. Initially clubs meet monthly which fosters friendship development and encourages peer support. Club members keep in touch outside meetings through WhatsApp groups and online.

**Time-motion observations were conducted assessing standard of care (SOC) clinic visits and YCCs.** Retention and viral-load suppression data were extracted from YCC registers.

**Results:** Between August 2016 and December 2017, 542 ALHIV enrolled in YCCs. Mean age at enrolment was 18 years: 358 (68%) were female. Health screening was conducted at 96% of eligible in-person visits. Retention in YCC care was 85% compared to 84% in SOC. 97% of YCC patients were virally suppressed after 12 months compared to 86% of patients in SOC. Each ALHIV attending an SOC visit spent an average of 86 minutes in the clinic in which 64 minutes was spent in “unengaged” waiting. YCC ALHIV spent 130 minutes for a YCC visit, however, “waiting” time was spent engaged in facilitated conversations with familiar peers and healthcare providers building supportive relationships. Despite overall longer clinic visits, YCCs reduced patients’ total clinic visits by combining ART refills, contraceptive services and psychosocial support.

**Conclusions:** The YCC group model of clinical and psychosocial care provides efficient, comprehensive, convenient care for ALHIV without compromising retention or viral-load suppression, and fosters supportive social relationships between peers and healthcare workers.

### WEPEE721

**The power of peers: Multi-country analysis of adolescent viral suppression in sub-Saharan Africa**

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**Background:** UNAIDS fast-track targets require 90% of people on ART to be virally suppressed, but we are far from reaching this goal in adolescents and young people. Limited age-disaggregated data from sub-Saharan Africa reflect viral suppression rates of 33-56% in these age groups. Health facility-based adolescent peer supporter programmes have gained recent attention as a promising scaleable intervention. However, we urgently need to examine their effectiveness in real-world settings in sub-Saharan Africa. This is the first known multi-country analysis of the impact of facility-based adolescent peer support on viral suppression.

**Methods:** In 2017, Paediatric-Adolescent Treatment Africa (PATA), a network of frontline health providers across sub-Saharan Africa, conducted cross-sectional surveys with 71 health facilities from 13 countries in Southern, Eastern, West and Central Africa to assess facility-level characteristics, provision of facility-based adolescent peer support was associated with viral suppression rates. Data were analysed using multivariate logistic regression to measure the impact of facility-based adolescent peer supporter programmes on adolescent viral suppression rate, controlling for: country, urban/rural location, public/private facility, level of facility (primary/secondary/tertiary) and physician/non-physician care. UNAIDS Eastern and Southern Africa (ESARO) 2017 data for all people living with HIV were used to define the regional viral suppression rate as 50%.

**Results:** Facility respondents were from Southern (35.2%), East (54.9%) and West/Central African (9.8%) regions. Two-thirds (74.7%) of facilities were urban/peri-urban and 67.8% public-only. Half (49.3%) provided primary care and 74.7% physician care. Controlling for these facility characteristics, provision of facility-based adolescent peer support was associated with an almost seven-fold increase in the likelihood of aggregate viral suppression.
ていねんに学び、健康なSRHRの選択を支援

ウェブペーペー722

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背景
Since 2009 Sense.info is the most frequently visited SRHR site for young people aged 12-25 in the Netherlands. In 2017 the website was visited more than 2 million times (the Netherlands has 17 million inhabitants).

In 2016 and 2017, 6 videos hosted by social influencer Britt Scholte were launched on Sense.info. These are the first videos in which Dutch social influencers cooperate with SRHR professionals. From previous projects we learned that social influencers are role models for teens. They speak each others language and share similar experiences using familiar references. Successful social influencers are trusted resources of information for a young audience. Therefore these videos are modern, unique and strong communication tools to reach teens.

説明
In each video, two Dutch social influencers (girls aged 17-23) discuss a particular contraceptive method. They exchange assumptions about and/or experiences with this method. As they realize that they have many questions the girls invite doctor Rosa in. She works at Sense, the Dutch SRHR center for young people. Doctor Rosa answers their questions and debunks popular myths about contraceptives. Finally Britt and her guest invite viewers to anonymously share personal experiences with contraceptive use on Sense.info. All participating social influencers did likewise.

Within a year from the launch of the series the videos had more than 280,000 views.

学習内容
Cooperation with social influencers helped Sense.info reach a large audience of teens. With ease the vloggers translated SRHR messages in a language that appeals to a young audience. The videos come across as authentic, because the YouTubers have real questions themselves about contraceptives. It is very helpful to team with an agency that represents popular social influencers. This helped to find the most appealing spokespersons.

結論/次ステップ
Cooperation with social influencers on YouTube proves to be an effective strategy to empower young people in making well-informed decisions about their sexual and reproductive health. A good briefing of the influencers or involvement of an expert in the video is essential to avoid misinformation. Sense.info will continue this pioneering way of communicating to our audience.

ウェブペーペー723

タイトル
What role do public libraries play in the fight against HIV/AIDS?: Lessons from Lubuto Library Partners in Lusaka, Zambia

E. Giles, M. Kasakumya
Lubuto Library Partners, Lusaka, Zambia

説明
As public institutions highly responsive to the information and service needs of their communities, public libraries have an especially critical role to play in the fight against HIV/AIDS, reaching vulnerable demographic groups (street children, adolescent mothers, and youth with disabilities) who are excluded from settings where HIV prevention programs are typically delivered. In Lusaka, Zambia, public libraries have reached more than 1,020 vulnerable youth with innovative HIV prevention programs.

Public libraries are an untapped resource in the fight against HIV/AIDS. Although many libraries have special collections and programming related to HIV/AIDS, few public libraries have targeted interventions for vulnerable populations. The Lubuto Library Partners (LLP) is a development organization that builds the capacity of public libraries to provide equitable education and poverty reduction, receiving an average of 2,400 visits per week at its 2 Lusaka libraries in 2017. Beyond literacy and traditional library services, LLP runs a role-model mentoring program under a DREAMS Innovation Challenge grant to equip adolescent girls and young women aged 15-24 with HIV/STI knowledge and access to services, and foster their determination to achieve.

学習内容
1) Offering HTC services in a non-traditional yet trusted, inclusive, non-stigmatizing environment. By partnering with health service providers to offer testing at public libraries, LLP has held 6 HTC sessions at which 496 girls have been tested, maintaining a constant 100% referral completion rate.
2) Implementing an effective strategy to combat poverty-driven pressure towards transactional sex. Many girls in the program engage in transactional sex to earn up to USD $5/$6/month to purchase essential toiletries, leading LLP to provide a graduation package of toiletries that reduces this pressure. This measure led to an average enrollment increase of 45% at two sites between Cohorts 1 and 2.
3) The value of cross-sectoral partnerships to offer holistic support for adolescents. LLP has taken 168 girls on horizon-broadening field trips to meet female leaders at institutions such as Parliament, universities, technology companies: trips that are unique among HIV prevention programs in Zambia, and which significantly drive program enrollment.

結論/次ステップ
These lessons suggest that HIV prevention programs can 1) benefit from partnerships to provide HTC at non-traditional community sites, such as public libraries and 2) drive enrollment by addressing factors that influence behavior, including poverty and lack of exposure to diverse female role models.

ウェブペーペー724

タイトル
“I feel brave and positive”: Feasibility and acceptability of financial incentives for improving retention in care and adherence to anti-retroviral therapy amongst adolescents living with HIV in Rwanda

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背景
Although antiretroviral therapy (ART) has shown to be critical in the treatment of HIV by suppressing HIV viral load and sustaining immune function, its adherence has been poorest in adolescents, especially in Sub-Saharan Africa. Financial incentive-based programs have shown early promise in motivating healthy behaviors, however concerns around acceptability remain. This study evaluated the feasibility and acceptability of a multipronged intervention ART adherence and care retention amongst HIV+ adolescents in Rwanda, to adapt the model for scale-up and policy uptake.

説明
Study participants were 72 adolescents (35 female, 37 male, aged 12-19), recruited through random stratified sampling from an urban (n=50) and a rural (n=22) clinic in Rwanda. Inclusion criteria were...
adolescents aware of their HIV-positive status, enrolled in care at one site for >1 year, and prescribed ART for >1 year. The intervention, called YBank, consisted of:
a) short-term and long-term financial incentives for clinic attendance and suppressed viral load;  
b) monthly life-skills training for financial literacy; and;  
c) peer support from older HIV+ youth.  
Data collection included:  
a) baseline and endline survey data on demographic characteristics, clinic attendance, and viral load;  
b) historical clinical data; and;  
c) semi-structured interviews (30 adolescents, 20 caregivers, and 4 healthcare workers).  

Lessons learned: All interviewees found the intervention highly acceptable, and reported emotional benefits associated with the incentive. Key themes expressed by adolescents were feeling rewarded and enhanced future planning. Few caregivers expressed concerns about adolescents accessing mobile money accounts independently. Overall, savings increased and we observed no increase in risky spending behaviors. Although there was no statistically significant reduction in viral load, early results indicate that the intervention may have greater impact on historically vulnerable groups including very young and out of school youth.  

Conclusions/Next steps: Financial incentives, combined with a supportive environment and adequate skills-training, shows promise in motivating health behavior change in adolescents. The intervention was deemed acceptable to adolescents and caregivers, however its feasibility was limited by operational challenges, like access to mobile money accounts. The study indicated a need for mixed-methods in designing youth-targeted financial services, and evaluating their efficacy over time using large multi-site RCTs.

WEPEE725  
Mothers Matter! Ensuring young adolescents living with HIV adhere to treatment for improved health and wellbeing in high HIV counties of Kenya  
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Background: Younger Adolescents 10 to 15 years living with HIV in Kenya continue to suffer from AIDS related illnesses despite having been enrolled on HIV treatment. Latest estimate show that only 65% of adolescents on HIV treatment have achieved viral suppression against the 90% target. There is also evidence that young people in Kenya are faling on the first line treatment and being put on 2nd line with adverse implications.  

Description: With support of CIFFF and EGPAAF, NEPHAK in partnership with the Ministry of health has been implementing targeted interventions aimed at ensuring that children and adolescents are not left behind in the fast track plan to deliver on the 90-90-90 HIV treatment targets. The interventions start with a baseline assessment carried out by the Ministry of health on the Viral Load of the target adolescents. The adolescents are then introduced to targeted community focused interventions with the aim of ensuring they attend all clinics and adhere to treatment as advised by the clinicians. A post-intervention assessment through laboratory Viral Load monitoring is then done after one year. This is repeated at the end of 2 years.

Lessons learned: Of the 478 adolescents followed over a period of 2 years, 322 (67%) recorded undetectable Viral Load and were thriving well on the first line treatment. On further analysis, 90% (289) of those that had achieved viral suppression are under the care of biological mothers. On the contrary, 48% of the adolescents who were presenting with health challenges during the project period were living with older siblings with 7 living in households headed by adolescents. Parents and especially mothers play a critical role in ensuring that children and adolescents living with HIV adhere to treatment and good health.

Conclusions/Next steps: Interventions targeting younger adolescents living with HIV need to be family-centered and to ensure engagement of fathers and other family members also need to be incapacitated, mentored and engaged in the interventions targeting younger adolescents to ease the burden on the mothers. NEPHAK will continue to advocate for family-centred interventions to improve the health and well-being of adolescents living with HIV.

WEPEE726  
Assessment of adolescent HIV service delivery in Kenya: The PHase study  
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Background: Inadequate provision of accessible and acceptable HIV services has been cited as a barrier to engagement and retention in HIV care among adolescents. We assessed provision of adolescent services at HIV treatment facilities throughout Kenya.  

Methods: We conducted a survey at 102 large (>500 HIV-infected patients) facilities in Kenya randomly selected among clinics using electronic medical records. Interviews were conducted with healthcare providers between February-May 2017. Respondents provided information on provision of adolescent (ages 10-19 years) care including: adolescent-targeted services, workforce training, HIV treatment practices, and reproductive health services.  

Results: Facilities reported an average of 110 adolescents (Range 4-1462) ever enrolled in care with an average of 62 (Range: 3-508) in active follow-up. Forty-four percent of clinics had dedicated pediatric and adolescent clinic staff. Fifty-seven percent reported having received training in adolescent care and 48% reported receiving training while 57% reported receiving training in adolescent care and reproductive health services. Only 64% of clinics identified themselves as providing “adolescent friendly services.” Most (81%) clinics offered peer support groups or teen clubs. Adolescents were most often given one month (53%) or three months (22%) of medication. Fifty-one clinics (90%) reported varying medication delivery based on
on school schedules and/or medication adherence. Almost all clinics (99%) allowed a proxy to pick up medication for adolescents. One-third (34%) required a parent or primary caregiver to be present when providing HIV care to adolescent minors (ages 10-17) while 47% listed specifications for when care could be provided in the absence of a caregiver, including adolescent maturity and disease severity. Median age for initiating transition from pediatric to adult care was 15 years (IQR: 12-18), and for planned completion of transition was 19 years (IQR: 18-20). Most clinics reported providing condoms (65%), family planning services (60%) and STI screening (65%) to adolescents.

**Conclusions:** This study demonstrates the implementation landscape for adolescent HIV services in Kenyan clinics. Continued training on adolescent HIV service provision can ensure uniformly high quality of care across regions and facilities.

**WEPEE727**

A global review of condom availability programs in high schools

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**Background:** High levels of HIV, STIs, and pregnancy among adolescents has motivated some countries to consider the implementation of condom availability programs (CAP) in high schools. However, this has been met in some countries with significant opposition from parents, religious leaders, and community members. Opponents of CAP argue that the program would encourage sex and increase promiscuity among adolescents. In this present study, we analyzed the impact of CAP on students’ sexual behaviors and health outcomes.

**Methods:** We conducted a systematic global literature review of peer-reviewed articles published between 1990 and 2017. Criteria for inclusion in the full-text review were: condom distribution, availability, provision at schools, and studies related to male condoms only (as most of the articles did not address female condom). We organize the results based on three broad categories: initial attitudes of the community to CAP prior to implementation, impact of CAP on students’ sexual behaviors, and impact of CAP on sexual health outcomes.

**Results:** 29 articles from seven countries were included in this review. We found that CAP does not increase sexual activity; nor lead to a greater number of sexual partners, nor lower the age of sexual initiation. A majority of the studies reported an increase in condom uptake and use at last sex among students with CAP. All of the studies that examined CAP found a decrease of STI symptoms and rates for students with CAP compared to the control group. The data on HIV rates was inconclusive. There was no difference in pregnancy rates associated with participation in CAP programs.

**Conclusions:** This global literature review showed that the fears surrounding CAP and promiscuity are unfounded. Once CAP is in place, students utilize it, and condom use increases, which translates to improved sexual health outcomes.

**WEPEE728**

Camp and the third 90: HIV+ adolescents attending camp in Mbeya, Tanzania experienced no differences in viral suppression, mortality, or lost-to-follow compared to HIV+ adolescents not attending camp

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**Background:** While camps for adolescents living with HIV (ALHIV) are well-received by adolescents and health care providers and have positive impact on psychosocial health, there is little literature examining impact of camp on virologic success and treatment outcomes. This abstracts compares HIV viral load results and treatment outcomes of ALHIV who attended “Salama Camp” in Mbeya, Tanzania to ALHIV not attending camp.

**Methods:** Salama Camp is a 5 day overnight camp targeting ALHIV ages 12-18yo, and aimed at improving psychosocial health, life skills, self-care, and adherence to ART. Retrospective review was performed of Salama Camp reports and medical records of ALHIV who attended Salama Camp between 2012 and 2016. Most recent post-camp viral load and current chart status were extracted for all campers to determine virologic suppression (VL<1000 copies/mL) and treatment outcomes. Age-matched ALHIV on ART at the HIV clinic between 2012 and 2016 who did not attend camp were used as a comparison group.

**Results:** 258 ALHIV attended Salama Camp, representing 39.2% (258/658) of all ALHIV aged 12 to 18 years on ART at the clinic. 94.2% (243/258) of those with post-camp VL results (94.2%, 243/258), 69.5% (189/273) had VL <1000 copies/mL. Treatment outcomes of those who attended camp were 84.1% (217/258) active in care, 7.8% (20/258) transferred out, 4.3% (11/258) died, and 3.5% (10/258) LTFU. In age-matched ALHIV on ART who did not attend camp (n=400), 72.5% (290/400) were virologically suppressed, 83.3% (333/400) active in care, 8.8% (35/4000) transferred out, 4.5% (18/400) died, and 3.5% (44/400) LTFU. There were no statistically significant differences in median time to suppression (6959 days vs. 7255 days, p=0.18), mortality rates (4.5% vs. 4.5% non-campers, p=0.00), or LTFU rates (9.5% campers vs. 3.5% non-campers, p=0.17) between the two groups.

**Conclusions:** No statistically differences in the key clinical outcomes of viral suppression, mortality, or LTFU were seen between ALHIV on ART attending camp and those not attending camp in Mbeya, Tanzania, despite the intensive and costly camp efforts. In resource limited settings, such resource intense programs must be continuously re-evaluated to ensure optimal use and maximal impact of scarce resources for ALHIV.
Addressing the needs of pregnant HIV-positive adolescent girls and young women: A growing need

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**Background:** Lesotho’s adult HIV prevalence is 25.7%. Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) is a clinical implementing partner that provides technical assistance to Lesotho’s Ministry of Health (MOH) and direct, comprehensive HIV/TB service delivery in 120 health facilities in five districts. In January 2017, EGPAF established adolescent and youth-friendly clinics in the Lesotho districts of Maseru, Berea, and Leribe. This abstract describes data collected at these clinics to increase a greater understanding of health needs among a population in sub-Saharan Africa with growing HIV infection and HIV-related mortality rates.

**Description:** The established youth-friendly clinics are focused on scaling-up provision of quality, comprehensive TB/HIV services, sexual and reproductive health (SRH) services (including antenatal care (ANC) and PMTCT), and primary health care for adolescents and young people (AYP) aged 10 to 24 years. Services are provided by specially trained staff (adolescent health-focused pediatricians, nurses, social workers, psychologists, and youth ambassadors) during non-traditional hours and weekends. Data from these clinics are collected routinely through MOH registers and entered into EGPAF electronic data collection tools.

**Lessons learned:** Between June and October 2017, 93 (22.5%) of the 799 pregnant AGYW attending ANC at these centers came in with known HIV-positive status. Of these, 95% (93/99) were already on ART. Uptake of HIV testing for those with unknown status was 98.7% (681/690). Of those tested for the first time in ANC, 76% (52/68) were HIV-positive. Overall positivity (including known positives) was high, at 19.4% (151/789). Overall ART uptake was high at 96.4% (54/56).

**Conclusions/Next steps:** The high HIV prevalence among pregnant AGYW at these clinics poses new challenges for addressing the needs of this population and their new-born infants. Offering testing, diagnosis and treatment services in non-school hours set to ART by specialized staff is a clear need and such services should be more widely implemented. EGPAF is currently expanding training of clinicians at all MOH registers and entering into EGPAF electronic data collection tools. Summary statistics are calculated monthly and quarterly. Data for pregnant adolescent girls and young women (AGYW) at these clinics between June and October 2017 were collected and analyzed.

**Results:** Teen Club participants were younger than non-enrollees (p<0.01) but there was no significant difference in uptake by sex (Table). Among participants, older adolescents aged 15-19 (131/1956, 6.7%) less likely to achieve viral suppression compared to younger adolescents (aged 10-14) adjusted odds ratio 0.62, 95% CI 0.39-0.98. The probability of viral suppression increased from 62% if participants attended 1 Teen Club meeting, to 74% if they attended 6 meetings (p<0.05) (Figure).
Males 15-19 years were 65% more likely to achieve ≥95% ART adherence (aOR 1.64, 95% CI 1.2-2.3) compared to younger (10-14 years) males. The moderated effect of age on adherence was smaller and not significant among females (aOR 1.36, 95% CI 0.96-1.9).

Conclusions: Youth with higher Teen Club attendance were more likely to achieve viral suppression compared to less-frequent attendees. Older Teen Club participants were less likely to achieve viral suppression, indicating the need for specialized programming for this group. Although our retrospective review found evidence in support of Teen Clubs, rigorously designed studies are needed to better characterize the benefits of Teen Club.

WEPEE732
Do peer-led adolescent support groups improve retention? Lessons learnt from Tanzania

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Background: HIV-infected adolescents are a known risk group for poor antiretroviral therapy (ART) adherence and retention in care, which is one reason why programs have established various differentiated care models, including adolescent support groups (ASG). In Tanzania, the Elizabeth Glaser Pediatric AIDS Foundation established a unique model of peer-led adolescent clubs that combines psychosocial support led by peers with ART services on special Saturday clinic days.

Methods: This retrospective analysis was conducted to evaluate the role of peer-led adolescent clubs on the retention of adolescents (10-19 years) in HIV care. Data from electronic medical records from national HIV database at 175 sites were analyzed to measure the crude ART retention by September 2017 of adolescents already on ART for more than one year and adolescents newly initiated between October 2016 and September 2017, at health facilities with peer-led adolescent services (n=25) in comparison with facilities without any specific adolescent services (n=150).

Results: The overall crude retention rate by September 2017 was higher at clinics with peer-led adolescent clubs, 88% (1,623/1,845) versus 82% (1,233/1,501) at sites with adolescent clubs, participation in the clubs was at 76% (1,238/1,623). The main improvement was seen among adolescent clients who were in care for more than one year, with a significantly reduced lost-to-follow (LTF) rate; 10.2% compared to 16.0% (p<.0001). However, the LTF rate among new clients within the first year significantly reduced lost-to-follow-up (LTFU) rate; 10.2% compared to 16.0% adolescent clients who were in care for longer than one year, with a clubs was at 76% (1,238/1,623). The main improvement was seen among new clients within the first year, with a significantly reduced LTF rate; 10.2% compared to 16.0% (p<.0001). However, the LTF rate among new clients within the first year significantly reduced LTFU rate; 10.2% compared to 16.0% (p<.0001); at sites with adolescent clubs, participation in the clubs was at 76% (1,238/1,623). The main improvement was seen among adolescent clients who were in care for more than one year, with a significantly reduced LTF rate; 10.2% compared to 16.0% (p<.0001).

Conclusions: Peer-led adolescent support services have a positive impact on retention. However, this was more pronounced for adolescents in care for more than one year: newly identified and ART-initiated clients still had a high LTF rate, comparable with sites without specific adolescent services. Adolescent clubs may benefit members, but in order to address the needs of newly identified adolescents living with HIV, a service delivery model with a more individualized role for adolescent peer educators, who could become involved as treatment supporter at ART initiation and offer follow-up at home as well, may be needed to achieve early adherence.

WEPEE733
Programmatic and treatment outcomes of HIV infected adolescents after transition into adult clinic in Myanmar

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Background: Since 2005, The Union, in collaboration with National AIDS Programme (NAP), is implementing Integrated HIV Care (IHC) Programme in 37 townships in Myanmar. Although transitional care for adolescents was started in May 2010, little is known on outcomes after transition to adult care. Primary objective of this study is to find out the post-transition outcomes of adolescents in adult clinics of IHC programme in Myanmar.

Methods: A Retrospective cohort study using routinely collected data among those adolescents who were transferred from pediatric to adult clinic between May 2010 and June 2016. Kaplan-Meier method was used to calculate the retention rate after transition and incidence rate of switch to second-line antiretroviral therapy (ART) after transition was estimated and described in 100 person-years (PYs). Poisson regression was used to assess risk factors for attrition (death and Loss-to-follow-up, LTFU) and switching to second line ART.

Results: Of 290 adolescents who were transitioned to adult clinics, 156 (53.7%) were female. Median age in years at transition was 14 [IQR, 12-15]. Retention rate in adult care at 12, 24 and 60 months after transition was 97.2%, 94.8%, 88.3% respectively. 24 (8%) adolescents underwent attrition in adult clinics. 12 (50%) patients died and the rest are LTFU. Eleven patients were switched to second line ART after transition and the rate of switching was 12 per 100 PYs. In multivariate analyses, the factors associated with attrition were those not taking ART and those taking second line ART at the time of transition. Transferring to facilities where both pediatric and adult services are not collocated was also found to be an independent risk factor for treatment failure.
Conclusions: We found high retention rates among adolescents after transition into adult care in this setting. Counseling and LTFU tracing for adolescents with second line ART at the time of transition should be strengthened to reduce attrition among them. The study result suggests to consider initial transitional care in settings where both pediatric and adult services collocate. Strategies should be sought out to improve post transition outcomes by conducting qualitative studies in future.

WEPEE734
Using the power of football to get young people educated about and tested for HIV in rural Malawi

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Background: Grassroot Soccer (GRS) harnesses the power of football to connect adolescents with mentors and health information and services. In partnership with GRS, Global AIDS Interfaith Alliance (GAA) has implemented “Skillz” programs in southern Malawi since 2015. Youth are particularly at risk with up to 50% of new HIV infections affecting youth 15-17, and adolescent (15-19) pregnancy rate of 35%, making prevention and access to services key to improving health.

Description: Through an evidence-based curriculum (Skillz GAIA and Skillz Girl), trained peer-educator “Coaches”, and sports activities, the program provides sexual, reproductive and other health information as well as HIV testing. Skillz GAIA is a mixed-sex curricula, while Skillz Girl targets girls and adds empowerment and menstrual management information to the package. The program engages youth age 10-18 (mean participant age is 13). Children < 14 are offered testing with parental permission, while those 14-18 consent for themselves.

Lessons learned: From January 2014 through December 2017, nearly 14,000 youth were served and 2,028 at-risk youth and relatives have been tested for HIV. Twenty-three (1.1%) were HIV positive, including 10 children under 15. All HIV+ youth were linked to care, initiated on treatment, and offered adherence counseling, disclosure and peer support through HIV+ youth clubs. Staff reinforced the parent-child bonds that underlie successful treatment outcomes. Boys testing negative were referred for voluntary medical male circumcision and sexually active youth for contraception. The greatest changes from pre to post-implementation were related to youth’s willingness to communicate about sensitive topics (26% increase for Skillz GAIA, 42% for Skillz Girl) and in HIV related stigma (42% improvement for Skillz GAIA, 42% for Skillz Girl).

Conclusions/Next steps: This program reaches youth with HIV prevention messages when they are becoming sexually active, and normalizes HIV testing. While HIV+ yields were low, youth found positive were linked to care and treatment early; increasing the likelihood of positive treatment outcomes. The program Coaches and HIV counselors helped HIV+ youth and their families cope with the diagnosis, linked them to care and strengthened family resilience. The opportunity to learn about and experience the testing process at an early age may reinforce life-long beneficial health seeking behaviors.

Delivering in services in and around conflict settings

WEPEE735
Community ART distribution center (PODI) as a differentiated service delivery measure in the Democratic Republic of Congo (DRC)

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Background: Differentiated service delivery (DSD) is a patient-centered approach to HIV care that allows patients to receive services tailored to their individual needs. Aimed at increasing health systems efficiency, many DSD models let medically stable patients receive community-based healthcare services, reducing their need to travel to health facilities (HFs). Since 2015, ICAP has supported DRC’s National AIDS Control Program (NACP) in the scale-up of PODI, community-based ART distribution centers. The PODI model decentralizes ART referrals to the community, separating refills visits from clinical appointments.

Description: In Kinshasa, ICAP has supported the establishment of two PODIs. PODI-East (January 2016) and PODI-West (July 2017). ICAP has trained and mentored to lay community health workers (CHW) responsible for the care of patients at PODIs. Eligible patients, those who are <15 years and on ART for 12 months and virally suppressed (“stable”), are referred to PODIs by providers at HFs where they receive care. Patients visit PODIs quarterly for ARV pickup and to receive adherence counseling, basic symptom screening, and index HIV testing for family members. Patients return to HFs annually for clinical check-ups and can be referred back to HFs if they require additional medical care.

Lessons learned: Since 2016, a total of 2,027 patients have enrolled at ICAP-supported PODIs. Of these, 80 (4.0%) were LTFU, which prompted tracing by CHW; 31 (1.5%) died, and 171 (8.5%) were referred back to a HF. Providing support to health care workers on eligibility criteria for PODIs and CHW for patient follow-up activities, and ensuring patients received adequate adherence counseling were critical to the success of this strategy.

Conclusions/Next steps: PODIs serve as a promising community-based model of care that addresses many of the health system challenges of providing lifelong treatment to stable HIV patients. Given that PODIs are co-located at community venues, patients are able to refill their ARVs close to home without having to visit a HF. Task-shifting ART monitoring and refilling to CHW allows providers at HF to spend more time with less stable patients. ICAP is working with NACP to expand the PODI model to Lubumbashi and plans to conduct an evaluation to inform the national scale-up plan.

WEPEE736
Implementing test & start program in a rural conflict affected area of South Sudan, the experience of MSF Spain

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Background: Community-based HIV counselling and testing (CB-HCT) and early initiation of antiretroviral therapy (ART) can reduce HIV transmission and mortality. Access to HIV care in settings with low ART coverage and/or affected by conflict is still low; innovative strategies are needed to increase access and ensure continuation of ART in case of instability. Bringing HCT and ART closer to the community can be a suit-
able strategy in these settings. A pilot test and start project was implemented in rural areas of Yambio South Sudan, a chronically conflict-affected area. In a retrospective analysis, we aimed to determine the feasibility and acceptability of this pilot intervention.

Description: Programme data from July 2015 to December 2017 was analysed. The project involved five mobile teams offering HIV community sensitization, HCT and same day ART initiation at community level. A contingency plan including coordination with community health workers (CHWs) to distribute “run-away bags” with 3 months of ART was in place due to the setting.

Lessons learned: During the analysed period, 14800 people (31% of the population) were counselled and tested: 4981 (33%) were found to be HIV positive and 3957 (29%) accepted to start ART. 212 (6%) patients and 56 (1%) had CD4 counts below 200 cells/µl and 200 cells/µl, respectively. By December 2017, 99 (24%) patients were loss of follow up, and 12 (3%) died. Retention in care at 6 and 12 months of follow up was respectively 283 (84%) and 241 (71%). 224 (out of 243) patients had an available VL at 12 months (92%) and in 179 (80%) it was suppressed. At 30 months, 243 (71%) patients are still under follow up and on ART.

Conclusions/Next steps: Our program shows a high level of acceptance to HCT and early ART initiation despite of context. Results show rates of virological suppression comparable with HIV programs at clinical level and without security concerns, the same for retention in care at 6 and 12 months. We believe this strategy could be extrapolated to other similar contexts with low access to ART and where security situation is a concern.

WEPEE737

ART optimisation, plasma viral load and patient satisfaction in the conflict-affected setting of Donetsk, Ukraine

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Background: To what extent is it possible to maintain and improve antiretroviral treatment (ART) in settings affected by armed conflict? Our study monitors an emergency delivery of ART to prevent stock rupture at the AIDS Centre in the city of Donetsk, a conflict-affected area in Eastern Ukraine, introducing a new regimen of a fixed-dose combination of tenofovir, emtricitabine and efavirenz (optimised regimen). The purpose of the study is:

- Assess whether the change to optimised treatment in this setting was harmful in terms of non-inferior outcomes compared to the prior treatment.
- Assess levels of satisfaction of patients on the optimised ART regimen compared to those on other regimens.

Methods: The monitoring study took place between April and June 2016. We took a random sample of 477 patients on ART at the Donetsk AIDS Centre and 13 surrounding ART sites. After consent, they filled out an ART patient satisfaction questionnaire, while their treating physician completed the medical details of the survey. We compared the patients put on optimised regimen (September 2015 - March 2016) with those who were not switched, with regards to plasma viral load (VL) and various patient satisfaction measures.

Results: There were 264 patients with complete data, 262 on optimised regimen and 212 patients who continued their previous regimen. In the optimised regimen group 95.6% had an undetectable VL (< 40 copies/mm³), in the non-optimised group this was 96.3%. Compared to non-optimised patients, a statistically significant (P < 0.05) higher proportion of patients on optimised ART reported effectiveness of their ART, were satisfied with requirements to adhere to ART, were satisfied about the timing to take their medication, they perceived less side-effects and discomfort of their medication, and a higher proportion planned to continue their treatment. Patterns among men and women were similar. There were no differences in self-reported adherence between the groups. Only 16 patients experienced treatment interruption.

Conclusions: Good viral suppression is possible in a conflict setting. It is possible to maintain and improve treatment quality and patient satisfaction in these settings. Humanitarian assistance can further improve the treatment cascade in conflict settings like those in Eastern Ukraine.
Description: The drive to eliminate mother-to-child transmission of HIV has served as an entry point to foster convergence of the two systems. It coalesces with the larger effort by the Ministry of Health and Sports (MoHS) to improve coordination mechanisms with EHS after the signing of the Nationwide Cease Fire Agreement in 2015. The HIV sector also recognizes that this intervention will contribute to Myanmar’s policy move towards Universal Health Coverage.

Lessons learned: HIV prevalence has been high among ethnic groups, especially among pregnant women and children who are, in general, the underserved population in HIV response. They Are also the second largest group among those newly infected - 24% - followed by Injecting Drug Users (IDUs), based on HIV transmission trend in 2016. In Kayin State, 22% of pregnant women were not tested and only 64% of those detected had received ART. Appropriate treatment in 2014. The Karen Department of Health and Welfare (KDHW) has been responsible for the healthcare of approximately 450,000 Karen people, the largest ethnic minority group in this Kayin State, for over twenty years. Although KDHW provides health care to 12,150 pregnant women and 54,000 under-five children, PMTCT services are not fully scaled up. A PMTCT convergence model was piloted in 15 villages between MoHS, the technical lead and KDHW, the implementer, with the support of UNICEF in March 2017. This convergence introduced standardized, identity management and fostered greater data and resource sharing between the Ethnic Health Organization and MoHS. After 10 months of implementation, 89% of 568 underserved pregnant women from the pilot areas are being reached for PMTCT services, compared to none.

Conclusions/Next steps: The results yield important lessons in ensuring that no one is left behind, especially for the most deprived communities. Commitment and continued efforts from government and key stakeholders are essential for “Health as a bridge for peace”.

Adapting HIV programmes to systems with severe resource constraints

WEPEE740
Nigeria ARV multimonth scripting: Impact on public health service delivery, infrastructure and supply chain management systems across “high volume” ART clinics

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Background: Antiretroviral (ART) multimonth scripting (MMS), which complements other antiretroviral therapy (ART) differentiated care, started January 2017 in Nigeria. Under MMS, stable ART patients receive at least three months of ART refills and complete semiannual clinic visits. From research (Onwujeke et al., 2016), MMS can optimize service delivery and decongest clinics, resulting in improved patient care.

Description: MMS implementation required collaborative planning and implementation among stakeholders (program managers, clinicians, pharmacists, supply chain experts), including:

1. Eligibility and inclusion criteria for clinics and products
2. Quantification and supply of ARTs
3. Support to clinic personnel
4. Performance monitoring (stockout monitoring, patient per regimen numbers, provider feedback)

Clinic attendance records from nine high-volume clinics (>1,000 ART patients) were collected from January to October 2017. The records were analyzed to identify trends in ART commodity dispensing and treatment numbers. The nine clinics support 12 percent of 414,000 patients on treatment across the 104 ART clinics implementing MMS in Nigeria. MMS is limited to adult first-line regimens of ART/2TC/NVP 300/150/200mg and TDF/3TC/EFV 300/300/600mg, which make up 87 percent of the total regimens provided to ART clients in these clinics.

Lessons learned: Data from our analysis, and feedback from ART refill providers, indicate that the nine clinics, indicated reduced congestion with MMS implementation, as the number of patients per daily clinic visit dropped by 25 percent between January and October 2017. The drop was not related to attrition, as the total number of patients on treatment per period was consistent, averaging 42,000 and indicative of noninterrupted treatment with MMS.

The data did indicate that, at MMS initiation, the number of ART issues to patients increased; these increased volumes resulted in a short-term supply risk that required a temporary slowdown in implementing MMS.

Conclusions/Next steps:
- MMS is an effective intervention to decongest clinics and optimize ART service delivery.
- Reduced workload resulting from MMS presents opportunities to expand service and enroll more ART patients.
- The convenience of decreased ART refills and fewer clinic visits for stable patients reduces economic strain of multiple clinic visits.
- Collaborative planning prevents interruption of ART supply during MMS implementation.

WEPEE741
Mobilizing a multijurisdictional response to address alarming rates of HIV and Hepatitis C (HCV) in rural Saskatchewan (SK) Indigenous community (IC) in Canada

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Background: The Canadian Province of SK is roughly the size of France with the population of nearly 1.2 million. HIV and HCV rates in southern IC (108 and 323 per 100,000 in 2016 compared to Canadian HIV rates 6.4 respectively) are the highest in Canada. Kamsack is a rural town of approximately 2,000 people. Kamsack is the Ethnic Health Organization (EHO) and MoHS. After 10 months of implementation, 89% of 568 underserved pregnant women from the pilot areas are being reached for PMTCT services, compared to none.

Conclusions/Next steps:
- MMS is an effective intervention to decongest clinics and optimize ART service delivery.
- Reduced workload resulting from MMS presents opportunities to expand service and enroll more ART patients.
- The convenience of decreased ART refills and fewer clinic visits for stable patients reduces economic strain of multiple clinic visits.
- Collaborative planning prevents interruption of ART supply during MMS implementation.

Implementation of MMS results in reduced number of daily clinical visits

References:

Onwujeke et al., 2016

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Implementation of MMS results in reduced number of daily clinical visits

References:

Onwujeke et al., 2016
was initiated by a multidisciplinary team of federal, provincial and local partners. Majority of positive people were prescribed treatment and adhering to it. The mean time from diagnosis to treatment initiation was 14 days. HIV care was supported by IC leaders, First Nations Inuit Health Branch (FNHIB), Public health agency of Canada (PHAC), Saskatchewan Health Authority, laboratory, infectious disease docs, and local mental health / addiction programs. A new outreach center was established that provide food, transportation, family, referral and cultural support.

Lessons learned: Rapid mobilization of integrated response lead to timely, patient-centered and culturally safe care among all services that resulted in improved access to testing, care and treatment in rural communities. This has also established a precedence of delivering programs in rural setting (off reserve to IC) to people with the most complex socio economic and medical conditions.

Conclusions/Next steps: Similar efforts are needed to ensure response in other rural ICs in Canada to address the elevated rates of sexually transmitted blood born infections. Adding suboxone to the addiction program, access to Pre-Exposure Prophylaxis (PrEP) and more convenient ways of screening of at risk people.

WEPEE742
Test and start readiness evaluation: Phase 1 in Mozambique

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Background: The WHO guidelines on test and start have been adopted globally, which presents a significant context-specific challenge for developing countries. The strategy requires countries to ensure that a minimum of programmatic standards and criteria are in place before implementing test and start. Mozambique carried out an evaluation of health facilities to gauge their readiness for the implementation of test and start. The evaluation was carried out in June 2016 in the twelve districts (152 health facilities) with a high burden of HIV selected to be included in phase one of test and start roll out. The evaluation aimed to determine the readiness of the health facilities to implement test and start.

Methods: The evaluation measured readiness using a set of minimum criteria from the following thematic areas: 1. HIV Testing and Counselling (testing approaches, test kit management, linkage to care), 2. Care and Treatment (psychosocial support, positive prevention, retention), 3. Laboratorial monitoring (viral load), 4. Pharmacy (warehousing capacity, ARVs management), and # 5. Human Resources (providers trained in testing and counselling, care and treatment, viral load, psychosocial support).

Weighted scores were calculated for each thematic area as follows: 0-65% requires support in various areas, 66-85% needs support on specific aspects, and >85% is prepared.

Results: The median score for the 152 health facilities evaluated was 55% overall, 64% for testing, 64% care and treatment, 50% lab monitoring, 66% pharmacy, and 59% human resources.

Conclusions: Mozambique faces substantial challenges in the transition to the WHO test and start policy recommendation. However, the country is working to overcome these challenges, recognizing the clinical and programmatic advantages of test and start. For developing countries such as Mozambique, we recommend a phased approach to the implementation of test and start, prioritizing high burden districts, while simultaneously carrying out baseline and follow-up readiness assessments to allow for programmatic adjustments during the implementation process.

WEPEE743
Right to health services

M.W. Mutuyi
Bar Hostess Empowerment and Support Programmes, Project Lead, Kitale, Kenya

Background: Kenya has made significant efforts towards achieving the UNAIDS 90 90 90 target. Despite this there is still high HIV prevalence among the key populations with the sex workers accounting for 29.3% than the general population of 5.9% (Kenya Aids Progress report 2013-2015).Stigma and discrimination and failure of integrating human rights norms and principles in health systems and programs designing, implementation, monitoring and evaluation have been identified as a major contributing factor to this.

Description: Bar Hostess Empowerment and Support Program, has more than 20 years of experience in working with the sex workers in Kenya. BHESP realized that the only way to achieve the 90 90 90 target and ending HIV pandemic by 2030 is through advocating for human right based approach in service delivery. The organization has ensured this through creating awareness on human rights among the sex workers, influencing establishment of policies that are friendly to the sex workers at the national level, empowering the sex workers to take ownership and leadership of programs that targets them and participation in decision making processes that is normally done by the national KP technical working groups.BHESP also monitors violation of human rights through conducting satisfaction surveys at service delivery point and documents findings and lesson learnt.

Lessons learned: It came out clearly that sex workers having gone through harsh terrains of discrimination and stigma, and human right violation they have solution for their own problems. In addition to this human right integration into service delivery and development strategies is key as it brings forth fully engagement sex workers and ownerships of this programs and finally Equality and freedom from stigma and discrimination is central, has benefits and no harms.

Conclusions/Next steps: Human right approaches should be adopted to ensure dignity and attention to the needs and rights of the key populations as this is the only way to ensure health services are available, acceptable and of high quality just for them to enjoy services like any other human being. This will in deed avert HIV/STI.

WEPEE744
The role of AIDS councils in pushing the legal and human rights agenda for sex workers: Lessons from South Africa

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Background: The South African Constitution protects its citizens from discrimination and safeguards their basic human rights. However, sex workers remain vulnerable to abuses including violence and exploitation, and secondary victimisation by police. The South African National AIDS Council (SANAC) developed the current sex worker HIV Plan and are uniquely placed to push for full implementation of the human rights package described therein.

Description: In 2017, SANAC spearheaded national efforts to connect with government on legal reform of sex work. SANAC partnered with a South African newspaper to host a critical dialogue on the decriminalisation of sex work. This was broadcast live and supplemented with a newspaper insert. SANAC advocated publicly for the decriminalisation of sex work and called for a holistic legal and human rights-based response to sex workers. SANAC further facilitated engagement between police and sex workers on the eve of World AIDS Day in the Eastern Cape in an effort to eliminate the police practice of using possession of condoms, lubricant, ARVs or any other legal commodity as evidence of sex work and grounds for confiscation or arrest.

Key populations in humanitarian settings and fragile contexts
Lessons learned: For the first time in South Africa, the National AIDS council is taking a lead in pushing the legal and human rights agenda for sex workers, with sex workers. SANAC’s initiatives provide space for government officials, politicians and civil society to come together, engage and advocate for programme and policy change. This gives solid grounding to direct the legal and human rights agenda for sex workers in a way that is underlined by a national policy and which supports the public health response to HIV.

Conclusions/Next steps: The discussions facilitated by SANAC between civil society and government on legal and human rights of sex workers are critical to legitimise the influence of human rights violations on the country’s HIV epidemic. SANAC leads by example in showing that even in a country where sex work is criminalised, a national AIDS council can take centre stage in the creation of an enabling environment to implement HIV programmes for sex workers.

WEPEE745
Utilisation of social media to reach key populations (men who have sex with men & transgender people) in challenging operating environments

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Right to Care, Johannesburg, South Africa

Background: Between 22% - 48% of HIV infections in South Africa are the result of men having sex with men and transgender people (MSM & TG) because of perceived barriers to health care, and sexual behaviours that facilitate transmission of HIV. Despite a progressive constitution, MSM & TG face high levels of social stigma and homophobic violence, thus it find it difficult to disclose their sexuality to healthcare workers, limiting access to HIV services.

Description: The Global Fund against AIDS, TB and Malaria (GFATM) in partnership with Right to Care (RTC) and its sub-recipient (SR) community-based organisations are supporting implementation of combination prevention interventions for MSM & TG. RTC and SRs tested the use of social media to identify and link health services to unreached MSM & TG networks.

Social media sites like Facebook, Twitter, and Instagram were utilised in creating a platform to link clients to access primary health services between September - November 2017. A dedicated landing page was set up on the RTC website together with a booking form linked to sensitised partner clinics and SRs.

The content strategy was based on key messages and awareness objectives that promoted visits to linked centres and nearby sensitised clinics for regular HIV testing services, and any other primary health services.

The content strategy was based on key messages and awareness objectives that promoted visits to linked centres and nearby sensitised clinics for regular HIV testing services, support groups, and any other primary health services. A total of 298,917 users were reached. Out of these 379,850 impressions were recorded. 71,403 users engaged with primary health services. A total of 298,917 users were reached. Out of these 379,850 impressions were recorded. 71,403 users engaged with primary health services. A total of 298,917 users were reached. Out of these 379,850 impressions were recorded. 71,403 users engaged with primary health services.

Lessons learned: To effectively reach the targeted audience, social media messages should have a clear content strategy, careful planning of content calendar, targeted boosting of selected content and tailor the content to suit specific platforms (no one-size-fits-all approach).

Conclusions/Next steps: Social media is an important avenue for reaching MSM & TG not traditionally accessed by peer educators. It should be adopted as an integral outreach approach for HIV prevention interventions moving forward in challenging operating environments.

WEPEE747
Delivering differentiated care

Lessons learned from early implementation of the national adherence guidelines for HIV, TB and NCDs in South Africa

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Background: As countries implement treatment for all, they are confronted with how to best initiate and retain patients in HIV care. Differentiated models of care have been proposed to better serve pa-
tient needs, reduce unnecessary burden on the health system, and improve outcomes. In 2015, South Africa’s National Department of Health (DDH) introduced National Adherence Guidelines (AGL) for Chronic Diseases, including Fast Track Initiation Counseling for newly diagnosed patients, Adherence Clubs and Decentralized Medication Delivery for stable patients, and Enhanced Adherence Counseling and Early Tracing for patients with elevated viral loads or lost to follow-up.

**Description:** As part of an ongoing cluster-randomized evaluation of early AGL implementation in 24 health facilities in 4 provinces, we used qualitative methods to gain insight into how to support AGL rollout and improve outcomes. We report here on lessons learned and insights from 24 focus groups (FGDs) with patients, 48 in-depth interviews (IDI) with healthcare providers, and 16 IDIs with DOH and implementing partners.

**Lessons learned:** The IDIs, FGDS and observations elicited the following key insights:

- Training of sufficient and appropriate staff and mentorship is a prerequisite to successful implementation.
- For stable patients, patients and providers greatly appreciate repeat prescription strategies that allow patients to collect medications outside facilities or in Adherence Clubs.
- Data flow within facilities and between external medication pick-up points is critical for patient management and monitoring retention.
- An electronic medical record system for chronic conditions that includes decentralized service delivery is essential for integration and management of adherence interventions.
- Patient file management must be addressed to prevent loss of patient information, a one-patient-one-file system facilitates patient management.
- Efficient patient tracing relies on strong coordination and information flow between providers at facilities and in the community.

Recommendations based on these lessons are provided in Table 1.

**Conclusions/Next steps:** As we progress towards final outcomes within the evaluation, we have already gained insights into how to improve AGL rollout on a national scale based on provider and patient preferences and our observations of the early phase. Implementation of these recommendations should help improve outcomes as AGL scale up continues.

<table>
<thead>
<tr>
<th>Area</th>
<th>Recommendation</th>
</tr>
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<tbody>
<tr>
<td>Patient care forms and registers</td>
<td>Review format and use of forms that have proved complex/confusing and ensure that appropriate registers are in place for monitoring all patient interactions, especially for repeat prescription strategy interventions (e.g. Adherence Clubs and Decentralized Medication Delivery) and patient tracing.</td>
</tr>
<tr>
<td>Clinics barriers</td>
<td>Ensure site readiness with sufficient resources and engage with stakeholders to ensure buy in from providers and implementers so they feel engaged and empowered to deliver AGL interventions.</td>
</tr>
<tr>
<td>Training of staff</td>
<td>Engage with staff and ensure appropriate cadres are trained; provide ongoing mentorship and refresher training and retraining in areas with high staff turnover.</td>
</tr>
<tr>
<td>Decentralized medication delivery and reporting</td>
<td>Scripting, staffing and data issues all need to be resolved to ensure patients receive their medication and to prevent further congestion at facilities. In early implementation, it is critical that data on medication pick-up at external pick up points be fed back into clinic data collection systems.</td>
</tr>
<tr>
<td>Issues related to blood draw for viral load monitoring</td>
<td>It is critical that patients in repeat prescription strategy interventions continue to receive timely viral load monitoring. One way to help ensure this is by putting patients into cohorts based on viral load due date (e.g. set up Adherence Clubs in which all patients have the same monitoring schedule) and marking patient files for patients all due their viral load in the same month.</td>
</tr>
<tr>
<td>Patient tracing</td>
<td>There must be greater clarity on which patients need tracing, in order to maximize tracing resources: Patients with an elevated viral load who are not successfully recalled, and patients who have missed an appointment for 5-90 days.</td>
</tr>
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(Table 1 - Recommendations for Improving Implementation of the Adherence Guidelines)

**WEPEE748**

Implementation of differentiated care model in Kenya’s private sector

C. Kanera1, L. Maikweki2, G. Mogaka3, J. Andugosi4


**Background:** In 2015 WHO released a recommendation that all PLHIV initiate ART irrespective of CD4 cell count or clinical stage dubbed “test and Treat”. Successful implementation of Test and Treat led to a substantially increase in the number of patients starting ART and patient volume at ART sites. Kenyan government recognized this and adapted differentiated care model (DCM) in its new guidelines in 2016 which was also in line with WHO guidance. This translates to a client centred approach rationalizing fewer clinic visits for stable clients and options for community based ART distribution. PS Kenya implements HIV services uniquely and purely in the private sector which is fee for service approach, therefore an adapted approach was necessary as reduced visits may be perceived as reduced income by providers.

**Description:** The program sensitized its providers on the DCM approach. A Baseline survey was carried out in 13 facilities after sensitization of providers. The survey revealed that providers were implementing fast-track model. Appointment dates were set for the refill in 3 months and the clinical appointment in 6 months, this was recorded in the Appointment Diary for ART Refills. However the clients on long appointments were mostly not categorized as stable or unstable.

To start implementation of DCM, all patients were categorized and flagged. Provider willingness to implement the approach was also a consideration. The main intervention strategies were Sensitization on categorization of clients into stable and unstable to the providers, Mentorship to the service providers, Joint Support supervision with the sub-county teams, and line-listing of clients who had been on treatment for more than 1 year.

**Lessons learned:** DCM is a feasible model for ART provision even for Private sector providers despite it meaning less clinic visits. Some providers have proceeded to offer the service via a courier system and charge the clients for drug deliveries. One provider successfully implemented a concierge approach that led to him delivering drugs to his stable clients and taking the viral load sample for a fee and at a location of the client’s preference.

**Conclusions/Next steps:** Implementation of client centred approaches for clients on ART is a feasible and scalable approach.

**WEPEE749**

Impact of offering differentiated HIV care on treatment retention and health facility workload: Results from Kenya health zone in the Democratic Republic of Congo

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**Background:** Implementation of test-and-treat in the Democratic Republic of Congo (DRC) has resulted in more people living with HIV (PLHIV) accessing treatment services at health facilities, overwhelming facility workforce and increasing wait times for PLHIV, leading to weaker retention of PLHIV in treatment. PATH, through the USAID-funded Integrated HIV/AIDS Project in the DRC, piloted three differentiated models of care (DMC). We conducted an analysis to evaluate the impact of DMC on antiretroviral treatment (ART) retention and health facility workload.

**Methods:** Beginning October 2016, three DMC were implemented to de-congest the Kenya General Reference Hospital (HGR):

1. ART distribution during monthly meetings at six PLHIV support groups
2. Community-based point of ART distribution (PoDi+)
3. Fast-track ART refill circuit at Kenya HGR

Stable PLHIV folder than 18 years; no opportunistic infections; not preg-
nient; undetectable viral load for at least six months) enrolled in a DMC of their choice and received a three-month ART supply. We used descriptive statistics to analyze patient medical records data.

Results: From October 2016 to December 2017, 938 PLHIV from Kenya HGR enrolled in a DMC. 576 in a PoDi+, 313 in the fast-track circuit, and 49 in support groups. The six-month retention rate observed at each DMC was 96% at the PoDi+, 96% at the fast-track circuit, and 94% among support groups, compared to 60% at Kenya HGR for the same period. The only model with 12 months of data (see table), the PoDi+ achieved a 12-month retention rate of 98%, as 22 of the 28 dropped from the PoDi+ were transferred back to Kenya HGR for treatment services due to pregnancy or opportunistic infections. There was a 47% reduction in provider workload at Kenya HGR, from 404 PLHIV/provider before DMC to 217 PLHIV/provider after DMC, and a decrease in wait time at Kenya HGR from two hours to 45 minutes.

Conclusions: Our analysis demonstrated that DMC were successful strategies for improving retention in treatment and reducing provider workload and wait times at Kenya HGR. Results suggest DMC are critical to increasing PLHIV retention in ART to contribute to epidemic control in the DRC.

WEPEE750
ART behind bars: Differentiated service delivery results in high viral load suppression among prisoners in Zambia
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Background: HIV prevalence among prison inmates in Zambia is 27%, twice that of the general adult population. The Zambia Correctional Service (ZCS) refers prisoners on ART to public sectors facilities outside prison. However, due to transport and manpower shortages, prisoners are often not able to keep appointments, resulting in ART interruption, with risk of poor viral suppression, ART resistance, and poor health outcomes. Prisoners with poorly treated HIV, particularly those temporarily imprisoned, are also liable to transmit resistant HIV upon release, with negative consequences for HIV epidemic control.

Description: The USAID-funded USAID DISCOVER-Health Project implemented by JSI partnered with ZCS to bring ART within prison walls, to address challenges of access to regular HIV treatment, to improve treatment outcomes. From October 2016, eight large correctional facilities are visited by project teams comprising one clinician, two nurses, and a psychosocial counselor who provide ART and other services once a week or twice a month, inside prison walls. High-volume facilities with over 50 clients are visited weekly, while those with 50 or less are visited every two weeks. At each visit, ART services including TB screening are provided, in addition to laboratory monitoring. Viral load testing is done in line with national HIV treatment guidelines.

Lessons learned: Of the 241 prisoners (234 males and 7 females) who were eligible for viral load monitoring, 221 (92%) were virally suppressed. 185 (84%) of the prisoners who were virally suppressed were initiated on ART at the time of imprisonment. Viral suppression among prisoners benefiting from this DSD model (92%) is higher than the viral suppression rate (77%) in the national HIV treatment program.

Conclusions/Next steps: By providing ART behind bars we reduced the barriers to ART adherence among prison inmates in eight correctional facilities in Zambia. Similar DSD models should be instituted in all prisons to improve adherence and health outcomes for PLHIV prisoners.

WEPEE751
A “quick pick-up” differentiated model of ART delivery shows good retention in care
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Background: In the context of ART scale-up, Differentiated Models of Care (DMOC) are a key strategy to improve efficiency and cater to patient needs. Available to clinic patients after confirmed viral suppression, DMOCs include facility- or community-based counselor-led adherence clubs. Since October 2015, a quick pick-up model (QPUP) has been running in one clinic in Khayelitsha, a low-income area in Cape Town, South Africa, with high viral prevalence. QPUP also known as fast-lane, allows patients to collect ART directly from pharmacy, without counselor review. All three DMOC models require an annual clinical visit and viral load. We describe patient characteristics and retention in QPUP, other DMOCs and those not in any DMOC.

Methods: We used routine clinical data of patients starting ART before July 2017 in three Khayelitsha clinics. QPUP patients are stable on ART prior to referral to QPUP. For comparability in terms of time on ART and viral suppression we matched each QPUP patient to two non-DMOC ‘clinic’ patients. Each QPUP patient was matched to two patients with the closest ART start date, from patients who were in care and virally suppressed at their last viral load when the QPUP patient joined QPUP. Follow-up time for both matched clinic patients began on the QPUP patient’s QPUP start date. To compare QPUP with other DMOCs, only patients that joined facility or community clubs after QPUP began were included.

Results: Those in QPUP were more likely to initiate ART at WHO Stage 1 (Table 1). A larger proportion of clinic patients are male but age is similar across groups. DMOC patients have higher retention in care compared to clinic patients (see also Figure 1) but a notable proportion return to clinic. At 12-months 96% of QPUP patients are still in care, while 85% remain in QPUP. DMOC patients have higher retention in care compared to clinic patients (see also Figure 1) but a notable proportion return to clinic. At 12-months 96% of QPUP patients are still in ART care, but 85% remain in QPUP.

Conclusions: QPUP outcomes suggest that reduced healthcare contact time is feasible for stable patients, although return to clinic care is not uncommon across all differentiated models. A limitation of this data is incomplete viral load capturing and self-selection of DMOC patients. We aim to further develop the QPUP model, adapting to patient needs and health facility resources.
WEPEE753

Barriers and facilitators to successful decentralized treatment provision for female sex workers living with HIV in Durban, South Africa


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Background: Female sex workers (FSW) across sub-Saharan Africa are disproportionately affected by HIV and antiretroviral therapy (ART) coverage among FSW living with HIV remains low due to individual and structural-level barriers to care. Differentiated care models, including decentralized treatment programs (DTP), are being increasingly scaled for those that have already achieved viral suppression, but may also represent opportunities to better service marginalized populations including FSW. Here, we explore potential barriers and facilitators to decentralized HIV treatment initiation and care for FSW living with HIV in South Africa.

Methods: 38 semi-structured, in-depth interviews were conducted with FSW living with HIV in Durban, South Africa (n=24) and key informants (n=15) including implementing partners, clinic nurses, police, sex work advocates, brothel managers, and other key stakeholders. Participants were recruited using criterion-based sampling. Interviews were conducted in English or isiZulu between September–November, 2017 and transcribed, translated, and analyzed using grounded theory in Atlas.ti 8, based on deductive themes emerging from participants.

Results: DTP was seen to be particularly impactful in minimizing transport costs, time spent at the clinic (including wage loss), sex work-related stigma, and risks of inadvertent HIV disclosure. Advantages of mobile DTP emerged. Participants reported DTP would be more discrete. FSW-friendly, and less resource intensive than receiving care at facility-based clinics. Moreover, participants reported that DTP would provide a safety net for FSW who have missed ART pickup appointments and facilitate improved tracing of FSW, particularly those who are moving across venues within an urban area. However, branding of mobile clinics, security and concerns around ART packaging may undermine DTP success.

Conclusions: Decentralization of HIV treatment services may represent a relevant differentiated treatment model to overcome occupational and non-occupational barriers among FSW living with HIV to engagement in ART. Studying determinants of who would most benefit from DTP as well as optimal implementation approaches for DTP will provide insight to the scalability of these approaches and utility in optimizing sustained treatment outcomes among FSW living with HIV in South Africa.

WEPEE752

Early findings of an innovative, community-based antiretroviral therapy (ART) delivery program for female sex workers in Tanzania


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Background: To increase linkages to and retention in ART care, we designed and piloted the delivery of community-based ART services to female sex workers (FSWs) using community-based HIV testing and counseling (IHTC) platforms (mobile and home based).

Methods: This is a mixed-method implementation science research study, using a quasi-experimental design. Eligible participants in the intervention arm (Njombie Region) were enrolled into community-based ART, counselled on ART, and immediately received one month of ARV drug supply. At the first refill, each FSW receive 2 months of drug supply. Subsequently, FSWs receive 3 months of drug supply. FSWs in the comparison arm (Mbeya Region) were referred to public ART facilities, following national guidelines (at registered facility, fixed refill date, one month of ARVs). We collected data at baseline and will re-interview the cohort at 6 and 12 months. Viral load will be measured at 6 months and 12 months. This abstract describes baseline quantitative, and early qualitative and process data from the study.

Results: A cohort of 617 HIV-positive FSWs not currently on ART were established (June–July, 2017) and is being followed up (397 in Njombie; 320 in Mbeya). The median age is 30 years old; half were never married and a third were divorced. One-third of FSWs learned about their HIV positive status for the first time at study enrollment. Among a subset of participants who had known their status for more than a month before the study (n=97/671), half had not registered in HIV care. Condom use (at last sex) was low with paying (12%) and non-paying clients (25%) and internalized stigma was high (e.g. 46% felt guilty, 33% worthless, 39% ashamed because of living with HIV). In the intervention arm, 98% of participants came back on time for the first refill, and 95% came back on time for the second refill. Our 3-month qualitative interviews with providers and FSWs showed overwhelming support of this community-based ART model.

Conclusions: We found gaps in linking HIV+ FSWs with ART services. Early findings suggest that the community-based ART model is closing these gaps by being feasible, acceptable, and associated with increased linkages and retention in ART among FSWs.

WEPEE754

Improving retention, viral suppression, and facility decongestion through community-based individual drug distribution (PODI) in DRC

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Background: Current estimates of PLHIV in the DRC is 370,000 with 33% (122,268) on ART (UNAIDS 2015). While scale-up is ongoing to increase patients on ART, strategies to achieve retention and viral load suppression are essential. Monthly patient visits, provider prescribing, and dispensing of medications creates congestion at clinics and pharmacies, additional time and economic burden on patients, and additional data collection and tracking burden on M&E systems. EQUIP is implementing
WEPEE755
Anticipated and lived experiences of stable patients on ART in urban adherence groups: A qualitative study from Zambia

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Background: In Zambia, growing numbers of people on ART and health system constraints has spurred differentiated service delivery (DSD). Nested within a mixed methods study on DSD in three provinces in Zambia, we compared anticipated and lived experiences of patients and health care workers (HCWs) prior to and after six months of implementation of urban adherence groups (UAGs). The acceptability, feasibility and appropriateness of UAGs, which consist of a group of 30 patients who collect ART at a facility-based meeting held every 2-3 months during off hours, has not been previously studied in Zambia.

Methods: At baseline, we conducted 34 focus group discussions (FGDs) with patients, family members, and HCWs and 26 in-depth interviews (IDIs) with government officials and local leaders. At mid-line evaluation, we conducted 15 FGDs with professional HCWs and patients and 18 IDIs with lay and professional HCWs. Audio transcripts were translated, transcribed and uploaded to NVivo QSR™. Using framework analysis, major themes from both evaluations were compared by type of respondent and exposure to UAGs.

Results: Prior to implementation, working patients found the off-hours drug collections times highly acceptable while HCWs considered them unacceptable given current workloads and clinic space. Both patients and HCWs raised concerns regarding the group size which posed patients to stigma and unintentional disclosure. HCWs expressed concerns about physical safety, record keeping, security of stored drugs and working off-hours. After six months of implementation, both patients and HCWs found UAGs acceptable albeit with concerns about staff shortage, compensation for HCWs working off-hours and ARV storage space. Contrary to expectations, patients found that UAGs reduced HIV-related stigma and created group support. There were no reported cases of theft and physical harm. On the contrary, documentation and records were described as well-kept and updated.

Conclusions: Most pre-implementation concerns were not reported at mid-line demonstrating the importance of mitigating foreseeable challenges. Implementing UAGs can result in reduced HIV-related stigma, freed-up time for patients and potentially decongest day-time clinics. To effectively implement UAGs, health services must be re-organised by increasing UAG-specific staffing and, adapting clinic operations to meet off hours and ARV storage requirements.

WEPEE757
The first experience with ART adherence clubs in Maputo, Mozambique: An analysis of a second-line ART subcohort

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Background: The Adherence Club (AC) model of care was piloted by Medecins Sans Frontieres (MSF) starting in 2007 in South Africa. AC model offers patient-centred access to antiretroviral therapy (ART) to clinically stable patients and reduces the number of consultations in health-care facilities. In Maputo, MSF started to run AC in collaboration with Ministry of Health (MoH) in October 2015, at Centro de Referencia Alto Mae (ICRAM), an MSF-supported health facility which assists complex HIV patients. Therefore, this is one of the first descriptions of an AC cohort of patients with a history of treatment failure.

Results: Of 433 patients on ART, 221 (51%) were eligible for differentiated care (78% of eligible patients) including: 34% of ANTIBAC external pick up points (e.g. pharmacies), 27% clinic or community-based adherence clubs, 19% using internal CCMDD pick-up points and 20% using clinic fast lanes for ART delivery. There was a drop in use of external pick up points due to late deliveries, limited pick-up points in rural areas and stock outs reported. Median age of patients in differentiated care was 39 (IQR=26-60), 71% were females. Median time on ART was 4.3 years (IQR=2.5-6.4 months). Median CD4 count was 284 (IQR=138-663), women had twice the odds of having a CD4 ≥500 (age-adjusted OR=2.06, 95% CI=1.98-2.16). Median last viral load was 1240 (IQR=84-124) and men had increased risk of having a viral load ≥1000 copies/mL (age-adjusted OR=1.23, 95% CI=1.11-1.36). Loss to follow up and mortality were very low in this cohort at <1%.

Conclusions: We found high uptake (78%) of differentiated care in stable patients on ART with most using external pick-up points. Additional interventions are required to improve treatment outcomes in patients not in differentiated care. Mostly men and young people. Additional research is needed to evaluate the extent to which differentiated care decongests facilities, allowing for improved clinical management of complex cases, and initiation of new patients on ART.

WEPEE756
Uptake of HIV differentiated care models for patients on antiretroviral therapy in South Africa

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Background: South Africa rolled out differentiated care to stable adult patients who were the same regimen for ≥12-months, ≥2 consecutive normal laboratory results (viral load <1000 copies/mL) and not currently on TB or other medication that requires clinical consultation. Differentiated care in South Africa includes: pharmacy, fast lanes, adherence clubs and decentralized, community-based drug distribution (CCMDD).

Methods: We conducted an analysis of national data from 307 facilities in five Districts in South Africa between September 2016 and December 2017 to evaluate demographic and clinical characteristics and treatment outcomes in patients on differentiated care vs. standard of care in multi-variable logistic regression models.

Results: Of 433,249 patients on ART, 221,596 were eligible for differentiated care (51%) in 307 facilities. To date, 173,267 eligible patients were registered for differentiated care (78% of eligible patients) including: 34% CCMDD external pick up points (e.g. pharmacies), 27% clinic or community-based adherence clubs, 19% using internal CCMDD pick-up points and 20% using clinic fast lanes for ART delivery. There was a drop in use of external pick up points due to late deliveries, limited pick-up points in rural areas and stock outs reported. Median age of patients in differentiated care was 39 (IQR=26-60), 71% were females. Median time on ART was 4.3 years (IQR=2.5-6.4 months). Median CD4 count was 284 (IQR=138-663), women had twice the odds of having a CD4 ≥500 (age-adjusted OR=2.06, 95% CI=1.98-2.16). Median last viral load was 1240 (IQR=84-124) and men had increased risk of having a viral load ≥1000 copies/mL (age-adjusted OR=1.23, 95% CI=1.11-1.36). Loss to follow up and mortality were very low in this cohort at <1%.

Conclusions: We found high uptake (78%) of differentiated care in stable patients on ART with most using external pick-up points. Additional interventions are required to improve treatment outcomes in patients not in differentiated care. Mostly men and young people. Additional research is needed to evaluate the extent to which differentiated care decongests facilities, allowing for improved clinical management of complex cases, and initiation of new patients on ART.
Methods: A retrospective analysis of patients’ data from CRAM enrolled in AC clubs and receiving second-line ART treatment was performed. The analysis spanned from October 2015 to January 2018. In addition to death, last-to-follow-up (LTFU) or coinfection with tuberculosis, reasons for exiting AC can be unsuppressed viral load (VL) or skipping club sessions twice in succession. Kaplan-Meier curve was used to analyse retention in AC (RIAC) and retention in care in health facility (RIC).

Results: The analysed cohort contains 687 patients on second-line ART, with median age at enrolment of 40 years (IQR: 35-42) and 42% (63%) being female. All patients were stable and with VL<400 copies/ml at enrolment in AC. During study period, 6 (0.9%) patients died and 5 (0.7%) were LTFU. RIAC at months 12, 18 and 24 was 95% (93-97%), 87% (86-92%) and 83% (79-87%), respectively. In the analysed period, 23 (3.4%) of patients exited AC due to unsuppressed VL, of which 6 (26%) successfully suppressed VL afterwards and returned to AC. Additionally, 24 (3.5%) patients exited AC due to skipping club sessions. Patients who exited AC continued to be treated in the same facility, hence, the RIC of AC patients in our facility for the same period was 99% (98-100%), 98% (96-99%) and 97% (95-99%).

Conclusions: Patients with a history of treatment failure can have good outcomes in AC. Furthermore, by reinforcing counselling of patients who exit AC due to unsuppressed VL, patients can achieve VL re-suppression and return to AC. Finally, overall retention in care of AC second-line patients was encouragingly high.

**WEPEE759**

**Acceptability of community differentiated models of care: A patient and service provider’s perspective on community art refill groups in Zimbabwe**

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**Background:** Public healthcare facilities are overburdened with large numbers of stable antiretroviral treatment (ART) patients resulting in poor management and long waiting time; community ART Refill Groups (CARGs) are postulated to decongest facilities improving care as one person collects ART at the facility for the whole group. This study explores patient and service provider’s acceptability of CARGs in Zimbabwe.

**Methods:** As part of a cluster randomized trial to assess effectiveness of 3 and 6-monthly dispensing of ART for stable patients in CARGs, qualitative data were collected in Shona, Ndebele and Venda from October-December 2017 in Beitbridge, Chitungwiza, Gutu, Mberengwa and Zaka districts. Twenty key informant interviews from purposively selected service providers were conducted. 113 females and 42 males newly enrolled in CARGs were randomly selected and participated in focus group discussions from each of the 20 facilities. Translated-transcripts were analyzed for thematic content.

**Results:** Facility staff welcomed the formation of CARGs linked to their facilities as a solution to decongest facilities, improve care for unstable patients, increased time for patient data compilation and group viral load testing to improve monitoring (the third 90). New CARG members anticipate benefits that include saving on transport costs and reduction in facility visits thereby allowing increased focus on productive activities. Group support through livelihood projects, adherence and defaulter tracing were highlighted to improve retention, lifestyles, and psychological well-being.

Despite the general acceptability of CARGs, some members cited fear of stigma, discrimination and losing respect as reasons for not joining groups particularly for those unwilling to disclose HIV status. Young people and males preferred sending relatives for facility drug pick-ups than joining a CARG. Some clients reported fear of “huroyi” (witchcraft) through someone else handling their medication as one of the reasons for not joining CARGs. Nurses expressed worry towards 6-month ART dispensing as monitoring occurs only twice yearly; patients may not seek needed care.

**Conclusions:** High acceptability of CARGS was shown by patients and service providers, however stigma and discrimination remain a challenge and need to be addressed at both individual and community level. Group differentiated care may not be ideal for young people and men.

**WEPEE760**

**Peer providers delivering differently: Installing young trained service providers (20–24 yrs) at service delivery points to increase access to adolescent and young people friendly SRH-HIV services in rural Kenya**

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**Background:** Siaya County has a 24.8% HIV prevalence, 4.2 times higher the national prevalence. Over 45% of new infections occurred amongst adolescents and young people (AYP). Kenya HIV estimates 2016. Policy documents like Adolescent SRH 2016 and the Fast track plan to end AIDS amongst adolescents have been adopted. However Young people do not access SRH-HIV services including HIV testing services in public health facilities citing perceived or experienced health provider attitudes (IAS Young Lives, New Solutions Policy Brief).

The Get Up, Speak Out (GUSO) project sought to amplify the voices of young people and design service delivery models anchored on recommendations AYP in Family Health Options Kenya (FHOK) facilities.

**Abstracts**
Description: Supported by IPPF, FHOK, a leading service provider of SRH services in Kenya, with a special focus on youth, marginalized and socially-excluded people, initiated a nationwide 1 year project (Jan 1 - Dec 31, 2017). It sought to ensure all AYP in Kenya enjoy there SRH rights. Through increasing access to rights based AYP friendly SRH-HIV services to 60,000 adolescents and young people nationally. Siaya County in NYanza region was selected as a rural county where HIV stigma remains high. GUSO adopted the evidences and recommendations from the IAS Young Lives, New Solutions Policy Brief. GUSO recruited and trained 3 young graduates (Nursing officer, clinical officer and HTS provider 20-24 yrs) from Kenya Medical Training College in Bondo on AYP friendly services across different settings. Included 18 AYP in facility management teams. Trained 56 digital CSE peer facilitators.

Lessons learned: Young service providers recruited improved optics of the facility amongst AYP. More AYP accessed services at the facility due to referrals by peers who were satisfied clients. An unprecedented 67,196 (51,133F 16,063M) AYP accessed Contraceptive services while 16,612 (8,563F 8,049) tested for HIV.

Conclusions/Next steps: AYP has significant innovative solutions to barriers of accessing SRH-HIV services. Young people have the capacity to offer Clinical services. It is imperative that AYP friendly services training are intensified in the Kenya Medical Training College curriculum. Young graduates are placed in AYP friendly centres. AYP are incorpo- rated in hospital management committees.

WEPEE761
Characteristics and early clinical outcomes of key populations attending comprehensive community-based HIV care in Nigeria
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Background: Despite a call for differentiated care, there is limited data from sub-Saharan Africa on comprehensive community-based HIV care for key populations (KP), including commercial sex workers (CSW), men who have sex with men (MSM), and people who inject drugs (PWID). In Nigeria, a programme was implemented that liaised with community-based organizations and offered HIV testing, same-day ART initiation, and ART follow-up to KP. Here we characterize KP and their partners enrolled on ART. Our objective is to assess the early treatment outcomes and to estimate predictors of attrition among KP.

Description: This is a retrospective cohort study of routinely collected data in a community-based HIV program for KP in Nasarawa state, Nigeria from August 2016 to November 2017. Variables of interest were socio-demographic, KP types, treatment outcomes, ART adherence, WHO stage, TB status and viral load. Summary statistics, logistic and Cox proportional hazard regression were used to describe the characteristics of KP and estimate predictors of attrition (patients either lost to follow-up (LTFU) or dead).

Lessons learned: Seven hundred and ten (710) KP and their partners were enrolled into this study. 77.3% (559) of study subjects were female and the median age was 30 years (IQR: 24-35). Respectively, 74.2%, 4.5%, 11% and 20% were CSW, MSM, PWID and their partners. Of 710 KP who started ART, 13.9% (99/710) discontinued after the first visit. After a median follow-up time of 7 months on ART 73.2% of patients were retained, 23.4% were LTFU, and 3.4% were dead. Lack of formal education (aHR 1.8; 95% CI 1.2-2.6) and unemployment (aHR 1.8; 95% CI 1.2-2.6) were significantly associated with attrition.

Conclusions/Next steps: Comprehensive community-based HIV care, including HIV testing and same-day ART is feasible. However, ART initiation on the same day of confirmatory HIV testing resulted in a high uptake of ART, but at the same time inflated attrition. To mitigate early attrition among KP after same-day ART initiation, the psychosocial readiness of clients should be assessed better. We strongly recommend further studies to understand factors contributing to high attrition among the KP.

WEPEE762
Rolling out a community differentiated care model: Lessons learned from a high-volume health facility in Taita Taveta County, Kenya
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Background: AYA Pwani, a project funded by USAID and implemented by Pathfinder International, serves a population of more than 3 million and roughly 50,000 people living with HIV (PLHIV) on ART in five coastal counties in Kenya. The project has been supporting the rollout of differentiated service delivery for PLHIV in 19 high-volume facilities.

Description: In Taita Taveta County, since March 2017, Mwatate Hospital has been offering a community model of differentiated care through which ART patients who are virally suppressed, meeting predetermined clinical criteria for stable clients, and living in the same community are organized into groups of six to coordinate ART distribution and patient support. Each member takes turns picking up medication for the whole group and reports back on the progress of their group members to the clinician. A comprehensive care center (CCC) team visits the groups in the community quarterly for continuous medical education and to an- swer patient questions. To identify eligible clients, 150 PLHIV patient files were reviewed from which 125 met the criteria of being stable: eighty-three patients (66% of eligible patients) agreed to participate and were organized into 13 ART groups based on proximity to other patients. After 10 months of imple- mentation (March-December 2017), there has been no loss-to-follow-up: all patients have received viral load testing, and 81 patients (98%) remained virally suppressed. Two patients (2%) that became unsuppressed were discharged from the community group and appropriate enhanced care was provided to them. Overall suppression rates for the hospital have increased from 81% in 2016 to 86% (395/460) in 2017.

Lessons learned: Mwatate Hospital has demonstrated how client-man- aged differentiated care can successfully be introduced without compromising overall suppression rates. This model provides an opportunity to reduce and prioritize healthcare provider workload, save client time and resources, and also enable PLHIVs to care for and support each oth- er. The hospital continues to adapt the approach to maximize outcomes and quality of care, including increasing community-based CCC visits from quarterly to bi-monthly.

Conclusions/Next steps: The preliminary results from this community differentiated care approach are promising and lessons learned will in- form rollout in all 19 AYA Pwani-supported high-volume facilities.

WEPEE763
Characteristics of adults in Malawi and Zambia eligible for 6-monthly antiretroviral therapy refills: The INTERVAL study
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Background: Differentiated models of care (DMOCs) are being adopted across Africa. Extending refills of antiretroviral therapy (ART) to 6 months is one such model, but little is known about the proportion or charac- teristics of patients who will qualify for and benefit from this DMOC. The INTERVAL study is a cluster-randomized evaluation of standard of care versus 3- and 6-month ART refills to determine whether a decreased frequency of facility visits for medication pickup improves retention in care and virologic suppression while reducing costs.
Methods: INTERVAL is being implemented in 30 facilities (10/arm) in Malawi and Zambia. Participants receive all clinical care at the assigned refill interval with no required interim visits. Participants are screened in waiting areas of adult, outpatient ART clinics and defined as “stable” if ≥18 years, on first-line ART for ≥6 months; no active HIV-related complications/drug toxicities; no noncommunicable diseases; NCDs; not pregnant or breastfeeding; and have an undetectable viral load within the previous 6 months (Malawi: ≤100 copies/mL; Zambia < 20 copies/mL). We examined the characteristics of enrolled individuals to inform expectations for scaling up this model.

Results: 79% (N=6400) 65% female of participants met the stability criteria. The most common reason for ineligibility was detectable viral load (7% Malawi, 19% Zambia). Only ~3% of women were excluded because of pregnancy or breastfeeding, as most ante/postnatal care is provided in antenatal and maternity clinics. Less than 1% were excluded for NCDs. Among individuals enrolled, the median age was ≥26 years. The median duration on ART (≥5 years) reflects the transition in ART programs from newly initiated, younger patients to experienced, older patients. Women were slightly younger, had less formal education, and were less likely to miss work to come to ART clinic (Table). The gender breakdown reflects national populations on ART.

Conclusions: Roughly 4 out of 5 ART patients in outpatient clinics can be defined as “stable” for DMOC purposes. The low rate of NCDs in this older population suggests poor routine screening for these conditions. If DMOCs serve a relatively older population, other conditions of aging should be included in service delivery plans for these models of care.

WEPEE764

Overcoming barriers to access of HIV/AIDS services among female sex workers through differentiated service delivery models, TASO Entebbe experience

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Background: In 2014, there was an estimated 54,549 Female Sex Workers (FSW) in Uganda with HIV prevalence of 34.1% (UAC 2014). The combination of a restrictive legal environment and mobile nature of FSW are among the barriers that influence access of HIV/AIDS services, leading to poor retention in the continuum of care. TASO Entebbe, a model center of excellence, piloted the Community Client Led ART Delivery (CCLAD) Differentiated Services Delivery Model (DSDM) among 90 HIV positive FSWs in care to increase access to HIV/AIDS services and improve retention rates among FSWs in care.

Description: Following complaints from some FSWs, of long waiting time with loss of clients in lodges, inconvenient time drug refills time, and stigma & discrimination from the general population due to their dress code and appearance at the drug pick-up points, TASO Entebbe introduced the Community Client Led ART Delivery (CCLAD) model for stable FSWs living in the same community. This involved grouping FSWs according to a criteria of; being HIV positive, registered with TASO, having disclosed to peers, consented to join CCLAD and having suppressed VL. The group selected a leader whose roles included; taking members’ parameters like weight and MUAC, distribution of condoms and lubricants, delivery of pre-packed ARVs to members and submission of the filled tools to the TASO technical staff.

Lessons learned: A total of 14 FSWs aged 20-29 years (3) and 30-35 years (11), were identified and 2 CCLAD of 7 members each were formed. All FSWs in each CCLAD group maintained a suppressed VL, 100% retention rates in each group was achieved. ART adherence improved from 75% to 95%. The ripple effects of CCLAD caused other FSW in the same hotspots to request to join the CCLAD groups.

Conclusions/Next steps: Innovative ART delivery models like CCLAD among FSWs stimulates demand for HIV/AIDS services, mitigate effects of stigma and enhance treatment adherence and retention.

WEPEE765

Ensuring equitable access to HIV/AIDS care in rural Africa to meet the UNAIDS 90-90-90 targets: Achieving the second and third 90s through community based follow-up

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Background: In southern Malawi 16% of the adult population is living with HIV. Ensuring that those found newly-positive through community based testing initiatives are quickly linked to care is critical to halting the spread of the disease and achieving the second and third 90s of the 90-90-90 UNAIDS treatment targets. Since 2014, Global AIDS Interfaith Alliance (GAIA) has implemented a program employing “Follow-up nurse coordinators” (F/Cs) to make home visits to clients, encouraging adherence to co-trimoxazole preventive therapy (CPT) and for those eligible, anti-retroviral therapy ART initiation (or re-initiation) and adherence. With the advent of “test and treat” in September 2016, many clients needed to be notified of their eligibility for ART and linked to care.

Description: Well-known and trusted in this rural community, GAIA’s trained nurses travel to clients’ homes in remote villages by motorbike. They see each client a minimum of three times after diagnosis, first making sure the client has attended an ART clinic for group counseling and timely treatment initiation, and then assure the client is adherent and stable on ART. In addition, they provide index testing of family members (including at-risk children) and sexual partners as necessary.

Lessons learned: In 2017, five F/Cs provided individualized, holistic, confidential care to 367 clients living with or exposed to HIV across two districts. By the end of the year 92% (326/355) of HIV+ clients had enrolled in confidential care to 367 clients living with or exposed to HIV across two districts. The investment may well pay off in terms of increased life-expectancy, economic productivity, and reductions in onward transmission. Studies testing scale up and cost/benefit analysis are needed.
WEPEE766

Client and health worker perception to differentiated HIV care: A qualitative study from Kebbi State, North West Nigeria

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Background: The Differentiated Care Model (DCM) in HIV care is a patient centered approach to improve service delivery and supports meeting the UNAIDS go-90-go targets. Despite the potential impact of this model, it is imperative to establish client preferences and identify potential barriers. This will help in the development of feasible context specific DCM, which was the aim of this study.

Methods: The USAID-funded CaTSS project implemented by MSH conducted a qualitative study on perception of DCM among stakeholders involved in HIV care for at least one year between October-December 2017. Focus group discussions (FGD) were conducted among clients receiving ART treatment in six groups (6-8 people per group) using an FGD guide. Key informant interviews (KII) were conducted with 15 health care workers using a key informant guide. Participants were selected purposively from two large hospitals in Kebbi State (General Hospital Argungu and Sir Yahaya Memorial Hospital). Data transcription and familiarization were completed and data analysis done using mixed coding methods (predetermined codes [A-Priori] and use of emergent codes).

Results: Findings from FGD and KII were triangulated. Reducing the frequency of hospital visits (multiple-months prescriptions) was the most preferred approach for stable clients; HCW and clients desired three-monthly appointments to reduce travel related costs, stigmatization and improve adherence. Fast tracking, where stable clients collect medications without doctors’ review was desired, but HCWs were concerned that clients may pretend to be well to avoid reviews. Client managed quarrels among group members may cause intentional disclosure of their status. A community distribution model was discarded by both groups; HCWs worried about fraudulent practices, documentation issues, and increased cost to providers, while clients feared stigmatization.

Conclusions: Reduction of the frequency of visits was the most preferred model in the hospitals in Kebbi State, because of perceived reduction in stigmatization and cost savings. Multiple-month prescriptions may improve adherence in this area. Scale up of this model in this resource-constrained area with high stigmatization is recommended.

WEPEE767

Acceptability and preferences of two different community models of ART delivery in a high prevalence urban setting in Zambia, nested within the HPTN 071 (PopART) trial

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Background: In high HIV-prevalence resource-limited settings with overburdened health care facilities, retention on ART and viral suppression are key challenges. Community models of ART delivery have shown promising outcomes in relation to retention in care and adherence to treatment. Within the HPTN 071 (PopART) trial, two models of non-facility based ART delivery, either home-based delivery (HBD) or adherence clubs (AC), were offered and compared to facility-based delivery (standard of care, SoC) for stable HIV+ patients. We describe acceptability of the different models of ART delivery, and preferences reported by eligible residents offered them.

Methods: This was a three-arm cluster randomized non-inferiority trial comparing outcomes, including virological suppression, among patients offered HBD of ART or AC in two HPTN 071 (PopART) trial communities in Lusaka, Zambia. The communities were divided into zones and each zone was randomized to one of the three delivery arms:

1. SoC
2. a choice between HBD or SoC, or
3. choice between AC or SoC

Stable HIV+ patients (defined according to WHO classification) living within the community zones were invited to take part in the study. Irrespective of the trial arm, all participants at baseline were asked to state their preference for mode of ART delivery.

Results: Between May and December 2017, the study identified 2535 stable patients who were eligible for community models of ART delivery across both communities and 2520 (99.4%) consented to join the study. Initial preferences, regardless of randomization arm, were expressed by 32.2% of participants. Of those that stated a preference, 70.3% stated they preferred HBD, 15.5% AC and 14.2% SoC. Among participants randomized to the choice of non-facility method of ART delivery, overall 95.6% chose the non-facility method that they were randomized to receive (96.8% in the HBD arm and 94.5% in the AC arm).

Conclusions: In this urban Zambian setting, stable HIV+ patients who expressed a preference preferred home based delivery of ART compared to adherence clubs or receiving treatment at the clinic. Patient preference should be considered when developing differentiated care delivery models.
WEPEE768

High acceptance and satisfaction of differentiated antiretroviral therapy service delivery among men who have sex with men, transgender women and healthcare workers in Thailand

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Background: WHO recommends differentiated service delivery (DSD) for antiretroviral therapy (ART) to allow decentralization of ART-maintenance for stable patients. We studied feasibility and client and staff acceptance of and attitude towards key population (KP)-led DSD-ART for men who have sex with men (MSM) and transgender women (TGW) in Thailand.

Methods: We integrated DSD-ART into our Key Population-Led Health Services (KPLHS) model for MSM and TGW in 4 provinces in May 2017. Stable patients (ART for >1 year, 2 consecutive undetectable HIV-RNA, CD4>200 cells/mm3) no adverse drug-reactions or current illnesses, and good understanding of lifelong ART-adherence) were eligible to receive ART-maintenance from KP community health-workers (KP-CHW) at KP-led clinics. KP-led clinics and public hospitals discussed and mutually agreed upon the building blocks of DSD-ART models (graph 1). Acceptance of and attitudes towards DSD-ART was evaluated among stable patients and staff.

Results: Between May 2015-October 2016, KP-led clinics tested 2,644 MSM and TGW. 453 (17.1%) were HIV-positive and 383 (84.6%) started ART. 61.8% preferred ART-maintenance to happen at KP-led clinics. The most reported expectation by KP-CHW and staff acceptance of and attitude towards KP-led DSD-ART models, mutually designed by KP-led clinicians and healthcare workers in Thailand.

Conclusion: WHO recommends differentiated service delivery (DSD) for antiretroviral therapy (ART) to allow decentralization of ART-maintenance for stable patients. We studied feasibility and client and staff acceptance of and attitude towards Key Population (KP)-led DSD-ART models (graph 1). KP-CHW and staff agreed upon the building blocks of DSD-ART models. KP-led clinics and public hospitals discussed and mutually agreed upon the building blocks of DSD-ART models. Acceptance of and attitudes towards DSD-ART was evaluated among stable patients and staff.

WEPEE769

Improving the identification of CAYPLHIV through index case testing across 14 districts in Zimbabwe

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Background: Identifying and diagnosing children, adolescents and young people living with HIV (CAYPLHIV) is the first step in the continuum of care and treatment. Yet, despite the availability of ART, many CAYP are never offered an HIV diagnostic test (WHO 2013). CAYPLHIV who do receive an HIV test are often tested later than recommended, even though earlier testing is needed in order to facilitate treatment initiation. In Zimbabwe 34% of adolescents and young people 15-24 have been tested and know their status compared to 74.2% amongst the adult population (ZIMPHIA 2015/16).

Description: Africaid is implementing a PEPFAR funded Game Changer project in partnership with I-TECH, the prime partner. The project aims to increase the availability and quality of care and treatment services for CAYPLHIV. HIV positive adolescents, 18-24 years, known as Community Adolescent Treatment Supporters, were trained and mentored in index case finding. During routine home visits to CAYP on ART, they identified undiagnosed siblings and sexual partners and referred them for HIV testing at either facility or linked them with I-TECH community-based testers. Those identified to be HIV positive were linked to care and confirmed through health facility ART register recording.

Lessons learned: 2,747 CAYP were mobilized through index case finding for HIV testing services with 4,180 getting tested and receiving their results. 628 were diagnosed HIV positive translating into a 15% yield rate with districts such as Marondera achieving a 24% yield rate. Out of the 628 who tested positive, 98% (619) were initiated on ART.

Conclusions/Next steps: Targeting undiagnosed siblings, sexual partners and immediate family members of CAYPLHIV index case achieves an excellent yield. The role of AYPLHIV as peer experts has been a very successful innovation to improve HTS services and target those who are most unwilling to seek HTS at the facility level. CATS are therefore a critical community cadre to maximise the identification of new CAYPLHIV and link them into care peer-to-peer support.

Strategies to Increase Uptake of retention in HIV Services

WEPEE770

Positive links: Mobile technology to improve retention in care

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Background: PositiveLinks (PL) is a smartphone-based platform designed in partnership with people living with HIV (PLWH) to improve medication adherence and retention in care among PLWH. PL provides daily medication reminders, check-ins about mood and stress, educational resources, a community message board, and an ability to message providers. In this study, we evaluate the impact of up to 18 months of PL use on CD4 count, HIV viral suppression, and retention in care.

Methods: Between September 2013 and March 2017, providers at the UVA Ryan White HIV clinic referred patients to PL who were at risk of falling out of care. We assessed two measures of retention in care: attendance at ≥2 appointments 90 days apart within the past year (i.e. HRSA compliance) and visit constancy. CD4 and HIV viral load were assessed at 6 month intervals starting at enrolment. HRSA compliance, visit constancy, CD4, and viral suppression were compared between
WEPEE771

Mobile and tele-health: Scalable platforms for supporting efforts towards meeting the 90-90-90 targets in Uganda

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Background: Uganda has made tremendous strides towards achieving the UNAIDS 90-90-90 targets. In order to beat the 2020 recommended target date, health ministries and HIV public health programs need to employ innovative ways of sustainably accelerating and scaling their activities.

We set out to explore the feasibility and role of mobile health (mHealth) and telehealth centre in improving HIV testing as well as treatment adherence and retention for eventual viral load suppression.

Description: Between January 2016 and July 2017, men and women from the Uganda Police. Police security guards, Uganda wildlife authority and Hotel owners’ association consented to receive mobile health services through messaging and a 24/7 telehealth platform. This was under the USAID/Uganda HIV/AIDS and Health Initiatives in Workplaces Activity (HIWA) Project.

Through an open source SMS platform, voice calls and WhatsApp, beneficiaries were engaged with HIV prevention and testing information and how to access HIV services close to their locality. They also received individualized periodic reminders for treatment compliance and adherence as well as reminders for viral load testing. On-ground follow up based on the mHealth data was done by community linkage facilitators and health centre staff.

Lessons learned: Males contributed 73.4\% of the users compared to 26.6\% females overall; with a median age of 27 years (IQR 23, 33). 19,162 people received HIV prevention and behavioral change messages. 4.3\% of those urged through the platforms to test for HIV were HIV positive.143 newly diagnosed HIV patients were successfully linked into care. 121 mothers joined the EMTC mHealth campaign to be supported to adhere to treatment and complete diagnostic testing for their exposed babies.1241 HIV+ adults (M=532.42\%; F=709,57.2\%) signed up for the mHealth engagement on reminders for treatment adherence and clinic visits. All engaged HIV positive beneficiaries met their schedules for viral load repeat testing in the last 12 months.

Conclusions/next steps: Mobile health services through a 24/7 telehealth centre are a feasible way to increase uptake of HIV testing services, improve retention in care as well as adherence and compliance to treatment guidelines. They should be considered as a way to scale up 90-90-90 efforts.

WEPEE772

Who understands viral load? Challenges for reaching the third 90 in South Africa

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Background: Despite having the largest ART programme in the world, South Africa faces barriers to linkage and retention in HIV care. This threatens progress toward the 90-90-90 targets. One barrier is poor HIV treatment literacy. In line with the third-90, we assessed gaps in understanding and knowledge of viral load terminology.

Methods: We conducted 3,000 interviews across all nine provinces in South Africa with men and women aged 18-34 years using three-stage cluster sampling proportional to population size. To understand factors that contribute toward viral load knowledge we measured self-reported knowledge through the question “do you know what viral load is?” with response options “yes/no” and then asked respondents to define the term. Demographic information and self-reported HIV status were also measured. Multivariate analysis was performed in Stata v14. Results are reported using adjusted odds ratio (AOR) and 95\% confidence intervals (CI).

Results: 10\% (313/3,000) said they understood the term viral load and 8\% (252/3,000) correctly defined viral load as “the number of HIV cells or copies in the blood of someone who is HIV-positive”. Of those who self-reported as HIV-positive, 35\% (65/184) said they understood the term viral load and 27\% (50/184) defined it correctly. Knowledge of viral load was less likely in men (AOR 0.73, 95\% CI 0.54-0.98, p=0.038), more likely in older respondents (AOR 1.06, 95\% CI 1.03-1.09, p<0.000), more likely in respondents with higher socio-economic status (AOR 3.6, 95\% CI 2.25-5.49, p<0.000) and less likely in self-reported HIV-negative respondents (AOR 0.14, 95\% CI 0.14-2.08, p=0.000).

Education level and employment status were not predictors of viral load knowledge.

Conclusions: Knowledge and understanding of viral load is low in South Africa. Understanding of viral load is concerning low in PLHIV. This is an immediate issue with a direct bearing on achieving the third 90. Additionally, young, HIV-negative men of low socio-economic status are the least likely to know what viral load is. This group also displays poor testing behaviour. Health system communication should be strengthened with a focus on PLHIV and other low-knowledge-high-risk groups to achieve the third-90 in South Africa.

WEPEE773

Need-based care to improve linkage to HIV services for female sex workers in Botswana

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Background: Antiretroviral therapy (ART) service delivery tailored for female sex workers (FSWs) helps improve retention and viral suppression by optimizing drug and care delivery. LINKAGES Botswana adopted a tailored approach for ART service delivery to enhance linkage to care and treatment for FSWs.

Description: From October 2016 to September 2017, LINKAGES Botswana has been providing integrated clinical services to FSWs through outreach at mobile clinics or drop-in centers using a one-stop-shop...
approach. HIV testing services (HTS) and ART services were offered in the same location, making it easy for those newly diagnosed with HIV to be immediately initiated on care and treatment. Baseline laboratory tests were requested for newly diagnosed HIV-positive FSWs, but clients were initiated on ART immediately. Patients stable on treatment received monthly prescriptions. Clinical visits were conducted every six months, with refills provided at the community level during outreach and at drop-in centers. Nonclinical staff at drop-in centers were trained to provide emergency refills for up to 14 days to anyone who had missed an appointment or traveled away from the base clinic. This allowed FSWs the flexibility of accessing treatment outside of normal working hours.

**Lessons learned:** By implementing the one-stop-shop approach and same-day initiation, there was a significant improvement in linkage to and initiation of ART among FSWs compared to the previous year. A total of 3,477 FSWs were reached with HIV prevention services October 2016-September 2017. More than 81 percent of those who were eligible for HIV testing and counseling were successfully linked to testing services (n=2,831), resulting in a 13 percent case-finding rate (n=358). Sixty-eight percent in n=242 of those who tested positive were successfully initiated on ART, demonstrating a 12 percent increase (p=0.003, CI 5.4-18.2) compared to the previous year (figure 3).

**Conclusions/Next steps:** Tailored HIV care and treatment services showed significant improvement in linking FSWs living with HIV to treatment. While this approach was highly successful among FSWs, efforts to link and retain key populations on treatment should be tailored by KP type. LINKAGES will expand this model across all Botswana sites in the remaining project period.

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**WEPEE774**

**Cut-off score of readiness to start antiviral therapy for patients newly diagnosed with HIV**


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**Background:** Since 2016, initiation of antiretroviral therapy (ART) after diagnosis regardless of CD4 counts is a global consensus. It is crucial to find an instrument to assess the readiness for early initiation of ART for people newly diagnosed with HIV. The study aims to compare the readiness between the patients receiving ART and those who have not yet on ART, to compare the readiness scores between two groups across 12 months, and to determine a cutoff value for medicine readiness with early initiation of ART.

**Methods:** A multicenter cohort study design was conducted and enrolled 297 newly diagnosed patients with HIV at four times: baseline, 1, 3-6, 9-12 months after ART initiation. Data collection included demographics, Chinese version of HIV Medication Readiness Scale (HMRS) and 2 items using 10-point Likert scale: readiness to take ART for a long time and confidence for adherence to ART.

**Results:** Overall, 224 (75.4%) patients with HIV initiated ART. The medicine readiness in patients with ART initiation was significantly increased across one year compared to non-ART user (p<0.01). The mean scores of the 2-items self-reporting readiness scale in patients with ART initiation were significantly higher than those without (p<0.01). The cut off value in HMRS, self-ratings readiness for ART, and confidence for adherence to ART were 23.5, 5.5, and 6.5-score, respectively.

**Conclusions:** The optimal cut off value of Chinese version HMRS for evaluating HAART initiation among persons with HIV infection was 23.5. HIV health care professionals can apply the Chinese version HMRS and two simple self-rating questions as a rapid clinical tool for assessing readiness of ART initiation among people newly diagnosed with HIV. Key Words: HIV, HAART initiation, HIV Medication Readiness Scale (HMRS).
**WEPEE776**

A descriptive analysis of call and text messaging communication between participants and healthcare providers

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**Background:** Mobile health (mHealth) is on the rise globally with recent research focused on use and outcomes. However, content and intensity analysis of SMS-based communication between patients and providers in resource-constrained settings is limited. We examined the frequency of call-backs, response time and duration, and reasons for calling in a sub-study of an ongoing randomized controlled trial on the effect of SMS on retention of persons living with HIV in Kenya.

**Methods:** We included five study sites in western Kenya between March 2015 and November 2017. Participants were ≥18 years with mobile phone access and randomized to the larger trial’s SMS arm. Participants received scheduled health messages and appointment reminders, and could call or text back to a study phone. Study nurses responded to the calls/texts. Call times and content were recorded in a standardized phone log. We compared the demographic characteristics of callers versus non-callers using Chi-square tests. We analyzed and described reasons for participant call/text message and response time of the study nurse.

**Results:** Of 626 participants, 66% were female. The median age was 31 years (inter-quartile range [IQR] 27–37). A total of 292 calls/texts were sent by 170 participants, at a rate of 1.4 calls per person-year among callers. There were no significant demographic differences between participants who called/texted and those who did not. The broad reasons for calls were: social/behavioural (47%), medical (15%), logistical (15%), other (15%), and two or more reasons combined (5%). See figure 1 for more details. The study nurse responded to 99% of calls/texts, with a median response time of 29.0 (IQR 6.0–75.0) minutes and a call length between nurse and participant of 1.0 (IQR 0.5–1.4) minutes.

**Conclusions:** Over one-quarter of participants used the SMS call back feature. Calling in 1-2 times a year. Nearly half called for social/behavioural reasons, primarily to appreciate message receipt. Provider response was rapid. This mHealth intervention appears to be well-received by patients utilizing it and response to patient needs was efficiently managed by providers. Further evaluation of communication content between the participants and providers would be helpful to understanding patient needs.

**WEPEE777**

'I hope I never have to go to the adult clinic': Clinic experiences of South African adolescents living with HIV

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**Background:** While South Africa has the largest antiretroviral treatment (ART) program in the world, only 4% of adolescents living with HIV (ALWH) are on ART and only 10% are currently virally suppressed. These concerning figures emphasize the urgent need to identify sociostructural factors that contribute to poor retention in HIV care and low rates of treatment adherence within this group. One significantly understudied factor that may impact treatment retention and adherence concerns the adolescent HIV clinic environment. The purpose of this study was to identify aspects of the clinic environment that either improve ALWH treatment retention and adherence, or that impede their ability to achieve positive healthcare outcomes.

**Methods:** Fifty-nine semi-structured, in-depth interviews were conducted to qualitatively determine how ALWHs’ experiences at HIV clinics either support or hinder their treatment retention and adherence. Next, we inquired about best practices in ALWH treatment retention and adherence. Participants were ALWH (n=20, 13-19 years of age), their caregivers (n=19), and local stakeholders (n=20) from Cape Town, South Africa. Data were coded and analyzed using inductive content analyses. We then grouped codes into positive and negative HIV clinic experiences, and into suggestions on how clinic practices could be improved to facilitate ALWH treatment retention and adherence.

**Results:** Perceived positive aspects of adolescent-serving HIV clinics included: clinic co-location within one’s community, familiarity with clinic staff, the benefits of adolescent-only clinics, and the availability of adolescent-friendly clinic spaces. Negative clinic aspects included too many clinic visits that lead to missing school or work regularly, overcrowding and long wait times, HIV-related discrimination and stigma from staff and other patients, clinic practices that lead to involuntary status disclosure, no flexibility in appointment scheduling, and negative staff attitudes.

**Conclusions:** ALWH’s clinic experiences could impact their ability to remain in HIV care and adhere to their treatment regimens. Such realities call for innovative approaches to the provision of ALWH services. Providers need to focus on improving their clinic experiences to enhance treatment retention and adherence.

**WEPEE778**

The sex worker virtual currency: Incentivizing peer educators to expand peer mobilization among female sex workers in Kisumu County, Kenya

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**Background:** Though peer education has proven effective in promoting behavior change among key populations (KPs), gaps remain in mobilizing KPs in Kenya to access HIV prevention interventions, a situation compounded by the decrease in global funding for HIV programming. We implemented a non-monetary incentive-based intervention—Sex Worker Virtual Currency (SWVC)—to motivate peer educators (PEs) to reach all peers in their cohort every quarter.

**Methods:** SWVC is a redeemable points system involving female sex worker (FSW) PEs at the Keeping Alive Societies’ Hope (KASH) drop-in centre (DIC) in Kisumu, Kenya. PEs were oriented on SWVC, and an outreach worker appointed as the SWVC manager. Redeemable points were awarded points daily based on uptake of HIV services. At the end of the intervention was entirely voluntary. The SWVC manager awarded points based on uptake of services. At the end of intervention, the three highest-scoring PEs redeemed their points for exchange visits to tourist beaches, shopping vouchers, and mobile phone airtime. Awards were based on discussions held with PEs. We used descriptive statistics to summarize SWVC outcomes.

**Results:** Twenty-one FSW PEs participated in SWVC from April to September 2017. Of the 1,748 FSW peers within their cohorts, 1,487 (85%) were enrolled into the bulk SMS system and thus received health information messages via a bulk SMS platform, (ii) took an initial and repeat HIV test at the DIC, and (iii) enrolled in national health insurance. Uptake within the intervention was entirely voluntary. The SWVC manager awarded points daily based on uptake of services. At the end of intervention, the three highest-scoring PEs redeemed their points for exchange visits to tourist beaches, shopping vouchers, and mobile phone airtime. Awards were based on discussions held with PEs. We used descriptive statistics to summarize SWVC outcomes.
WEPEE779
Linkage to care among HIV-infected female sex workers participating in project Shikamana in Iringa, Tanzania: A long and winding road

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Background: Implementation research to strengthen linkage to care, the foundation of test and treat approaches and the 90-90-90 goals, is urgently needed among key populations including female sex workers (FSW) who are less likely to access HIV care. Formative research conducted in Iringa, Tanzania identified multiple barriers to linkage including sex work-related stigma and discrimination. FSW led peer navigation was established to address such barriers within a Phase II trial of a community-based, combination HIV prevention intervention (Project Shikamana) with 496 FSW, (203 HIV+) in Iringa, Tanzania.

Methods: Ten peer navigators (PNs) were trained in supportive communication, disclosure, provider communication and motivational interviewing (MI) to address a mid-course lag in linkage. Each PN was assigned approximately 10 HIV+ FSW from the trial’s intervention community (n=102). In weekly meetings, PNs problem-solved around linkage barriers on a case-by-case basis and developed responsive strategies. PNs aimed for weekly contact with participants including calls, text reminders, meetings and clinic visits. PNs also participated in sensitivity trainings with providers.

Results: At 18-month follow-up, of 99 HIV+ participants approached by PNs (3 participants died before PNs initiated contact), 88 were linked vs. 24 at baseline (see graph). In month 1, 33 were linked. Ten women were linked in 10 months and then with the introduction of MI 21 more women were linked. Linkage barriers included stigma, misinformation about the importance of immediate ART uptake, low social support, practical and logistical concerns (e.g., lack of clinic familiarity, how to hide pills). Linkage often took months to achieve given individual readiness and structural factors. PNs observed that persistence and trust were essential to successful linkage.

Conclusions: For FSW in Iringa, Tanzania, linkage to care is a delicate, complex process that must address individual and structural barriers. Ongoing, context-driven problem solving including a mid-course training in MI were central elements in our approach.
THURSDAY 26 JULY

Oral Abstract Sessions

THAA0101

HIV genotyping and phylogenetics in the HPTN 071 (PopART) study: Validation of a high-throughput sequencing assay for viral load quantification, genotyping, resistance testing and high-resolution transmission networking

**Background:** Next-generation sequencing has been transformative to molecular epidemiology of viruses, though technical complexities have slowed adoption in clinical settings. We developed a quantitative genotyping method optimised for a large-scale HIV phylogenetic study linked to the HPTN 071 (PopART) cluster-randomised trial of antiretroviral treatment as prevention in Zambia.

**Methods:** To date, 4319 HIV-positive patients (ART-naive or >1 year since last ART) from 9 health care facilities have consented to viral sequencing using residual blood from CD4 testing collected at recruitment. Nucleic acid extracted from 0.5 ml plasma from 292 male and 357 female HIV-infected participants was used to produce sequencing libraries without virus-specific PCR. Oligonucleotide-baits, designed to capture the full HIV epidemic diversity enriched libraries for sequencing on MiSeq (Illumina) and portable MinION (Oxford Nanopore) sequencers. Optimizations focused on the simplest, most cost-effective means of maximizing numbers of unique viral RNA templates, including samples with low viral load, while preserving quantitative information and minimizing over-sampling of short-RNA fragments. Merged paired-end reads were assembled using SHIVER, depleted of PCR-duplicates and contaminants, then submitted for high-resolution transmission-mapping (phyloscanner) and drug resistance profiling (HIVdb, Stanford). Quantitative sequencing controls were used to estimate viral load. Clinical viral loads were obtained for a random subset of samples (n=126) for cross validation.

**Results:** Whole genomes were obtained (with minimum depth of 5x) for 80% of all samples and for 97% of samples with clinical viral load >1000 copies per ml (fg A). Sequence-based viral load correlated with clinical viral load (R2 = 88%) and n=126, fg B). By minimizing PCR-amplification of short fragments, a median of 49% of inserts were longer than 350 b.p providing sufficient phylogenetic resolution to assess intrahost diversity, identify transmission pairs and potentially estimate recency of infection. The total processing time from RNA extraction to sequencing can be completed in 48 hours per batch of 90 samples.

**Conclusions:** Our novel laboratory and informatics pipeline provides robust viral genetic, viral load, and minority variant information. Processing times, cost and capabilities for handling low viral load samples are highly-competitive compared to routine viral load or polymerase drug resistance testing and suitable for clinical use.

**Quantitative sequencing of HIV**
HIV-1 exposure enhances sexual transmission of hepatitis C virus by human mucosal Langerhans cells

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Background: Sexual transmission of Hepatitis C Virus (HCV), until recently, was thought to be rare. However, there has been a significant rise in the incidence of HCV infection among HIV-infected men-who-have-sex-with-men (MSM) and studies suggest that HCV can be sexually transmitted within this population. The mechanisms underlying this sexual transmission are unclear. Syndecans, a family of cell surface heparan sulfate proteoglycans, have been shown to act as attachment receptors to transmit viruses.

In this study, we investigated the role of Syndecans on LCS in HCV infection and transmission. We hypothesized that HIV-1 replication in HCV-infected MSM leads to mucosal changes that alter HCV entry and subsequent dissemination to hepatocytes via Syndecan-4 on activated LCS.

Methods: Therefore, we analyzed the immune cells within mucosal anal biopsies from HIV-1 infected MSM individuals as a potential entry route for HCV during sexual contact. We investigated the role of LCS in HCV infection and transmission using human primary isolated LCS and the ex vivo tissue transmission model.

Results: Notably, we detected Langerhans cells (LCS) within the mucosal anal tissue. Immature LCS were neither infected nor transmitted HCV to hepatocytes in vitro and ex vivo. As sexual transmission is mostly observed within HIV-1 infected individuals, we pre-exposed tissues with HIV-1 and, strikingly, HIV-1 pre-exposure significantly increased HCV transmission by LCS. Active HIV-1 replication is crucial for the increased HCV transmission as treating ex vivo tissue with HIV-1 replication inhibitors significantly decreased HIV-1-induced HCV transmission. Activation of LCS did not lead to infection by HCV but these activated LCS, in contrast to immature LCS from same donor, were efficient in transmitting HCV to hepatocytes. Notably, B cell-line expressing Syndecan-4 in contrast to other Syndecans was very efficient in transmitting HCV. Furthermore, silencing of Syndecan-4 on activated LCS decreased HCV transmission.

Conclusions: Thus, our data strongly suggest that HIV-1 replication in mucosal tissues in HIV-1 infected MSM, changes LCS function, allowing Syndecan-4 to capture and subsequently transmit HCV to hepatocytes. This novel transmission mechanism by LCS implicates also the activation state of LCS is an important determinant for HCV susceptibility after sexual contact.

THAA0104
Prophylactic and therapeutic efficacy of broadly neutralizing antibody PGDM1400 against HIV-1 in humanized mice

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Background: Broadly neutralizing antibodies (bNAbs) show promise as prophylactics and therapeutics against HIV-1 in humans. The introduction of new approaches in B cell isolation reinvigorated the field and led to identification of unusually broad and potent bNAbs. One example is PGDM1400, which neutralizes around 83% of virus strain, and at very low concentrations, making it a very attractive antibody for prophylactic and therapeutic applications.

Methods: A hu-HSC NSG mouse model, which has the complete human immune system, was used to study the protective and therapeutic efficiency of the bNab PGDM1400. Mice were passively immunized (i.v.) with different concentration of PGDM1400 and challenged high dose i.p. with HIV-1 JRCSF 24 hours later. In a second experiment mice were infected with viruses from clades A, B or C (HIV-1BG505, HIV-1BG505, HIV-1BG505, HIV-1BG505 or HIV-1BG505) and 12 weeks later, a high dose of PGDM1400 was given (i.v.) once a week for 4 weeks. Viral populations were sequenced before and after the administration of PGDM1400.

Results: In the passive immunization study, all animals in the 10 mg/kg and 3 mg/kg groups, and 4 out of 7 animals in the 1 mg/kg group had undetectable levels of viral RNA, while all animals of the PBS group and the antibody control group had highs levels of viral RNA 7 days after challenge. Subsequently, PGDM1400 administered during chronic infection, caused a modest decrease in viral load and also an increase in CD4 T cell counts in the first 1-2 weeks of administration in some animals, however these levels did not persist, suggesting that the virus escaped from PGDM1400, quickly after administration of the antibody. This was confirmed by the sequence analysis of the viral population after PGDM1400 therapy.

Conclusions: We showed that PGDM1400 is a promising component of a future prophylactic to prevent HIV-1 infection. In agreement with studies on other bNAbs, PGDM1400 monotherapy did not fully suppress chronic HIV-1 infection for a prolonged period, however considering that PGDM1400 is one of the most potent and broad bNAbs known, it can be an important component in therapeutic combination of different bNAbs.

THAA0105
A single dose of anti-HIV-1 antibodies can protect macaques from repeated mucosal SHIV exposures for 6 months

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Background: In the absence of an effective and safe vaccine against HIV-1, the administration of broadly neutralizing antibodies (bNAbs) represents a logical alternative approach to prevent virus transmission. bNAbs are capable of neutralizing most circulating strains, targeting different non-overlapping epitopes on the HIV-1 envelope spike.
Methods: We introduced two amino acid mutations (M428L and N434S) into the Fc domains of the highly potent HIV-specific 3BNC117 and 10-1074 mAbs to increase their half-lives and evaluated their efficacy in blocking infections following repeated low dose mucosal challenges of rhesus macaques with the Tier 2 SHIV-89.6P. The protective efficacy of 3BNC117-LS or 10-1074-LS was assessed following a single intravenous infusion of each mAb (20 mg/kg body weight) to 6 animals. The macaques were challenged beginning one-week after mAb administration, and, in addition to viral RNA, we measured serum mAb concentrations, anti-SHIV-neutralizing titers, and anti-bNAb responses.

Results: The most striking result obtained in this study was the long period of protective efficacy conferred by a single injection of Fc-modified human anti-HIV-1 neutralizing antibodies in macaques compared to the previous studies. A single intravenous infusion of 10-1074-LS mAb markedly delayed virus acquisition for 18 to 37 weeks (median = 27 weeks) whereas the protective effect of the 3BNC117-LS mAb was more modest (protection for 11 to 23 weeks; median = 17 weeks). Serum concentrations of the 10-1074-LS mAb gradually declined and became undetectable in all recipients between weeks 26 to 41 whereas the 3BNC117-LS mAb exhibited a shorter half-life. To model immunophenotyping against genetically diverse and/or neutralization-resistant HIV-1 strains, a combination of the 3BNC117-LS plus 10-1074-LS mAbs was injected into macaques by the more clinically relevant subcutaneous route. Even though nearly 3-fold less of each mAb in the mixture was administered, compared to the amount of single mAb injected in the intravenous infusions, the mAb combination still protected macaques for a median of 20 weeks.

Conclusions: The extended period of protection observed in macaques for the 3BNC117-LS plus 10-1074-LS combination could translate into an effective semi-annual or annual immunophenotyping regimen for preventing HIV-1 infections in humans.

Results: Compared to US subjects, Ugandans were older (mean age 56 vs. 52 years), had higher cholesterol (mean fasting cholesterol 216 vs. 176 mg/dL), more diabetes (36 vs. 3%), and more hypertension (18 vs. 16%); but were less likely to be male (38 vs. 74%), smokers (4 vs. 95%) or statin users 16 vs. 13%; all p < 0.01. Ugandan PLWH had lower current CD4+ (mean 570 vs 675, p = 0.015), but similar nadir CD4+ compared to US PLWH. The unadjusted prevalence of CAC>0 was higher in the US vs. Uganda and among PLWH vs. uninfected controls (Figure). After adjustment for HIV serostatus, age, sex, and traditional risk factors, Ugandans had over 13x lower odds of CAC>0 (p < 0.001). In multivariable-adjusted models, soluble intercellular adhesion molecule (p = 0.044), soluble CD163 (p = 0.004), and oxidized LDL (p = 0.043) were each associated with CAC>0 among Ugandans. Soluble CD163 and oxidized LDL remained associated (p < 0.026 in models of Ugandan PLWH that further adjusted for PI use and current CDA). Among all PLWH (n = 267), nadir CD4+ was the only HIV-specific variable associated with CAC>0 in adjusted models.

Conclusions: Despite a high burden of risk factors, this Ugandan cohort of PLWH and controls had substantially lower rates of calcified coronary plaque compared to a US cohort. Lower nadir CD4+ count and higher systemic levels of inflammation and immune activation were associated with CAC>0.

THAB01 Non-communicable diseases: Continued challenges

THAB0101

Low prevalence of calcified coronary plaque among Ugandans with and without HIV infection: Comparison with a United States cohort and associations with biomarkers of inflammation

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Background: Little is known about subclinical coronary disease among people living with HIV (PLWH) in sub-Saharan Africa. We sought to compare prevalence of calcified coronary plaque between people with and without HIV in Uganda and the United States, and to explore associations with HIV-specific factors and biomarkers.

Method: 100 Ugandan PLWH on antiretroviral therapy over 40 years old were prospectively age- and sex-matched to 100 HIV-uninfected controls. All had 21 major cardiovascular risk factor (hypertension, diabetes, smoking, or high cholesterol). Coronary artery calcium (CAC) scores were obtained from gated non-contrast computed tomography scans of the heart. Biomarkers were measured from cryopreserved plasma. Ugandan subjects were compared to PLWH on antiretroviral therapy (n=267) and uninfected controls (n=263) over 40 years old from a research database in Cleveland, USA.

Results: We compared US subjects, Ugandans were older (mean age 56 vs. 52 years), had higher cholesterol (mean fasting cholesterol 216 vs. 176 mg/dL), more diabetes (36 vs. 3%), and more hypertension (18 vs. 16%); but were less likely to be male (38 vs. 74%), smokers (4 vs. 95%) or statin users 16 vs. 13%; all p < 0.01. Ugandan PLWH had lower current CD4+ count and higher nadir CD4+ compared to US PLWH. The unadjusted prevalence of CAC>0 in the US was higher than in Uganda and among PLWH vs. uninfected controls (Figure). After adjustment for HIV serostatus, age, sex, and traditional risk factors, Ugandans had over 13x lower odds of CAC>0 (p < 0.001). In multivariable-adjusted models, soluble intercellular adhesion molecule (p = 0.044), soluble CD163 (p = 0.004), and oxidized LDL (p = 0.043) were each associated with CAC>0 among Ugandans. Soluble CD163 and oxidized LDL remained associated (p < 0.026 in models of Ugandan PLWH that further adjusted for PI use and current CDA). Among all PLWH (n = 267), nadir CD4+ was the only HIV-specific variable associated with CAC>0 in adjusted models.

Conclusions: Despite a high burden of risk factors, this Ugandan cohort of PLWH and controls had substantially lower rates of calcified coronary plaque compared to a US cohort. Lower nadir CD4+ count and higher systemic levels of inflammation and immune activation were associated with CAC>0.

THAB0102

Cardiac chamber abnormalities and left ventricular mass in people living with HIV and matched uninfected controls assessed by multidetector computed tomography

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Background: People living with HIV (PLWH) have increased risk of cardiovascular disease (CVD). Previous studies using echocardiography have reported higher prevalence of cardiac abnormalities including left atrial enlargement, left ventricle dysfunction, right ventricle dilatation and greater left ventricular mass in PLWH. Multidetector computed tomography (MDCT) allows a precise estimate of cardiac chamber volumes. We aimed to assess cardiac structural abnormalities and factors associated with cardiac abnormalities in PLWH and uninfected controls using MDCT.

Methods: A total of 592 PLWH from the Copenhagen co-morbidity in HIV-infection (COCOMO) study and 1168 age and sex matched uninfected controls from the Copenhagen General Population Study were included. Left atrial volume (LAV), left ventricular diastolic volume (LVDV), right ventricular diastolic volume (RVDV) and left ventricular mass (LVM) were assessed with semi-automated MDCT software and indexed by body surface area (LAVI, LVDVI, RVDVI and LVMI). Linear regression
models adjusted for demographic variables (model 1) and additionally for cardiac risk factors (model 2) were used to assess association between HIV and MDCT dimensions.

Results: Most PLWH were men (88.2%) with mean (SD) age 53.7 (8.8) years, and had undetectable viral replication (96.1%) and CD4 count ≥ 500 cells/mL (77.0%). PLWH had smaller mean (SD) LAVi (40mL/m² (8) vs. 41mL/m² (8); p< 0.001) than uninfected controls. After adjustment for age, sex, body mass index, ancestry, smoking pack-years, systolic blood pressure, high density lipoprotein, low density lipoprotein, triglyceride and non-fasting blood glucose, HIV was associated with -6mL (95%CI: -10; -3) larger LVDV and 3mL larger RVDV (95%CI: 0; 5). Finally, CD4 nadir (per 100cells/mL) was associated with 2 mL larger LVM. 

Conclusions: HIV was independently associated with smaller LVDV, larger RVDV and greater LVM. However, absolute differences were small and no major structural cardiac abnormalities were found in a well-treated population of PLWH. Thus, the clinical impact is uncertain, and it is unlikely that structural cardiac abnormalities explain the increased risk of CVD previously observed in PLWH.

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THAB0103

HIV infection independently increases the risk of developing heart failure: The HIV HEART study

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Background: HIV infection has been associated with excess atherosclerotic events, but limited data exist about its link to developing heart failure (HF) and validated contributing factors. In a large, multi-institutional, community-based population, we evaluated the independent association of HIV infection with incident HF.

Methods: Within 3 large U.S. integrated healthcare delivery systems, we identified all eligible HIV+ adults (≥21 years) between 2000-2016 without prior HF and frequency-matched up to 101 to HIV- subjects without prior HF based on entry year, age (±1 year), gender, race, and primary treating facility. Through 2016, we identified cases of incident HF through a series of multivariable Cox regression models that sequentially adjusted for: health system and calendar era, demographics, lifestyle factors, cardiovascular history, other comorbidities, and cardioprotective and other medication use. In the final model, we adjusted for acute coronary syndrome events during follow-up as a potential explanatory variable.

Results: We identified 38,868 HIV+ and 386,686 matched HIV- adults during the study period. HIV+ patients were more likely to have low neighborhood-level educational attainment and household income, prior cancer, dementia or depression but less likely to have prior cardiovascular conditions or cardiovascular risk factors. The rate (per 100 person-years) of incident HF was higher in HIV+ (0.24, 95%CI:0.22-0.26) vs. matched HIV- (0.16, 95%CI:0.15-0.16) patients (P< 0.0001) (Figure). In multivariable analyses, HIV infection was associated with an increased rate of developing HF that strengthened after serial adjustment for demographic characteristics; cardiovascular and medical history; and cardioprotective medication, antiplatelet therapy and NSAID use, with an 75% increased rate in the fully adjusted model (Table, Models 1-3). Further adjustment for acute coronary syndrome events during follow-up only modestly attenuated the association of HIV infection with incident HF (Model 4).

<table>
<thead>
<tr>
<th>HIV+ vs. HIV-</th>
<th>Adjusted Hazard Ratio (95% CI) for HIV+ vs. HIV-</th>
<th>Entry Year and Demographics</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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<tbody>
<tr>
<td>Health System</td>
<td>Cardioprotective and Non-Coronary Cardiovascular History</td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
<td>Model 4</td>
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<tr>
<td>Model 1 + Cardiovascular Index</td>
<td>Model 2 + Cardioprotective Medications, Antiplatelet therapy and NSAIDs</td>
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<tr>
<td>Model 3 + Acute Coronary Syndrome Events During Follow-Up</td>
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<tr>
<td>Adjusted Hazard Ratio (95% CI) for HIV+ vs. HIV-</td>
<td>1.54 (1.40-1.69)</td>
<td>1.66 (1.54-1.86)</td>
<td>1.75 (1.59-1.93)</td>
<td>1.66 (1.50-1.83)</td>
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</table>

Conclusions: HIV infection independently increases the risk of developing HF and this excess risk does not appear to be mediated through atherosclerotic disease pathways or differential use of cardioprotective therapies.

THAB0104

Malignancy and all-cause mortality: Incidence in teenage young adults living with perinatally acquired HIV

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Background: The incidence of malignancy between 10-24 years of age in the general UK population is 0.2/1000 person-years. Adults living with HIV have an increased risk of malignancy yet there is a paucity of data for teenage young adults (TYA) living with perinatally acquired HIV (PaHIV).


Results: 290 TYAPA HIV contributed 2544 person-years of follow up. 2/290 (0.7%) were lost to follow-up, 14/290 (4.8%) transferred care and 6/290 (2.0%) died within the study period at a median age of 17 years.
inter-quartile range (IQR) 15-19). Cause of death: 3 with malignancy (non-Hodgkin’s lymphoma, hepatocellular carcinoma (HCC), gastrointestinal adenocarcinoma), 2 with end stage HIV with poor adherence to antiretroviral therapy (ART) and 1 with cryptococcal meningitis. Overall mortality rate was 2.3/1000 person-years, 9.4 times the age-matched general population incidence rate (IRR) 9.4, 95% confidence interval (CI) 3.4-20.4, p < 0.0001. B/290 (2.8%) were diagnosed with a malignancy aged 10-24 years; 7/8 males; 6 with lymphoma (3 Hodgkin’s, 1 Burkitt’s, 2 B-cell) and one each with HCC and gastrointestinal adenocarcinoma. At cancer diagnosis the median age was 19 years (IQR 14-23), median CD4 count 453 cells/μL (IQR 231-649) and 4/7 had undetectable HIV viral load (< 50 copies/mL). Median length of HIV viraemia pre-cancer diagnosis was 15 years (IQR 12-17). 4/6 lymphomas presented with advanced disease (Ann Arbor stage III/IV). The incidence of a malignancy was 3.0/1000 person-years in TYAPAHIV, IRR to the age-matched general population 12.9 (95% CI 5.6 - 25.5, p < 0.0001), driven by lymphomas (IRR 44.2, 95% CI 36.1 - 96.7, p < 0.0001).

Conclusions: In this cohort, TYA living with PaHIV had nearly a ten-fold increased risk of all-cause mortality and of malignancy compared to their uninfected peers, with the excess in malignancy driven by lymphomas. It is hoped that earlier access to antiretroviral therapy will mitigate some of the risk for future generations.

### THAB0105

**Increased risk of both mortality and incident comorbidity among frail HIV-positive and HIV-negative participants in the AGEhIV Cohort Study, and increased risk of frailty progression in those with HIV**

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**Background:** Frailty is associated with morbidity and mortality in the general geriatric population. We assessed both the impact of frailty on mortality/incident comorbidity risk and factors associated with frailty progression.

**Methods:** Longitudinal data from 598 people living with HIV (PLWH) and 550 demographically comparable HIV-uninfected AGEhIV Cohort Study participants were analyzed (Table). The presence of ≥5 criteria among 5 of 20 (age, years ≥50; low physical activity, exhaustion, decreased grip strength, and slow gait speed); defined frailty. Impact of time-updated frailty status on all-cause mortality in all, and on incident comorbidity among those (497 HIV-positive and 479 HIV-negative) contributing ≥1 frailty status on all-cause-mortality in all, and on incident comorbidity (including ≥3 criteria among 5 of 20) were analyzed (Table). The presence of ≥3 criteria among 5 of 20 participants was associated with frailty progression.

**Results:** Among HIV-positive and HIV-negative participants respectively, 85 and 34 percent were frail, and during 4,423 person-years of follow-up (PYFU) 12 and 5 persons died, for an all-cause mortality rate of 5/2/1000 and 3/8/1000 PYFU. Time to death was shorter among frail persons. Adjusted for HIV-status, age and number of pre-existing comorbidities, frailty was independently associated with mortality (hazard ratio: 1.23, 95%CI: 1.45-3.33) and incident comorbidities were diagnosed among 307 participants. Adjusted for HIV-status, age, gender, ethnicity, education and number of pre-existing comorbidities, frail participants had higher odds of developing ≥1 comorbidity (OR 1.93, 95%CI: 1.15-3.32). No interaction was found between frailty and HIV-status on mortality or incident comorbidity risk.

In the subset of 488 participants, 60 demonstrated frailty progression. HIV-status was associated with frailty progression (OR 2.2, 95%CI: 1.3-3.8), partly mediated by higher waist-to-hip ratio (WHR), comorbidity burden and depression.

**Conclusions:** Frailty was a strong predictor of mortality and incident comorbidity, regardless of HIV-status. Frailty was more prevalent among PLWH and HIV-status was associated with frailty progression, which was partly mediated by higher WHR and pre-existing comorbidity burden and depression. These results provide guidance to clinicians in recognizing patients at risk for developing frailty and associated adverse health outcomes, and the importance of maintaining physical and mental health.

**Abstracts**

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**Part A:** Population analyzed for mortality and incident comorbidity.

**Part B:** Population analyzed for frailty progression (284 HIV-uninfected contributing to 442 visit-pairs and 204 HIV-infected contributing to 354 visit-pairs)
THAB02 HIV and the liver

THAB0201
Effectiveness of hepatitis A virus (HAV) vaccination among people living with HIV during an hepatitis A outbreak in Taiwan, 2015-2017

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Background: Outbreaks of hepatitis A virus (HAV) infection have re-emerged among men who have sex with men (MSM) across the Asia-Pacific region, the United States, and several European countries since 2015. The suboptimal response to HAV vaccine among MSM living with HIV in Taiwan, 2015-2017, and measured the effectiveness of HAV vaccine in this population.

Methods: We developed a mathematical model of HAV transmission to estimate the basic reproductive number ($R_0$) of HAV in this outbreak. A case of acute hepatitis A was defined as a documented positive anti-HAV IgM in an HIV-positive patient who presented with clinical symptoms, elevated aminotransferases, or jaundice. We conducted a 1:4 nested case-control study to assess the effectiveness of HAV vaccine in MSM living with HIV.

Results: Given 30% of HIV-positive patients having mild symptoms after acquiring acute hepatitis A, we estimated the $R_0$ of HAV was as high as 6.37 in this outbreak. During study period (from June 1, 2015 to June 30, 2017), 55 cases of acute hepatitis A occurred among 1533 initially HAV seronegative HIV-positive patients. All case patients were MSM with a median age of 30 years and baseline CD4 count of 545 cells/µL, and 60% had recent syphilis within 6 months prior to the onset of acute hepatitis A. HAV vaccination protected recipients from acute hepatitis A (adjusted odds ratio, 0.03; 95% CI, 0.001-0.12), with an overall vaccine effectiveness of 97.4% (Table). The effectiveness of single dose and two doses of HAV vaccine was 96.1% and 99.7%, respectively. This high personal-level vaccine effectiveness in MSM living with HIV might explain the rapid control of this hepatitis A outbreak in Taiwan (Figure).

Conclusions: Our findings strongly support the implementation of HAV vaccination to control hepatitis A outbreak among MSM living with HIV.

<table>
<thead>
<tr>
<th></th>
<th>Univariable analysis</th>
<th>Multivariable analysis</th>
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<tbody>
<tr>
<td></td>
<td>Odds ratio (95% CI)</td>
<td>P value</td>
</tr>
<tr>
<td>At least one dose of HAV vaccination</td>
<td>0.04 (0.01-0.13)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age, per 1 year increase</td>
<td>1.53 (0.63-3.70)</td>
<td>0.349</td>
</tr>
<tr>
<td>HBsAg positivity</td>
<td>1.28 (2.7-4.98)</td>
<td>0.913</td>
</tr>
<tr>
<td>Anti-HCV positivity</td>
<td>2.03 (0.58-6.57)</td>
<td>0.302</td>
</tr>
<tr>
<td>Receiving cART at baseline</td>
<td>1.19 (0.52-2.70)</td>
<td>0.685</td>
</tr>
<tr>
<td>CD4 count at baseline, per 1-cell/mm3 increase</td>
<td>0.999 (0.998-1.001)</td>
<td>0.316</td>
</tr>
<tr>
<td>PVL, at baseline, per 1-log10 copies/mL increase</td>
<td>1.03 (0.86-1.21)</td>
<td>0.710</td>
</tr>
<tr>
<td>Syphilis during follow-up</td>
<td>3.93 (2.04-7.60)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Factors associated with acquiring acute hepatitis A

THAB0202
Less severe but prolonged course of acute hepatitis A in HIV-positive patients than HIV-negative patients during an outbreak: A multicenter observational study

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Background: This multicenter retrospective cohort study aimed to compare the clinical presentations and evolution of acute hepatitis A (AHA) between HIV-positive patients and HIV-negative counterparts during the AHA outbreak.

Methods: Information on the demographics, clinical presentations, serial laboratory data, and abdominal imaging were collected from the medical records of the patients who received a diagnosis of AHA at the 14 designated hospitals for HIV care around Taiwan between May 2015 and May 2017.

Results: A total of 297 adult patients with AHA were included during the 2-year study period. With a mean age of 31.4 years (range, 19.0-76.1), 93.4% were males and 58.6% MSM. Of 265 patients with known HIV serostatus, 166 (62.6%) were HIV-positive. Compared with HIV-negative patients, HIV-positive patients had a lower peak alanine aminotransferase (ALT) level (median, 1312 vs 2014 IU/L, p=0.012), less coagulopathy (6.0% vs 16.2%, p=0.007), less hepatomegaly or splenomegaly on imaging studies, but delayed resolution of hepatitis (40.5% vs 21.3%, p=0.005). In the subgroup analysis, HIV-positive patients with good HIV viral suppression (plasma RNA load [PVL] < 1000 copies/ml) by combination antiretroviral therapy (cART) had a higher peak ALT level (median, 1420 vs 983 IU/L, p=0.021) and less delay in resolution of hepatitis (22.6% vs. 53.0%, p=0.001) than patients without cART or with higher PVL.

Conclusions: During an AHA outbreak, we found that HIV-positive patients had a lower severity, but delayed resolution of AHA than HIV-negative patients. Receipt of cART with better viral suppression alleviated the impact of HIV infection on the clinical manifestations of AHA in HIV-positive patients.
THAB0203
Shared HCV transmission networks among HIV-1 positive and HIV-1 negative men having sex with men in Paris

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1 Sorbonne Université, INSERM, Institut Pierre Louis d’Épidémiologie et de Santé Publique (iPLESP), AP-HP, Hôpital Pitié-Salpêtrière, Laboratoire de Virologie, Paris, France. 2 Service de Santé Publique, Hôpital Saint-Louis, Assistance Publique Hôpitaux de Paris, Paris, France. 3 INSERM UMR 941, Université Paris Diderot, Sorbonne Paris Cité, Paris, France. 4 Sorbonne Université, INSERM, Institut Pierre Louis d’Épidémiologie et de Santé Publique (iPLESP), AP-HP, Hôpital Pitié-Salpêtrière, Services de Maladies Infectieuses et Tropicales, Paris, France. 5 INERM S2CA, Villejuif, France. 6 Saint-Antoine Hospital, Assistance Publique-Hôpitaux de Paris, Paris, France. 7 Cerballiance Laboratoire, Paris, France. 8 Hôpital Tenon, APHP Université Pierre et Marie Curie, Department of Infectious Diseases, Paris, France. 9 Maladies Infectieuses, Hôpital Saint-Louis, Assistance Publique-Hôpitaux de Paris, Paris, France

Background: Infection of acute hepatitis C (AHC) among men having sex with men (MSM) has become an outbreak in several high-income countries from 2000. Several studies reported existence of specific HCV transmission network among MSM communities in Europe and especially a spread of HCV strains from HIV-HCV co-infected MSM toward HIV mono-infected MSM. We aimed to characterize HCV transmission clusters in HIV positive and HIV negative MSM communities in Paris region by ultra-deep sequencing (UDS).

Methods: Illumina (Miseq) deep-sequencing of NS5B fragment was performed on plasma samples of 50 AHC HIV-positive and 18 AHC HIV-negative individuals including 13 from the PreP HERGAY ANRS study. UDS data were analysed by Geneious (version 10.1.3). Phylogenetic trees were realized using Fasttree 2.1 and local support value of > 80% was chosen to define a robust tree. Trees were submitted to ClusterPicker (version 1.2.3) to determine transmission cluster at different thresholds of maximum genetic distance (MGD). We compared results of Sanger at 3%, UDS at 3%, and at 4.5% of MGD.

Results: Of 68 acute hepatitis C patients, 15 were cases of recontamination. HCV genotyping showed genotype 1a (47%), 4d (41%), 3a (9%), and 2k (13%). Sanger at 3%, UDS at 3% and at 4.5% of MGD allowed detection of 10, 17, and 18 clusters, respectively. By UDS, more clusters were detected but fewer subjects (median: 2 subjects) were identified within each cluster than Sanger did (median: 3 subjects). Furthermore, mixed clusters including HIV-positive and HIV-negative MSM were observed in 8/10 clusters by Sanger, in 10/17 by UDS at 3% and in 10/18 by UDS at 4.5% of MGD. Overall, the number of HIV-negative individuals clustering with HIV-positive ones was 8/18 by Sanger, 8/18 by UDS at 3%, and 9/18 by UDS at 4.5% of MGD.

Conclusions: By Sanger or UDS, our study allowed the detection of HCV transmission clusters in MSM communities in Parisian region. Particularly in this population, the HIV-positive MSM shared the HCV transmission network with HIV-negative MSM, which in turn alerts the public health for surveillance and prevention measures in these communities, regardless of their HIV status.

THAB0204
Will hepatitis C transmission be eliminated by 2025 among HIV-positive men who have sex with men in Australia?

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Background: Australia was among the first countries to offer universal access to direct-acting antiviral (DAA) therapy for hepatitis C virus (HCV) to HIV-positive men who have sex with men (MSM). Rapid scale-up of DAA therapy has been ongoing in Australia since 2016 and has the potential to interrupt HCV transmissions. However, concerns have been raised that behavioural changes may counterbalance the effect of treatment. We assessed the potential effect of treatment and risk behavioral changes on HCV incidence among HIV-positive MSM up to 2025.

Methods: Mathematical model of HCV transmission parameterized with Australian data collected between 2000 and 2016. The model was set to reproduce observed data and to assess the future impact of a range of changes in behavior that facilitate HCV transmission (i.e. high-risk sex and injecting drug use-IDU) in the context of increasing and decreasing rates of DAA use. Baseline DAA-treatment rate was based on data from the Control and Elimination within Australia of Hepatitis C from people living with HIV (CEASE) study.

Results: The Figure summarizes model outcomes. If the rate of DAA use increased from 65%/year among eligible patients in 2016 to 100%/year by 2025, HCV incidence would drop from 37/100 person-years (py) in 2016 to 0.4/100py by 2025 providing rates of risk behavior remained at current levels (20% and 45% for IDU and high-risk sex respectively). Even in the setting of substantial increases in the rates of high-risk sex and IDU (e.g. 90% and 85%) HCV incidence would drop to 0.8/100py. Moreover, if treatment rate remains stable after 2016, incidence would also drop regardless of risk behavior (results not shown in the Figure). Conversely, HCV incidence only increased from that in 2016 when rates of IDU also increased substantially (above 65%) alongside a drop in DAA use (to 20% by 2025).

Conclusions: The model suggests that HCV transmission among Australia’s HIV-positive MSM population will continue, but decline substantially with DAA treatment upscale, even in the context of increased risk behaviour. If treatment rate continues to increase, by 2025 Australia could meet the 80% reduction goal formulated by the WHO.
**THAB0205**

HIV infection is an independent risk factor for liver steatosis: A study in HIV mono-infected patients compared to uninfected paired controls and associated risk factors

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**Background:** Several studies have been reporting the burden of metabolic liver disease in HIV-infected individuals. However, the impact of HIV infection on prevalence of liver steatosis and associated risk factors still lack. We aimed to evaluate the prevalence and factors associated with liver steatosis in HIV mono-infected patients compared to uninfected subjects paired for confounding factors.

**Methods:** 649 HIV mono-infected patients from the INI-ELSA cohort were eligible. To test the association of HIV infection with steatosis, non-infected subjects from the Brazilian Longitudinal Study of Adult Health (ELSA-Brasil) cohort (n=15,087) were paired by demographic, metabolic, and inflammatory characteristics. Nearest neighbor matching with a 0.05 matching and the ones used in the final model for risk factors for steatosis: a study in HIV mono-infected patients were selected through a genetic algorithm that searched for the best model fit. Fatty Liver Index (FLI) was calculated as previously validated (Bedogni BMC-Gastroenterology 2006) and inflammatory characteristics. Logistic regression analysis was performed to assess risk of steatosis in HIV-patients compared to controls and to identify factors associated with fatty liver in HIV-infected individuals.

**Results:** HIV-patients (58% male; median (IQR) age: 46 (36-56) years; body mass index (BMI):24.4 (21.9-27.5) Kg/m²; 33% with metabolic syndrome) were paired with 333 uninfected controls, with good balance on demographic and clinical characteristics between patients and controls. HIV infection was an independent factor associated with liver steatosis (OR:2.1 (95%CI 1.44-2.95), p<0.001). In a multivariate analysis with all HIV patients included, the following variables were independently associated (OR 95%CI) with presence of steatosis: male gender [5.36 (2.41-11.94)]; Black/Pardo ethnicity [0.22 (0.09-0.55)]; hypertension [2.56 (1.25-5.26)]; diabetes [5.79 (2.86-13.6)]; dyslipidemia [2.57 (1.27-5.21)]; BMI [1.91 (1.67-2.18)]; CD4 count [per cell/mm3] 1.13 (1.01-1.27) and cumulative HIV viral load [1.25 (1.02-1.54)].

**Conclusions:** HIV-infected individuals had 2-fold higher odds for presence of steatosis compared to uninfected paired controls. Traditional and HIV-specific risk factors were also associated with steatosis. Prevention of metabolic factors should be integrated to HIV care to decrease the burden of liver diseases in HIV-infected individuals.

<table>
<thead>
<tr>
<th>HIV mono-infected (n=649)</th>
<th>OR (95%CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male gender (yes vs no)</td>
<td>5.36 (2.41-11.94)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Black/Pardo ethnicity (yes vs no)</td>
<td>0.22 (0.09-0.55)</td>
<td>0.001</td>
</tr>
<tr>
<td>Hypertension (yes vs no)</td>
<td>2.56 (1.25-5.26)</td>
<td>0.010</td>
</tr>
<tr>
<td>Type 2 diabetes (yes vs no)</td>
<td>5.79 (2.86-13.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Dyslipidemia (yes vs no)</td>
<td>2.57 (1.27-5.21)</td>
<td>0.009</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>1.91 (1.67-2.18)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Poor health management (yes vs no)</td>
<td>0.36 (0.17-0.79)</td>
<td>0.011</td>
</tr>
<tr>
<td>CD4 count (per 100 cells/mm3)</td>
<td>1.13 (1.01-1.27)</td>
<td>0.036</td>
</tr>
<tr>
<td>Cumulative HIV viral load (per 10 log copies/mm3)</td>
<td>1.25 (1.02-1.54)</td>
<td>0.031</td>
</tr>
</tbody>
</table>

(Risk factors associated with liver steatosis in HIV mono-infected patients)

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**THAB0301**

High frequency of unintended pregnancy and predictors of contraceptive choice among HIV-infected African women on life-long antiretroviral therapy (ART). The US-PEPFAR PROMOTE Cohort Study

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**Background:** About 90% of unintended pregnancies among African women are attributed to non-use of effective family planning (EFP) methods (injectable, oral, intra-uterine device (IUD), implant, or tubal-ligation). Long acting reversible contraceptives (LARC), which include implants or IUDs, are the most effective reversible contraception for an extended period without requiring user action. We report frequency of unintended pregnancy and determinants of contraceptive choice among African women on life-long ART.

**Methods:** The US-PEPFAR PROMOTE is a long-term cohort study of HIV-infected women (n=1,986) and their children, enrolled from December 2016 to June 2017, as an extension to a completed mother-to-child transmission prevention trial from eight sites in Malawi, South Africa, Uganda, and Zimbabwe. Standardized questionnaires were used to collect demographic and reproductive health data. Baseline enrolment data were analyzed using chi square and Wilcoxon Rank-Sum tests for group comparisons, and multivariable logistic regression to identify determinants of contraceptive choice.

**Results:** Overall, among 1,984 women included in this analysis, 49.9% (n=990) reported that their last pregnancy was unintended (figure 1), and >50% had no desire for more children.

Among sexually-active, non-pregnant women, 81.6% (1,090/1,350) reported EFP use, while 19.0% (272/1,350) without permanent contraception reported LARC methods (injectable, oral, intra-uterine device (IUD), implant, or tubal-ligation). Long acting reversible contraceptives (LARC), which include implants or IUDs, are the most effective reversible contraception for an extended period without requiring user action. We report frequency of unintended pregnancy and determinants of contraceptive choice among African women on life-long ART.

**Methods:** The US-PEPFAR PROMOTE is a long-term cohort study of HIV-infected women (n=1,986) and their children, enrolled from December 2016 to June 2017, as an extension to a completed mother-to-child transmission prevention trial from eight sites in Malawi, South Africa, Uganda, and Zimbabwe. Standardized questionnaires were used to collect demographic and reproductive health data. Baseline enrolment data were analyzed using chi square and Wilcoxon Rank-Sum tests for group comparisons, and multivariable logistic regression to identify determinants of contraceptive choice.

**Results:** Overall, among 1,984 women included in this analysis, 49.9% (n=990) reported that their last pregnancy was unintended (figure 1), and >50% had no desire for more children.
Tenofovir alafenamide pharmacokinetics with and without cobicistat in pregnancy


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Background: Tenofovir alafenamide (TAF), a prodrug of tenofovir (TFV), has enhanced stability in plasma and improved safety compared to tenofovir disoproxil fumarate (TDF). TAF is administered as part of a fixed-dose combination either with or without the pharmacokinetic (PK) booster cobicistat (COBI). As COBI inhibits transporters involved in the disposition of TAF, co-administration of TAF with COBI results in higher TAF exposure. The PK of TAF have not been studied in pregnant women. This study described TAF exposure when administered with and without COBI during pregnancy and postpartum.

Methods: IMPACT P2ioZ6s is an ongoing, nonrandomized, open-label, multi-center study of antiretroviral PK in HIV-infected pregnant women. Steady-state PK profiles of TAF following once-daily dosing of either TAF/FTC/RPV (25/200/25 mg, Odefsey®) or TAF/FTC/EVG/COBI (10/200/150/150 mg, Genvoya®) were obtained during the second and third trimesters (2T/3T) and 6-12 weeks postpartum (PP). TAF plasma concentrations were measured by a validated LC-MS/MS method. A two-tailed Wilcoxon signed rank test (α=0.10) was employed for paired within-subject comparison of PK parameters.

Results: A total of 42 subjects from the US were enrolled with a median age at delivery of 30.4 years (range 19.1-38.8). For the TAF 25 mg arm, TAF exposure was lower and oral clearance was higher in 3T compared to PP whereas no differences were seen between 2T and 3T and postpartum PK parameters. TAF plasma concentrations were measured using a validated liquid chromatography-tandem mass spectrometry and ultrafiltration methods. A population pharmacokinetic model was developed by using NONMEM software.

Results: A total of 414 samples were collected from 43 women, in which free, total and glucuronide raltegravir concentrations were measured. Free raltegravir was described by a one-compartment model with first order absorption and lag time, evolving either to bound raltegravir (by a linear binding mechanism), or metabolism to raltegravir glucuronide (through an additional compartment) or to a first order elimination. Pregnancy increased free raltegravir clearances : by 26% for glucuronide formation and 17% for other elimination. During pregnancy, trough concentrations and exposures decreased by 28 and 37% for total raltegravir and by 25 and 32% for free raltegravir. The decrease was low for the glucuronide form.

Conclusions: This is the first data reporting raltegravir free and glucuronide pharmacokinetics during pregnancy. Pregnancy effect is moderate on the active raltegravir free fraction, especially when compared to its intersubject variability. This effect is not considered to be of clinical importance; raltegravir doses do not need to be modified during pregnancy.

Lack of viral load testing in pregnancy is a barrier to breastfeeding among HIV-infected women in Botswana

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Background: Breastfeeding reduces child morbidity and mortality, including among HIV-infected women. Botswana updated its antiretroviral treatment (ART) guidelines in May 2016 to support breastfeeding for HIV-infected women on ART who have documented viral suppression during pregnancy. We describe infant feeding choices among HIV-infected mothers since new guidelines were implemented.

Methods: We abstracted data from obstetric records of all HIV-infected women discharged with a live infant from 8 government maternity wards from September 2016-December 2017. We validated the reported feed-
Results: Among 6865 HIV-infected women with a live infant, 6473 had a validated feeding method at discharge from maternity and were included in the analysis. ART coverage was high (95%) among all women; 58% started ART prior to conception, 37% started in pregnancy, and 96% with a known ART start date had received at least 8 weeks of ART prior to delivery. At discharge, 253(39%) of the HIV-infected women were confirmed to be breastfeeding (Table 1). Of 4573 records assessed, only 58% started ART prior to conception, 37% started in pregnancy, and 96% included in the analysis. ART coverage was high (95%) among all women: results:

Among 6845 HIV-infected women with a live infant, 6473 had viral load result (VL) documented at any time during breastfeeding, but likely contributes to low rates of breastfeeding in Botswana.

Conclusions: The low rate of breastfeeding among HIV-infected women in Botswana underscores the need to address barriers affecting feeding choices. Although the majority of pregnant women tested have a suppressed viral load and might be eligible for breastfeeding per Botswana guidelines, few women currently receive viral load testing in pregnancy.

Background: Triple-drug antiretroviral prophylaxis of zidovudine (AZT) / lamivudine (3TC) / nevirapine (NVP) is preferred among HIV-exposed neonates with high-risk of transmission in many countries, including Thailand. This study aimed to assess safety of triple-drug neonatal prophylaxis and NVP trough concentrations in infants with EFV (45%), ritonavir boosted protease inhibitor (28%). There was no significant difference of adverse events between triple prophylaxis and NVP with EFV (45%), ritonavir boosted protease inhibitor (28%).

Results: From October 2015 to November 2017, 200 women were enrolled. Median IQR gestational age and birth weight were 38 (37-39) weeks and 2,873 (2,590-3,184) g, respectively. Common maternal ART regimens were TDF/3TC or FTC (58%), AZT/3TC (32%) in combination with EFV (45%); riltnavir boosted protease inhibitor (28%).

Conclusions: Six-weeks of AZT/3TC/NVP in HIV-exposed infants did not increase the risk of toxicity compared with an AZT regimen. Administration of 4 mg/kg of NVP from birth provided adequate NVP concentrations for prophylaxis during the first 4 weeks of life.

<table>
<thead>
<tr>
<th>Table 1 Characteristics of HIV+ Women in Botswana, by Infant Feeding Choice at Discharge [from Maternity Ward]</th>
<th>Breastfed at Discharge</th>
<th>Formulated at Discharge</th>
<th>evlove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottle</td>
<td>426 (31.8%)</td>
<td>901 (68.2%)</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Mixed (breast, solid)</td>
<td>435 (91.1%)</td>
<td>412 (8.9%)</td>
<td></td>
</tr>
<tr>
<td>Hospital (breast, solid)</td>
<td>265 (65.8%)</td>
<td>138 (34.2%)</td>
<td></td>
</tr>
<tr>
<td>Blood (breast, solid)</td>
<td>86 (47.5%)</td>
<td>99 (52.5%)</td>
<td></td>
</tr>
<tr>
<td>Main (breast, solid)</td>
<td>228 (72.9%)</td>
<td>89 (27.1%)</td>
<td></td>
</tr>
<tr>
<td>Mixed (breast, solid)</td>
<td>414 (94.4%)</td>
<td>25 (5.6%)</td>
<td></td>
</tr>
<tr>
<td>Bottle (breast, solid)</td>
<td>236 (83.6%)</td>
<td>46 (16.4%)</td>
<td></td>
</tr>
<tr>
<td>Female Feeding in Pregnancy (7-88)</td>
<td>101 (44.0%)</td>
<td>128 (56.0%)</td>
<td>p=0.26</td>
</tr>
<tr>
<td>Feeding Duration in Pregnancy (0-144)</td>
<td>157 (59.9%)</td>
<td>119 (40.1%)</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Breastfeeding plan</td>
<td>100 (71.0%)</td>
<td>40 (28.9%)</td>
<td>p=0.001</td>
</tr>
<tr>
<td>NICU (intubated in hospital)</td>
<td>48 (48.6%)</td>
<td>52 (51.4%)</td>
<td></td>
</tr>
<tr>
<td>Documentation of viral load drawn during Pregnancy (0-48)</td>
<td>135 (25.9%)</td>
<td>379 (74.1%)</td>
<td>p=0.001</td>
</tr>
<tr>
<td>No</td>
<td>151 (88.8%)</td>
<td>20 (11.2%)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>26 (32.3%)</td>
<td>57 (67.7%)</td>
<td></td>
</tr>
<tr>
<td>Infant feeding in pregnancy (7-88)</td>
<td>50 (71.0%)</td>
<td>19 (29.0%)</td>
<td>p=0.11</td>
</tr>
<tr>
<td>NICU (intubated in hospital)</td>
<td>16 (21.3%)</td>
<td>60 (78.7%)</td>
<td>p=0.001</td>
</tr>
<tr>
<td>ART in pregnancy (0-48)</td>
<td>43 (33.5%)</td>
<td>86 (66.5%)</td>
<td>p=0.001</td>
</tr>
<tr>
<td>No ART in pregnancy</td>
<td>72 (78.3%)</td>
<td>19 (21.7%)</td>
<td></td>
</tr>
<tr>
<td>ART prophylaxis</td>
<td>28 (41.6%)</td>
<td>40 (58.4%)</td>
<td></td>
</tr>
</tbody>
</table>

| Table 1. Adverse event rates between triple and AZT prophylaxis. |
|---|---|---|---|
| | 6-week | 4-week | p-value* |
| Adverse event rate* | AZT/3TC/NVP | AZT/3TC/NVP | AZT/3TC/NVP |
| All grade anemia | 41.8% | 39.3% | 0.69 |
| Grade 3-4 anemia | 3.7% | 3.3% | 0.80 |
| All grade neutropenia | 5.3% | 6.2% | 0.58 |
| Grade 3-4 neutropenia | 1.1% | 0.5% | 0.39 |
| Elevated aspartate transaminase (AST) | 1.6% | 1.6% | 0.97 |
| Elevated alanine transaminase (ALT) | 3.7% | 3.1% | 0.66 |

* p-value calculated by Chi-Square test |
THAC01 New tools, old tricks: Innovative methods for understanding the epidemic

**THAC0101**

The identification of a micro-epidemic in a hyper-endemic HIV setting using molecular epidemiology

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**Background:** Understanding transmission dynamics of infectious diseases is critical in developing effective interventions. Traditional epidemiological analyses are the bedrock of many public health decisions, but can be resource-intensive and may be limited by incomplete/inaccurate datasets. Since HIV gene sequences can provide information not contained in traditional case data, considerable efforts are now invested in generating genomic data. However, the value of such data for epidemiological surveillance remains unclear. We illustrate how incorporating genomic data with traditional epidemiological analyses provides additional insight for surveillance, with potential to inform prevention strategies.

**Methods:** We used routinely-collected AHRF data to undertake a combined phylogenetic and epidemiological investigation. A phylogeny of 2,779 HIV-1 subtype-C partial pol sequences was reconstructed by maximum-likelihood inference. This included 1,376 local sequences (2010-14), 803 publicly-available South African control sequences (2000-14). A dated phylogeny was inferred using Beast2 and reproduction numbers (Re) estimated. We geo-located individuals to their residence and undertook space-time analyses to identify variations in HIV incidence.

**Results:** Phylogenetic reconstruction revealed a previously undetected distinct monophyletic cluster (75 local sequences; branch support 90%). The dated phylogeny suggests this outbreak emerged from a single common source, experienced two bursts of infection (2012&2013/4; July and September). There appear to be two distinct (non-overlapping) outbursts of infections within this cluster - one in 2012 and one in 2013.

**Conclusion:** To our knowledge, this is the first time molecular methods have detected a micro-epidemic not identified via traditional epidemiological surveillance.

**THAC0102**

High prevalence fishing communities are not a major source of new HIV infections to the inland populations in Rakai District, Uganda: Implications for geo-spatially targeted HIV prevention interventions

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**Background:** Targeting combination HIV prevention (CHP) to areas of high HIV prevalence is considered a cost-efficient and essential strategy for reducing HIV incidence in sub-Saharan Africa. Since 2014, the Ugandan National Antiretroviral Therapy Guidelines recommend target- ed CHP to fishing communities on Lake Victoria, with an estimated HIV prevalence 25%-40%, partly based on the assumption that fishing sites are a major source of HIV transmissions to the inland populations; however the validity of this assumption has not been empirically evaluated.

**Methods:** Between August 2011 and Oct 2014, individuals aged 15-49 years in 40 communities in Rakai District, Uganda, were tested for HIV and interviewed (sociodemographic, behavioral and health information).
Households were geocoded, and communities were classified as Lake Victoria fishing (n=4), agrarian (n=27), or main road trading (n=9) communities. Viral RNA from newly diagnosed participants was deep sequenced via Illumina instruments. The phyloscanner software package (https://github.com/BDI-pathogens/phyloscanner) was used to reconstruct HIV transmission networks, and to infer the direction of HIV transmission from deep sequence data. Transmission flows between fishing sites and agrarian/trading communities were estimated with Bayesian multi-level models.

**Results:** Of 23,719 individuals surveyed, 6,205 were HIV-positive, 4,309 (69%) were antiretroviral naïve, of whom 2,803 (65%) were sequenced. 359 phylogenetically likely transmission events involving 676 individuals were reconstructed, with an estimated expected 16% (11%-23%) of false reconstructions. Direction of transmission could be inferred in 224 likely transmission events, with an estimated expected 14% (7%-26%) of false directions. Only 3/241 transmission events occurred from fishing sites to agrarian/trading communities. Adjusting for differences in population size and sequence sampling by age and community, an estimated 34.3% (28.6%-40.6%) of transmissions occurred within fishing sites, 58.0% (51.2%-64.6%) within agrarian/trading communities, 3.4% (1.7%-6.1%) from fishing sites to agrarian/trading communities, and 4.0% (2.7%-6.2%) from agrarian/trading communities to fishing sites.

**Conclusions:** HIV is infrequently transmitted from 4 high-prevalence fishing sites to the population in 36 agrarian/trading communities further inland, based on population-level NGS viral phylogenetic analysis. Our results suggest that targeted CHP to Lake Victoria fishing sites would not mitigate the broader HIV epidemic. Further studies in sub-Saharan Africa are needed to assess the strategy of targeting CHP to various high prevalence hotspots.

**THAC0103**

**An RNA-seq gene expression signature identifies early HIV infection in rural Mozambique**

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**Background:** Accurate measurement of HIV incidence is crucial in determining the effectiveness of preventative and therapeutic interventions, yet remains a global challenge. This study employed RNA-seq to investigate changes in human gene expression during early HIV-1 infection with the objective of identifying a transcriptomic signature able to differentiate early from long-standing infection.

**Methods:** Individuals presenting to Manhiça District Hospital, Mozambique were screened for acute HIV infection (AHI). DNA from 2,803 (65%) antiretroviral naïve individuals was collected and RNA extracted using the RNeasy MiniElute Clean-up kit (Qiagen). Illumina 50bp single-end RNA-seq was performed. Quality control was assessed using FastQC. Reads aligned to human reference genome hg19 using HISAT. Alignment quality was assessed using Samstat. Quantification and normalisation of read counts was performed using voom (GenomicAlignments) R package and Bioconductor. Random Forest assessed the predictive accuracy of sample classification. Statistical analyses were performed using R version 3.2.0.

**Results:** Fifty-three AHI individuals had a median estimated time since infection of 9 weeks (IQR: 7.8-19.3 weeks). RNA-seq was performed on 164 longitudinal samples from the AHI cohort, as well as 54 HIV negative, 24 chronic without ART, and 24 chronic with ART samples, resulting in an average of 23 million reads per sample. With 80% of reads mapped at high accuracy. All samples passed pre-and post-alignment QC. Fifteen genes were significantly differentially expressed during AHI compared with all controls (Figure 1). Random Forest analysis was able to predict biological group with a sample-level error rate of 0.26.

**THAC0104**

**Size estimation of key populations for HIV in Singapore using the network scale-up method**

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**Background:** The size of populations at-risk for HIV in Singapore has yet to be systematically estimated. Using the network scale-up (NSU) approach, we developed a localised instrument and Bayesian statistical method to generate size estimates—adjusted for transmission error—of at-risk populations in Singapore.

**Methods:** We conducted nine in-depth interviews and four focus groups discussions with key stakeholders to guide the development of the survey questionnaire. In total 199 participants recruited from the Singapore Population Health Studies cohort reported their socio-demographic information, opinions about certain behaviours and the social standing of different groups of people, and quantified the number of people whom they knew. We developed a Bayesian hierarchical NSU model to estimate the number of individuals in four hidden populations at-risk of HIV in Singapore. The method accounted for both transmission error and barrier effects using social acceptance measures and demographics.

**Results:** The adjusted size estimate of the population of male clients of female sex workers was 72 000 (95% CI: 51 000-100 000), of female sex workers 4 200 (95% CI: 1 600-10 000), of men who have sex with men 210 000 (95% CI: 140 000-300 000), and of intravenous drug users 11 000 (95% CI: 6 500-17 000). Average estimated personal network sizes were 140 (95% CI: 82-238).

**Conclusions:** The network scale-up method with adjustment for attitudes and demographics allows national-level estimates of multiple priority populations to be determined from simple surveys of the general population, even in relatively conservative societies.
THAC0105
Demographic transitions and the future of the HIV epidemic for children and adolescents
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Background: Despite progress in the HIV response, new infections among adolescents and youth (AY) aged 15-24 in Sub-Saharan Africa (SSA) have only reduced by an average 3%/year since 2010. By 2050, the number of AY in SSA will increase by 85%. This demographic transition may impact the HIV epidemic and service needs for future generations. We used population statistics and recent epidemic trends to characterize the future of the HIV epidemic in SSA.

Methods: For 46 countries, we organized UNAIDS HIV estimates and UN population projections into five-year age groups by sex. HIV incidence and prevalence was calculated from 2010 to 2016. After analyzing trends, 2014-2016 data reflecting recent progress in disease control were selected to inform regression analyses by country, age and sex. An exponential curve was applied for downward incidence trends and a linear curve for upward incidence trends and prevalence. From each regression, HIV incidence and prevalence was predicted until 2050. Incidence and prevalence were applied to projected populations in each year to determine new infection numbers.

Results: Results were analysed to assess feasibility of epidemic control among AY 15-24, defined as 95% reduction in new infections since 2016.

Results: By 2050, new HIV infections will decrease by over 70% in Eastern and Southern Africa and by 2% in West and Central Africa. Overall, the SSA region will observe a 53% reduction in new HIV infections. None of the 46 SSA countries will achieve epidemic control among AY by 2030. Botswana, Mozambique, Uganda, Zimbabwe, and Swaziland may reach epidemic control by 2050. Of these five countries, Botswana, Swaziland, and Zimbabwe will reduce new infections among boys and men at least two years before they will in girls and young women. Between 2017 and 2050, 9.6 million AY will become newly infected with HIV in SSA. 67% of which will occur among girls and young women.

Conclusions: While the world set a bold target of ending AIDS by 2030, epidemic control is unlikely among AY in SSA. Turning this demographic transition into a dividend will require better access to HIV prevention, sexual and reproductive health, and targeted testing services.

THAC0202
Key population-led health services: Community-based organizations and lay health workers transform HIV testing in Vietnam
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Background: Vietnam became the first Asian country to adopt global 90-90-90 targets, despite low annual uptake (~30%) of HIV testing among key populations (KPs). Up until late 2015, lay providers were not allowed to offer HIV testing, although studies indicated KP preference for community testing services.

Description: The USAID/PATH Healthy Markets project and Ministry of Health (MOH) piloted HIV lay testing in four provinces. From October 2015-September 2017, services were delivered by KP-led community-based organizations (CBOs) in urban areas and village health workers (VHWs) in rural areas, using blood- and oral fluid-based rapid diagnostic tests (RDTs). This was the first time CBOs were allowed to offer HIV testing in Vietnam.

Trained CBOs/VHWs administered the RDT, interpreted results, provided post-test counseling supported those that were HIV-reactive to seek confirmation testing, and their enrollment in treatment. Coaching was provided to trained lay providers to reinforce service quality. 59,333 clients were HIV-tested, 2,503 (4.2%) were newly diagnosed HIV-positive and 90% enrolled in treatment.

Lessons learned: The pilot generated four key lessons: First, that CBOs/VHWs were capable of offering HIV testing with exceptional skills, and engagement in lay testing significantly boosted CBO confidence and pride in their work. Second, CBOs/VHWs were very effective in facilitating ART enrollment among those HIV-diagnosed. Third, among those tested by lay testers, more than half were first time testers, and 42% were newly HIV-diagnosed (compared to 16% among KPs testing in public sites). This suggests trust among KP for HIV lay provider services. Last, fostering close MOH engagement and observation of CBO/VHW testers rapidly translated into national trust and support for their work.

Conclusions/Next steps: Stepwise rollout of HIV lay provider testing positively disrupted the status quo, and has opened the door for KP-led HIV services. The pilot led to the development of national HIV commu-
nity testing guidelines and training package, and rapid adoption of the approach by the MOH, PEPFAR partners and Global Fund. For the future, it will be critical to target HIV lay testing to localities that need it most, and secure domestic financing sustained service delivery.

**THACo203**

**Respondent-driven sampling more efficiently identifies undiagnosed HIV-infected people who inject drugs (PWID) than PWID-targeted community integrated care centers in India**


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**Background:** Injection drug use drives HIV epidemics in many low-resource settings. Yet, many people who inject drugs (PWID) are inadequately engaged in HIV services, resulting in low awareness among HIV-infected PWID. Respondent-driven sampling (RDS), a method using peer connections, is widely used in research among key populations. We assessed the ability of RDS to identify undiagnosed HIV-infected PWID compared to integrated care centers (ICCs) in India.

**Methods:** In 6 Indian cities from 2014-2017, ICCs provided PWID-tailored services such as HIV counseling/testing and needle exchange. ICC utilization was voluntary. In these same cities from 2016-2017, an RDS sample of 1000 PWID/city was conducted; RDS participants were compensated for time and referrals. The number needed to recruit (NNR) (number of PWID screened in order to find one undiagnosed person living with HIV/PLWH) and the identification rate (number of undiagnosed PLWH identified per week) was faster than the ICC identification rate (0.2 to 1.0/week) in all cities (Figure). RDS identified by RDS vs. ICC were more likely to be male (adjusted odds ratios [aOR] ICCs only: 2.7, both: 1.7) and HIV-infected but undiagnosed (aOR RDS only: 6.8, both: 2.7) and HIV-infected but undiagnosed (aOR RDS only: 6.8, both: 2.7).

**Results:** Across the 6 cities, there were 10,759 ICC clients and 6,012 RDS participants; 20% of RDS participants were ICC clients (confirmed via biometrics) resulting in 14,397 unduplicated PWID, of which 753 (5%) were undiagnosed PLWH. The RDS NNR ranged from 5 to 27 and the ICC NNR ranged from 10 to 74. The NNR was lower for RDS versus the ICC in all but one city, Bhopal (Figure). The RDS identification rate (1.7 to 2.8/week) was faster than the ICC identification rate (0.2 to 1.6/week) in all cities (Figure). RDS identified by RDS vs. ICC were more likely to be male (adjusted odds ratios [aOR] RDS only: 6.8, both: 2.7) and HIV-infected but undiagnosed (aOR RDS only: 6.8, both: 2.7).

**Conclusions:** In India, RDS required screening fewer PWID and more rapidly identified undiagnosed PLWH as compared to ICCs. Network-driven recruitment strategies with moderate compensation could be considered to identify and engage groups of PWID not currently visiting venues where HIV and harm reduction services are available.

**THACo204**

**Integrated gender affirmative hormone treatment services improve access to and retention in HIV testing, syphilis testing and pre-exposure prophylaxis (PrEP) service uptake among transgender women in Thailand**


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**Background:** Despite the growing recognition of gender affirmative hormone treatment (GAHT) as an essential part of comprehensive health care for transgender women, evidence is limited on the roles of GAHT-services in HIV programming for transgender women. We examined the potential role of GAHT-services as an entry-point to facilitate uptake of HIV and other sexual health services.

**Methods:** Established in 2015, the Tangerine Community Health Center is the first clinic in Asia where fee-based GAHT-services are fully integrated with HIV services. Characteristics of transgender women clients and their access to GAHT-services and other health services were recorded. We compared the uptake of HIV and other sexual health services between transgender women who accessed or did not access GAHT-services.

**Results:** Of 972 transgender women who attended the clinic between November 2015-December 2017, median (IQR) age was 25.4 (22.5-30) years, 55% had education below bachelor’s degree, 25% were unemployed, 66% used alcohol, and 10% used amphetamine-type stimulants. GAHT-services were used by 34% of transgender women. At baseline, 91% received HIV testing, and HIV prevalence was 12%. Antiretroviral therapy initiation was successful in 80%. Transgender women who did not use GAHT-services had lower income (65% vs. 45% earned < $571/month, p<0.001), higher HIV prevalence (13% vs. 3%, p<0.001), and a trend toward higher HIV incidence than those who used GAHT-services. Compared to clients not accessing GAHT-services, GAHT-service clients were more likely to re-visit the clinic (50% vs. 34%, p<0.001), had higher rates of repeat HIV testing (32% vs. 25%, p=0.019), repeat syphilis testing (44% vs. 3%, p=0.026), PrEP uptake (10% vs. 6%, p=0.015), and use of other sexual health services, including hepatitis B testing/vaccination and sexually transmitted infection treatment (10% vs. 3%, p<0.001).

**Conclusions:** Integration of GAHT-services into HIV programming in this cohort showed improvement of retention in the program and subsequent increase of sexual health service utilization, including PrEP. Transgender women not accessing GAHT-services appeared to be highly vulnerable to HIV infection. HIV program managers, policymakers, and institutional donors should consider investing in well-tailored, subsidized, and comprehensive HIV and sexual health service packages that fully integrate GAHT-services for transgender women.
THAC0205
Continuing structural barriers to HIV/STI testing for migrants attending a community-based HIV testing service in Melbourne, Australia

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Background: In February 2016 PRONTO!, a peer-led community-based rapid HIV testing service, introduced STI (gonorrhoea, chlamydia, syphilis) testing and SMS reminders to improve return HIV testing. HIV testing is free for all clients. Clients eligible for Australia’s universal healthcare system, including Australian, New Zealand and UK citizens (eligible), receive free STI testing. Citizens of other countries (ineligible) pay up to $158AUD upfront. We determined changes to return-HIV testing pre- and post-service changes among eligible and ineligible clients to explore ongoing barriers to accessing sexual healthcare among migrants.

Methods: All HIV tests conducted between February 2014 and September 2017 with country of birth recorded were included in the analysis (February-July 2014 allowed lead time to assess returning). We describe STI testing uptake and HIV/STI positivity among eligible and ineligible clients. Return HIV testing was compared between pre-intervention (August 2014-January 2016) and post-intervention (February 2016-September 2017) periods. Segmented linear regression of monthly aggregate data assessed changes in the percentage of tests that returned within 183 days (six month return testing) among eligible and ineligible clients across pre- and post-intervention periods. We report changes in six month return testing pre- to post-intervention (change in slope). α3 < 0.05 was considered significant.

Results: This analysis included 2679 eligible and 1619 ineligible clients. Post intervention there was a significant difference in the proportion of HIV tests accompanied by STI tests among eligible clients (82%) and ineligible clients (49%; p < 0.01); however among those accessing testing, STI positivity was similar (12% and 12%, respectively). Four (0.3%) eligible and nine (1%) ineligible clients were diagnosed with HIV. Return HIV testing was similar (12% and 12%, respectively) among eligible and ineligible clients pre- and post-intervention. We report changes in six month return testing pre- to post-intervention (change in slope). α3 < 0.05 was considered significant.

Conclusions: Increases in six month HIV return testing were observed among eligible and ineligible clients following the introduction of STI testing and SMS reminders. However, the significantly lower uptake of fee-for-service STI tests among overseas-born clients compared to uptake of free STI tests among eligible clients suggests ongoing financial barriers to comprehensive HIV and STI testing in this group.

THAC0301
Better care: Enhancing mother and child outcomes

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Background: Safer conception strategies—ART for HIV-positive partners, PrEP for HIV-negative partners, timed condomless sex, self-insemination and male medical circumcision—empower couples affected by HIV to conceive while minimizing HIV transmission risks to partners and future children. We report outcomes from the Sakh’umndeni demonstration project, one of the first safer conception clinics in sub-Saharan Africa.

Methods: Adults trying to conceive and in relationships in which at least one partner was HIV-positive were enrolled into safer conception care at Witkoppen Clinic in Johannesburg, South Africa, between July 2013-July 2017. Patients were provided tailored safer conception care by a nurse. Time-to-first pregnancy was estimated using Kaplan-Meier curves; women who did not conceive were censored at date of termination or last follow-up visit.

Results: 526 individuals (334 women/192 men from 332 partnerships participated. Couples were serodifferent (n=165, 41%), seroconcordant (n=147, 44%) or in relationships with one unknown status partner (n=23, 7%). Median ages of women and men were 34 (IQR:30-38) and 37 (IQR:33-42) respectively. At baseline, 64% of HIV-positive women and 45% of HIV-positive men were virally suppressed (<50 copies/ml). It took couples a median of 4.0 months (IQR:1.7-7.7) to be given the go-ahead to start trying to conceive. In total, 98 pregnancies among 88 women were observed. Pregnancy incidence was 47.9/100 person-years (95%CI;38.9-59.3). HIV-positive women were 52% less likely to conceive than HIV-negative women (IRR:0.48, 95% CI:0.28,0.87). Median time-to-pregnancy was 0.8 years for HIV-negative and 2.1 years for HIV-positive women (Figure). At time of pregnancy, most HIV-positive women were virally suppressed (63/75 [84%] < 50 copies/ml and 24/75 [99%] < 1000 copies/ml). Of the 98 pregnancies, 66 (67%) delivered a baby, 24 (25%) had a miscarriage or ectopic pregnancy, 5 (6%) were still pregnant and 3 (3%) unknown. No horizontal or vertical HIV transmissions were observed.

Conclusions: HIV-positive women were less likely to conceive than HIV-negative women and risk of miscarriage was high. Prolonged attempted conception highlights the need for approaches to reduce onward transmission risks, particularly as viral suppression among patients trying to conceive on ART cannot be assumed. Safer conception strategies can help couples successfully conceive an HIV-free child without jeopardizing their own or partner’s health.

(Time-to-pregnancy among women enrolled in safer conception care. Johannesburg, South Africa)
THAC0302

HIV mother-to-child transmission in Cameroon: Early infant diagnosis positivity rates by entry point and key risk factors

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Background: Prevention of mother-to-child transmission (PMTCT) programs aimed at reducing pediatric HIV infections are frequently assessed by the MTCT rate collected from PMTCT entry points. This misses positivity rates in other entry points. Using the opportunity of the introduction of point of care early infant diagnosis (POC EID) in Cameroon, we extended infant HIV testing to several entry points of health facilities. We assessed HIV positivity by entry point and key risk factors.

Methods: A cross-sectional study nested within the POC EID project implemented in four regions was conducted in 58 health facilities of varying levels. Clinical history of the mother-baby pair assessment of HIV status of the mother were used as eligibility criteria of infants. In each health facility, all entry points were considered and categorized as either a PMTCT entry point or a non-PMTCT entry point. Eligible infants presenting to these facilities between December 2016 and December 2017 were tested by POC EID. Variables including demographics, antiretroviral use, and breastfeeding history were extracted from the EID request form. Data were analyzed using multivariate analysis with backward elimination (p>0.20).

Results: Overall, 2,254 HIV-exposed infants were tested using POC EID as first HIV diagnosis. The median age at sample collection was 7.3 weeks (IQR 6.3; 19.0). The main entry points were PMTCT (48.7%), immunization unit (14.3%), Pediatric ward (13.8%). Of the 2,254 infants tested, 8.7% (197/2,254) were HIV-positive. This rate varied according to entry points (outpatient department, 19.2%; emergency/pediatric ward, 17.7%; PMTCT/antiretroviral treatment (ART), 5.7%). In univariate analysis, positivity rates were more likely to be found at non-PMTCT entry point, among females, and infants delivered to HIV-positive women who received incomplete ARVs for PMTCT. In multivariate analysis, risk of being HIV-positive was higher when the infant was found at non-PMTCT entry point (OR 2.9; 95%CI: 1.47-2.99; p< 0.001), was on mixed feeding mode (OR 3.74; 95%CI: 2.43-3.47; p< 0.001).

Conclusions: Only 48% of infected infants came from PMTCT-entry point. EID entry point rates were highest in non-PMTCT entry points. Strengthening testing in non-PMTCT entry points help to address missed opportunities of PMTCT programs and link more children into ART care.

THAC0303

Prevention of mother to child transmission and early infant diagnosis in Malawi: Accomplishments of a mature Option B+ program in a resource-limited setting

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Methods: MPHIA was a nationally representative household survey, eligible women were consented and interviewed on pregnancies and outcomes, including self-reported HIV status during their most recent pregnancy, uptake of PMTCT, and EID testing. Women aged 15-49 years reporting a live birth in the 36 months before the survey were included in this analysis. Descriptive and multivariable logistic regression analyses were weighted to account for the complex survey design.

Results: A total of 3,598 women reported a live birth in the 36 months before the survey, mean age was 26.9 years and mean parity was 3.0. Of these, 99.2% (95% confidence intervals [CI]: 95.5-99.0) reported being tested for HIV and receiving their results or knowing their HIV status during their last pregnancy, 7.4% (95CI: 6.5-8.4) self-reported their HIV-positive status during pregnancy. Of the 302 women self-reporting their HIV-positive status during pregnancy, 98.1% (95% CI: 96.6-99.6) reported being on ART during pregnancy and 81.0% (95% CI: 75.6-88.4) reported that their child was tested for HIV. 50.6% (95% CI: 43.1-58.3) reported EID testing within two months of birth. Of those reporting that their child was tested for HIV, 31.9% (95% CI: 25.5-37.7) reported a HIV-positive result.

Adjusting for age and urban/rural residence, EID testing within 2 months of birth was associated with secondary or higher education (adjusted odds ratio [aOR] 3.1, 95% CI 1.5-6.2), disclosure of mother’s HIV-positive status to family (aOR 2.4, 95% CI 1.3-4.6), and uptake of cotrimoxazole (aOR 6.2, 95% CI 2.7-14.2).

Conclusions: Data from the 2015-16 MPHIA demonstrate the success of Malawi’s PMTCT Option B+ program at a population level, with high uptake across the PMTCT cascade. However, challenges remain in the timeliness of EID testing for HIV-exposed infants according to recommended guidelines.

THAC0304

Birth outcomes and HIV-free survival with Option B+ in Lesotho: Results from an observational prospective cohort study

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Methods: The Tshwane Birth Outcomes and HIV-free Survival with Option B+ (TOHBSOBU) cohort study aims to assess birth outcomes and six-week HIV free survival among HIV-exposed infants (HEI) and HIV-unexposed infants (HUI). TOHBSOBU is an observational cohort study of HEI and HUI enrolled in an observational cohort to evaluate effectiveness of universal maternal cART (Option B+) rolled out within routine programs in 13 health facilities in Lesotho. Birth outcomes included infant birth weight (IBW), morbidity, congenital anomalies, and mortality. Infant HIV birth testing by DNA PCR within two weeks of birth was introduced at study sites along-side routine six-week testing. Data were analysed to determine birth outcomes, HIV transmission, and HIV-free survival rates at six weeks.

Results: HIV-positive women were older, 28.7 vs. 24.4 years (p<0.001) and presented for antenatal care earlier at 23 weeks vs. 25.3 weeks gestation (p<0.001). Mean IBWs were similar: 3.0 kg for HEIs vs 3.1 kg for HUI. HIEI were more likely to be premature: 8.3% vs 4.0% (p<0.001). Neither Age (median age: 26 vs 26) nor parity (median: 1 vs 1) was associated with prematurity. No differences in stillbirths or congenital anomalies were noted. Six infants were HIV-infected by six weeks: cumulative HIV transmission was 0.9% (9/41at birth (95%CI: 0.25%-2.36%) and 1.03% (9/861: 0.38%-2.23%) by six weeks. Infant mortality was 4.4% and 4.3% for HUI and HEI respectively (p=0.93). The estimated six-week HIV

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free survival was 91.5% [95%CI: 89.1 - 93.6%] for HEI. Survival for HIV was 94.1% [95% CI: 92.4 - 95.6%]. Excluding stillbirths, six-week HIV free survival for HEI was 95.2% [95% CI: 93.2 - 96.8%] compared to survival rate of 97.5% [95% CI: 96.2 - 98.4%] among HIV (p<0.002).

**Conclusions:** A low HIV transmission rate by six weeks was found among mother-infants enrolled in a universal ART prevention of mother-to-child transmission program, though there were higher rates of premature; six-week survival among HIV-exposed infants was comparable to HIV-unexposed infants. It will be important to explore if this trend continues at 12 months and 24 months.

### THAC0305

**Cohort study of HIV+ children in Southern Africa returning to care after being lost to follow up:**

**Effect of interrupting care on mortality**

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10University of KwaZulu-Natal, Africa Centre for Health and Population Studies, Somhlehe, South Africa
11Queen Elizabeth Central Hospital, Umuozii Family Centre, Blantyre, Malawi
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**Background:** Although patients initiating antiretroviral therapy (ART) should ideally have sustained engagement in care after ART start, it is increasingly recognized that a large proportion of patients experience care interruptions for a range of reasons. However, few studies have assessed the long-term outcomes of children with a care interruption (CI), during which the child’s health status and use of medication is unknown. We evaluated the characteristics and outcomes of HIV-infected children that have care interruptions (i.e. >80 days without a clinic visit).

**Methods:** We included data on children < 16 years old initiating antiretroviral therapy (ART) since 2004 at an International Epidemiologic Databases to Evaluate AIDS (leDEA) Southern Africa (leDEA-SA) cohort with >80 days potential follow-up. Children who died within 180 days of ART start were excluded. A CI was defined as a >80 days without a clinic visit and to follow-up (LTFU) was defined as no visit within 180 days of database closure. The main outcome was all cause mortality. Two exposed groups were considered: those with a first CI within the first 6 months on ART, and those with a first CI after >6 months on ART. Adjusted rate ratios were determined using a Poisson regression model with robust standard errors.

<table>
<thead>
<tr>
<th>Variable</th>
<th>ARR* (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care interruption status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Care Interruption</td>
<td>1.00</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Care Interruption before 6 months</td>
<td>2.70 (2.13 to 3.43)</td>
<td></td>
</tr>
<tr>
<td>Care Interruption after 6 months</td>
<td>1.01 (0.77 to 1.31)</td>
<td></td>
</tr>
<tr>
<td>Age at ART initiation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;2 years</td>
<td>1.00</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>2-5 years</td>
<td>0.98 (0.75 to 1.27)</td>
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</tr>
<tr>
<td>6-9 years</td>
<td>1.83 (1.26 to 2.66)</td>
<td></td>
</tr>
<tr>
<td>&gt;&gt;10 years</td>
<td>4.18 (2.71 to 6.45)</td>
<td></td>
</tr>
</tbody>
</table>

(Ajusted rate ratios for the effect of a care interruption on mortality using a Poisson model)

**Results:** Among 46,356 children included, 24,280 (52%) had a CI of which 10,998 (45%) had a first CI within 6 months on ART and 13,282 (55%) had a first CI after 6 months on ART. Having a CI within the first 6 months on ART was associated with increased mortality (adjusted rate ratio (ARR) = 2.70, 95% CI 2.13 - 3.43), but there was no association between a first CI after 6 months on ART and mortality (ARR = 1.01, 95% CI 0.77 - 1.31) ARR adjusted for variables in the table, and also adjusted for gender, current age, year of ART initiation, time in/ out of care, CD4% at ART initiation.

**Conclusions:** The findings suggest that strengthening retention of children in care in the early period after ART initiation is critical to improving paediatric ART outcomes.

### THAC0401

**Pedal to the metal: Accelerating the cascade**

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**Background:** Few persons diagnosed in community settings receive antiretroviral therapy within seven days of diagnosis (rapid ART) in accordance with World Health Organization recommendations. To improve rapid ART for clients diagnosed in community settings in Swaziland, we implemented CommLink, an integrated community-based HIV testing (CBHTS), mobile HIV care, and peer-delivered linkage case management (ILCM) program.

**Description:** In urban and rural settings in three regions of Swaziland, comprising HIV-positive, out-of-care clients identified through CBHTS receive mobile-unit CD4 testing, baseline clinical assessment, and cotrimoxazole. Medical charts and test results are transferred to referral HIV care facilities. ART-adoherent, expert-client counselors provide LCM for up to 90 days. Services include escort and treatment navigation at referral facilities, regular telephone contact for psychosocial support, and counseling on HIV care and disclosure. Beginning in April 2017, index-client testing services (IDTS) were initiated for partners, family members, and associates (PFAs) of CommLink clients.

**Lessons learned:** From April through December 2017, of 498 eligible clients aged ≥16 years, 488 (98%) participated in LCM. Of 363 (73%) closed cases (completed program/discontinued participation/timed-out), from the date of diagnosis, 351 (97%) clients enrolled in facility-based care within a median (IQR) of 2 days (1-6) and 349 (97%) were initiated on ART within a median (IQR) of 2.5 days (1-6); 276 (76%) clients received rapid ART. At least 95% of clients in all gender and age groups were initiated on ART (Table). During LCM, 94% of clients disclosed their HIV status to at least one partner or family member, and 42% had at least one PFA tested. Of 209 PFAs tested, 128 (61%) tested HIV positive (40% of 128 newly diagnosed), and 117 subsequently participated in CommLink. Disclosure of HIV status and participation in IDTS was similar across demographic groups.

**Conclusions/Next steps:** CommLink achieved near-universal early and >70% rapid ART initiation among all persons diagnosed in community settings in Swaziland, including men and young adults. As an integral component of LCM, index client testing was pivotal for active case finding. In 2018, CommLink has been approved by the Swaziland Ministry of Health to pilot community-based point-of-diagnosis ART initiation and is being scaled-up nationally.
THAC042
Community-based HIV testing and assessment for same-day ART reaches men for HIV care

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Background: Integrating same-day ART start into community-based HIV testing has the potential to increase ART coverage, particularly among hard to reach priority populations, such as men. The coverage and feasibility of community-based same-day ART initiation requires evaluation.

Methods: The Delivery Optimization for ART (DO ART) Study is an ongoing randomized study of community-based compared to clinic-based ART initiation and monitoring in the Sheema District, Uganda and KwaZulu Natal, South Africa. Lay counselors conduct community-based HIV testing and counseling at home or through a mobile van. To reach men, testing was conducted at trading posts and in the evenings. HIV-positive persons are assessed for same-day ART by a clinical questionnaire and point-of-care testing for CD4 count, pregnancy, and creatinine. Nurses received standardized government training on ART initiation and monitoring and chest x-ray to rule out tuberculosis, cryptococcal meningitis, and serious illnesses. Mean days from HIV diagnosis/reengagement to ART initiation was 1.4 (5.2) days. Referral rate to long-term ART continuation site, after 10 weeks of ART, was also determined.

Results: From July-December 2017, 86.8% of 1,062 HIV-seropositive clients were logistically eligible for Same-Day ART service and 90% (95% newly diagnosed: 85% reengaged) accepted the service. Median (IQR) CD4 was 295 (203-415) cells/mm3. 82% of those who accepted the service were clinically eligible and initiated ART. Among these, 79% re-engaged. Assessment of acceptability, logistical eligibility (no previous ART and could return for follow-up visits), and first date of known HIV-seropositive status were self-reported. Baseline laboratory tests (creatinine/ALT/syphilis/HBsAg/anti-HCV/CD4/CrAg if CD4<100) and chest x-ray were performed according to national guidelines. Physicians determined clinical eligibility of Same-Day ART based on signs/symptoms and only results of CD4 and chest x-ray to rule out tuberculosis, cryptococcal meningitis, and serious illnesses. Mean days from HIV diagnosis/reengagement to ART initiation was calculated. Referral rate to long-term ART continuation site, after 10 weeks of ART, was also determined.

Conclusions: Despite WHO’s recommendation on Universal ART, one-third of persons living with HIV in Thailand are without antiretroviral therapy (ART). Attrition from care due to delays in initiating treatment may contribute to this gap. There is strong evidence to suggest clinical and practical benefits of rapid ART initiation, including Same-Day ART. However, data on safety and feasibility in real-world settings is limited.

Methods: Data was collected among HIV-seropositive Thai clients at Thai Red Cross Anonymous Clinic in Bangkok, Thailand. Clients were categorized as newly diagnosed or reengaged. Assessment of acceptability, logistical eligibility (no previous ART and could return for follow-up visits), and first date of known HIV-seropositive status were self-reported. Baseline laboratory tests (creatinine/ALT/syphilis/HBsAg/anti-HCV/CD4/CrAg if CD4<100) and chest x-ray were performed according to national guidelines. Physicians determined clinical eligibility of Same-Day ART based on signs/symptoms and only results of CD4 and chest x-ray to rule out tuberculosis, cryptococcal meningitis, and serious illnesses. Mean days from HIV diagnosis/reengagement to ART initiation was calculated. Referral rate to long-term ART continuation site, after 10 weeks of ART, was also determined.

Results: From July-December 2017, 86.8% of 1,062 HIV-seropositive clients who were logistically eligible for Same-Day ART service and 90% (95% newly diagnosed: 85% reengaged) accepted the service. Median (IQR) CD4 was 295 (203-415) cells/mm3. 82% of those who accepted the service were clinically eligible and initiated ART. Among these, 79% received ART on the day of HIV diagnosis/reengagement. Mean (SD) days from HIV diagnosis/reengagement to ART initiation was 14 (5.2) days for newly diagnosed clients and was 11 (5.0) days for reengaged clients. Immune reconstitution inflammatory syndrome was not seen. Referral to long-term ART site was successful among 88.2%. Virologic suppression was achieved by 100% of 12 clients who reached month six after ART.

Conclusions: Same-Day ART initiation in an HIV/STI testing center in Bangkok, Thailand is highly feasible and safe, with high rates of client eligibility and acceptability. Preliminary data on referral to long-term ART site and short-term virologic suppression are encouraging. Same-Day ART should be immediately scaled-up, with rigorous and longitudinal evaluations to further inform HIV guidelines.

THAC043
Same-day ART initiation in HIV/STI testing center in Bangkok, Thailand: Initial results from an implementation research


Background: Despite WHO’s recommendation on Universal ART, one-third of persons living with HIV in Thailand are without antiretroviral therapy (ART). Attrition from care due to delays in initiating treatment may contribute to this gap. There is strong evidence to suggest clinical and practical benefits of rapid ART initiation, including Same-Day ART.
THACo040
Fast-track ART initiation in Botswana is associated with high rates of ART initiation, retention in care, and virological suppression
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Background: The Botswana Combination Prevention Project (BCPP) started in 2013 and has offered ‘fast-track’ ART initiation at the first clinic visit since June 2016. We examined treatment outcomes pre- and post-fast-track ART initiation.

Methods: BCPP is a cluster-randomized trial evaluating a combination HIV prevention package in 15 intervention and 15 control communities. In the intervention communities, we compared the cumulative proportion of individuals initiating ART (using Kaplan Meier estimates), as well as retention in care and viral suppression in patients, comparing outcomes in two periods: following the introduction of fast-track ART (June 2016-November 2017), versus pre- fast track ART initiation (October 2013-May 2016).

Results: Overall 3628 HIV-infected individuals not on ART were identified through community testing activities and referred for treatment, and 3315 (91%) linked to care. At data censoring in November 2017, 91% (2682/2943) of linked, eligible individuals had initiated ART. The cumulative probability of initiating ART within one year of linkage was 82% and 87% in pre- and post-fast-track ART initiation groups respectively. ART initiations occurred more quickly after implementation of fast-track ART with 65% (626/950) initiating ART within 7 days of linkage and 73% (712/950) initiating within 30 days, compared to 12% (137/1153) and 44% (851/1953) prior to fast-track. Retention in care after 6 months on ART was 93% in both groups. However, viral suppression rates within the first year of ART were higher in the fast-track group: 82% of those on ART for at least 6 months (510/621) had a viral load (VL) performed of whom 97% (494/510) were suppressed. In the pre-fast-track group, 80% (245/306) had a VL performed of whom 93% (231/248) were suppressed (p=0.04). Median time from linkage to first viral suppression was significantly shorter following introduction of fast-track ART (108 days vs 288 days, p=0.002).

Conclusions: ART initiation, retention in care and viral suppression rates were high in HIV-infected individuals who initiated fast track ART. Time from linkage to viral suppression was significantly shorter with fast-track ART, reducing the period of potential HIV-transmission risk. These data support programmatic ART initiation efforts designed at starting ART quickly in stable patients.

THACo0405
Towards the third 90: Factors associated with adolescent antiretroviral adherence and viral suppression
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Background: Globally, adolescents have lower rates of adherence to antiretroviral therapy (ART) and viral suppression (VS) compared to adults and children. We sought to understand predictors of adherence and VS among adolescents in Siaya County, western Kenya.

Methods: We conducted a retrospective analysis of patient files for adolescents aged 10-19 years initiated on ART between 2000 and 2017 at 119 sites. Outcomes were self-reported adherence (SRA) to ART and VS (< 1000 copies/ml) based on the latest 2017 VL results. Adherence was based on missed doses per month (good < 2, fair 2-4, poor >4). Variables were: age, sex, ART regimen, VS, SRA, school attendance, and frequency of clinic visits. Caregiver variables included HIV status, VS, SRA, stable caregiver and support group (SG) attendance within the last 3 months. Descriptive, bivariate and multivariable binary logistic regression analyses were done. Unadjusted and adjusted odds ratios (OR) and 95% confidence intervals (CI) were calculated to assess associations at the 5% level.

Results: Records of 2,814 adolescents were included in the analysis of these 1,389 (49%) were female and the mean age was 13.3 years (SD ±2.7). Good adherence was reported among 2,192 (78.8%), while 389 (14%) had fair and 201 (7.2%) poor adherence. In total, 1,915 (68.8%) achieved VS. Among caregivers 1,568 (55.7%) attended SG, 1,440 (51%) had HIV, 1,425 (49%) were on ART, and of these, 1,087 (88%) reported good adherence. Factors associated with good SRA were: caregiver good SRA (aOR=10.95 [95% CI: 4.96-26.52]), caregiver attendance of SG (aOR=11.11 [95% CI: 8.33-14.28]), caregiver attendance of AG (aOR=13.85 [95% CI: 9.71-19.58]) and clinic visit intervals of 2 months or more (aOR=3.96 [95% CI: 1.72-8.22]). Viral suppression was associated with good SRA (aOR=11.34 [95% CI: 8.59-15.01]), clinic visit intervals of 2 months or more (aOR=2.82 [95% CI: 1.75-4.31]) and Tenofuvir-based ART regimen versus an Abacavir (aOR=0.64 [95% CI: 0.48-0.81]) or Zidovudine (aOR=0.65 [95% CI: 0.5-0.86]) based regimen.

Conclusions: Caregiver factors were associated with good SRA among adolescents. Regimen type was a significant predictor of VS. The potential role of these factors in improving adolescent adherence to ART and VS should be explored.

THACo501
I want your sex: Sexual health in the PrEP era

THACo501
The post-intervention effects of conditional cash transfers for HIV/STI prevention: A randomized trial in rural Tanzania
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Background: Incentive-based policies have been shown to be powerful in many areas of behavior, but have rarely been tested in the sexual domain. The Rewarding Sexually Transmitted Infection Prevention and
Control in Tanzania (RESPECT) study is a randomized controlled trial testing the hypothesis that a system of rapid feedback and positive reinforcement that uses cash as the primary incentive can be used to reduce risky sexual activity among young people. Male and female, who are at high risk of HIV infection. Recognizing that such an intervention would be difficult to sustain over the length of individuals’ sexual lives, we evaluated its long-term effects using a post-intervention follow-up survey conducted one year after discontinuing the intervention.

Methods: The study enrolled 2,399 participants in 10 villages in rural southwest Tanzania. The intervention arm received conditional cash transfers ($10 or $20 every four months) that depended on negative results of periodic screenings for sexually transmitted infections, an objectively measured marker for risky sexual behavior. One year after discontinuing, at month 24, we revisited the 10 study villages and retested and re-interviewed study participants to assess the long-term impacts of the intervention.

Results: Overall, the CCT interventions seemed to have had a sustained impact in reducing the STI prevalence among the study population: when we combine all 7 STIs tested, both the high and the low value CCT intervention have relative risks significantly lower than 1, corresponding to a 18% (p<0.1) to 20% (p<0.01) risk reduction compared to the control group, respectively. These effects are stronger among males than among females.

Conclusions: These results from the one-year post intervention follow-up indicate that the CCT interventions might have sustained effect even after the cash payments have been discontinued and suggest a learning effect. They do not suggest that CCTs might destroy the intrinsic motivation to adopt safe sexual practices since no increased risk was reported in the intervention groups. Those important results when considering the potential feasibility at scale and sustainability of our CCT intervention.

THAC052
Changes, patterns and predictors of sexually transmitted infections in gay and bisexual men using PrEP, interim analysis from the PrEPX demonstration study

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THAC053
How can programmes better support female sex workers to avoid HIV infection in Zimbabwe?
A prevention cascade analysis

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Background: The ‘HIV prevention cascade’ has been proposed as a tool to measure prevention coverage and guide programming by identifying gaps in demand, supply and capability to adhere to HIV prevention tools. Here, we use a prevention cascade framework to explore coverage of...
condom use and Pre-Exposure Prophylaxis (PrEP) among female sex workers (FSW) in Zimbabwe, and make recommendations for programing.

Methods: We conducted secondary analysis of seven respondent-driven surveys from the intervention sites of a cluster-randomised trial in Zimbabwe in 2016. Women were tested for HIV, and completed a questionnaire detailing their socio-demographic and work characteristics, their experience of PrEP (available during the trial 2014-2016) and reported condom use with clients and partners. We operationalised measures of ‘demand’, ‘supply’ and ‘adherence’ to using condoms and PrEP. We used logistic regression to identify determinants of adherence. Differences were examined across sites and data then pooled. We weighted by site-normalised inverse degree and dropped seeds.

Results: There were 611 HIV-negative women included in our analysis. Approximately half of these women (54.7%) reported adherence to condoms and/or PrEP. While women knew that condoms prevented HIV and reported good access (both 94.0%), only 45.5% reported no episodes of condomless sex in the previous month. For PrEP, there were gaps across all three domains of demand, supply and adherence (Fig 1). Alcohol use of women and of their clients was associated with lower condom adherence among women drinking alcohol 4+ times per week, 38/152 28.0% adhered, compared to no alcohol, among whom 139/262 50.9% adhered. aOR=0.34 95% CI 0.08-0.41. Adjusted for socio-demographic and sex work characteristics. Younger women were less likely to report taking PrEP every day (aOR=1.05, 95% CI 1.01-1.10 for each year of age).

Conclusions: After 21 months of intensive community mobilisation for PrEP and condoms during the trial intervention, almost half of HIV-negative FSW reported inadequate prevention coverage, worse in the context of heavy alcohol use, which programmes could address. Interventions aimed at younger women are important. HIV prevention cascades should consider different prevention tools together, not in isolation.

Making markets work for HIV prevention: A total market approach to condom security in Vietnam

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Background: Donor-funded free and partially subsidized condoms for key populations (KPs) artificially suppressed a domestic commercial condom market in Vietnam. With significant declines in free/socially marketed condoms from 2014 on, market management was needed to ensure a sustained supply of affordable commercial condoms capable of meeting the needs of populations at-risk of HIV.

Description: From 2015 on, the USAID-PATH Healthy Markets project initiated a condom total market approach (TMA) effort:

1. Generating condom market volume, sales and growth projections that were used to engage local condom manufacturers and encourage local production of quality, low-cost condoms that appealed to KP, identify new distribution channels, and increase demand among key populations;
2. Developing a sustainable KP-focused condom value chain, bringing together the private sector, social enterprises, and KP-led community-based organizations (CBOs), and;
3. Working with the Ministry of Health to use market data to shape annual condom planning and budgeting.

As a result, four KP-market segmented brands were developed, and commercial condom sales volume in KP hotspots/outlets increased 400% from 5,125,984 in 2015 to 22,823,447 in 2017. Commercial condom market-share in KP-preferred outlets, i.e. hotels and guesthouses, significantly increased from 25% in 2013 to 74% in 2016.

Lessons learned: Key lessons learned include:

1. market and consumer insights and brokering relationships with new distributors and retailers were invaluable to engaging and securing commitment from local condom manufacturers to invest in the local market;
2. increasing the capabilities of KP-led CBOs and social enterprises to engage in commercial condom sales was essential to developing a sustainable KP-targeted market;
3. partnering closely with the MOH from the start increased their ownership and stewardship of more nuanced condom commodity planning.

Conclusions/Next steps: These findings have already been used to advocate for the accessibility of condoms to those who most need it. Additionally, there is interest in developing HIV prevention cascades at the venue level to characterize venues that have been adequately reached by prevention programs and those where there remain gaps.

THAC0504

HIV "condom cascade" to monitor prevention among female sex workers in Uganda

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Background: Recently there has been interest in HIV prevention cascades. We applied a proposed prevention cascade framework (Garnett 2016, Lancet 2016) to data collected for a PLACE mapping and biobehavioral survey in 30 districts in Uganda.

Description: The client-centric and program centric cascades were used to measure for condom use among 9,207 HIV-negative female sex workers from 30 districts. The client centric cascade showed that over half of the female sex workers did not perceive themselves to be at risk for HIV acquisition. Most of those who perceived themselves at risk had ever used condoms but only 64 of the 9,207 female sex workers reported consistent use. The program centric prevention cascade found that only two-thirds of the female sex workers who are at risk have access to condoms. But of those who have ever used condoms, consistent use is very poor. Estimating the condom cascade led us to estimate the number of condoms that would be required per month in order to protect female sex workers. We estimated that 110,889 condoms would be required for 10,417 female sex workers. We estimated that 1877 acts were in the past 4 weeks were among HIV infected sex workers who did not use a condom. Anal sex was also often not protected.

Lessons learned: Both the program centric and the client centric cascades provided compelling evidence of the lack of availability of condoms, the poor uptake of condoms, and the almost negligible consistent use of condoms in this population. It is striking that 4,736 of 9,207 female sex workers did not perceive they were at risk for HIV acquisition. It is also striking that 2853 female sex workers reported that condoms were not readily available to them. The cascade helped document the condom programming needs for this key population.

Conclusions/Next steps: These findings have already been used to advocate for the accessibility of condoms to those who most need it. Additionally, there is interest in developing HIV prevention cascades at the venue level to characterize venues that have been adequately reached by prevention programs and those where there remain gaps.

THAC0505

Making markets work for HIV prevention: A total market approach to condom security in Vietnam

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Background: Donor-funded free and partially subsidized condoms for key populations (KPs) artificially suppressed a domestic commercial condom market in Vietnam. With significant declines in free/socially marketed condoms from 2014 on, market management was needed to ensure a sustained supply of affordable commercial condoms capable of meeting the needs of populations at-risk of HIV.

Description: From 2015 on, the USAID-PATH Healthy Markets project initiated a condom total market approach (TMA) effort:

1. Generating condom market volume, sales and growth projections that were used to engage local condom manufacturers and encourage local production of quality, low-cost condoms that appealed to KP, identify new distribution channels, and increase demand among key populations;
2. Developing a sustainable KP-focused condom value chain, bringing together the private sector, social enterprises, and KP-led community-based organizations (CBOs), and;
3. Working with the Ministry of Health to use market data to shape annual condom planning and budgeting.

As a result, four KP-market segmented brands were developed, and commercial condom sales volume in KP hotspots/outlets increased 400% from 5,125,984 in 2015 to 22,823,447 in 2017. Commercial condom market-share in KP-preferred outlets, i.e. hotels and guesthouses, significantly increased from 25% in 2013 to 74% in 2016.

Lessons learned: Key lessons learned include:

1. market and consumer insights and brokering relationships with new distributors and retailers were invaluable to engaging and securing commitment from local condom manufacturers to invest in the local market;
2. increasing the capabilities of KP-led CBOs and social enterprises to engage in commercial condom sales was essential to developing a sustainable KP-targeted market;
3. partnering closely with the MOH from the start increased their ownership and stewardship of more nuanced condom commodity planning.

Conclusions/Next steps: These findings have already been used to advocate for the accessibility of condoms to those who most need it. Additionally, there is interest in developing HIV prevention cascades at the venue level to characterize venues that have been adequately reached by prevention programs and those where there remain gaps.
THAD01 Creating danger: Impact of end-demand laws and policing of sex work

THAD0101
Police related correlates of client violence among female sex workers in a U.S. city

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Background: Globally, rates of HIV among female sex workers (FSW) remain high. A more nuanced understanding of the role of structural factors is of paramount importance. Law enforcement practices have been identified as an important factor in the HIV risk environment of FSW. This study looks to characterize the frequency and type of interactions that FSW have with the police and explore the implications of cumulative police exposures on experiences of client violence.

Methods: Cross-sectional baseline data examined from a cohort study of 250 street-based FSW recruited between 04/2016-01/2017 using targeted sampling in Baltimore City, Maryland. U.S. Questionnaires captured a range of patrol/enforcement (e.g., routine stops) and abusive (e.g., verbal/sexual harassment) police encounters, experiences of client violence and other HIV risk factors, including drug use. All women were tested for HIV. Pearson’s chi-square tests and logistic regression models were used to test frequency and type of police interactions experienced by FSW, and the association between police interactions and client violence, accounting for daily heroin use.

Results: 78% of participants (n=195) reported lifetimen abuse police encounters, 41% reported daily/weekly encounters of any type. 22% of participants experienced client violence in the prior three months. FSW that reported heroin use (70%; n=175) reported more abusive encounters (2.5 vs 1.6, p<0.001) and more client violence (26% vs 12%, p=0.02) than their non-heroin using counterparts. In multivariable analysis, each additional year of police exposure and client violence appear amplified. Our results demonstrate the need for greater attention to better understanding the nature and impact of these forms of intersectional risk on FSW HIV risk environment. Structural interventions that seek to address police-FSW interaction in society and criminalising laws, sex workers are at risk for physical, sexual, economic and emotional violence from clients, co-workers, managers, institutions and others. This may cause inconsistent condom use and prevents sex workers globally from accessing necessary support and health care. This study assesses the current state of violence among sex workers in the Netherlands.

THAD0102
“They should protect us because that is their job”: An assessment of sex workers’ experiences with police abuse in Lusaka, Zambia

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Background: In Lusaka, police officials often perpetrate violence and abuse against sex workers and target them with the arbitrary and subjective enforcement of overly broad laws. This abuse increases the vulnerability of sex workers pushes them away from important health services and limits their access to information about their sexual and reproductive health needs. This study assesses the challenges faced by Lusaka’s sex workers. It is aimed at developing advocacy and litigation strategies to address the systemic abuse of sex workers by the police in Lusaka. It also highlights mechanisms that activists and lawyers can use to hold officials accountable.

Description: This study is based on a combination of desk research and qualitative research. The desk research focused on the legal framework within which the police interact with sex workers in Zambia. In addition to this, focus group discussions were held with 39 self-identified female sex workers FSW in two local languages, Nyana and Bemba. The FSW, aged between twenty and forty, represented five different geographic districts across Lusaka. The purpose of the focus group discussions was to develop an understanding of the relationship between sex workers and police authorities.

Lessons learned: While the act of selling sex for reward is not criminalised in Zambia, police officials often use vagrancy and nuisance laws to arbitrarily arrest and detain sex workers. These offences are overbroad and subjectively applied, which creates a culture of impunity - in which both the clients and police officials can abuse sex workers without consequences. Often, police officials request sex from sex workers in exchange for not arresting, detaining, or fining them. Eighty seven percent (87%) of participants in the study reported that the police have harassed them because they engage in sex work. Sex workers’ experiences with police affect their willingness to open cases at the police station, and therefore, often directly affect the extent to which they can access healthcare services postrape, including post-exposure prophylaxis and emergency contraception.

Conclusions/Next steps: In order to protect the fundamental rights and dignity of sex workers, the Zambian Penal Code must be revised to repeal offences that are vague and overly broad.

THAD0103
Violence towards sex workers in the Netherlands

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Background: Violence is one of the most important factors affecting the risk for sex workers around the world to HIV/AIDS. Due to their position in society and criminalising laws, sex workers are at risk for physical, sexual, economic and emotional violence from clients, co-workers, managers, institutions and others. This may cause inconsistent condom use and prevents sex workers globally from accessing necessary support and health care. This study assesses the current state of violence among sex workers in the Netherlands.

Methods: In this mixed methods study (including surveys, in-depth interviews and FGDs) sex workers were trained as research assistants and were part of the design and roll-out of the study. A very diverse group of 308 sex workers from all over the Netherlands was included.

Results: Overall violence experienced by sex workers in the Netherlands is high (physical violence 61%, sexual violence 78%, economic violence 58%, emotional violence 93%). Logistic regression analysis shows among others that male sex workers have 2.3 (p<.05) more odds for sexual violence and transgender sex workers have 4.9 (p<.05) more odds for emo-
Decriminalization of sex work is necessary to increase access to justice for sexual violence. Despite high levels of violence experienced by sex workers in this study most sex workers (79%) did not report any incident of violence to the police in the last 12 months.

Conclusions: Even though sex work is legal in the Netherlands, sex workers experience high levels of violence. Most sex workers do not report incidents to the police, which leaves them at higher risk. Decriminalization of sex work is necessary to increase access to justice for sex workers and reduce violence.

The impact of end-demand legislation on sex workers’ utilization of HIV care, health and community-led support services in a Canadian setting

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Background: Despite scientific and legal evidence on the harms of criminalization of sex work, Canada adopted new end-demand legislation - the Protection of Communities and Exploited Persons Act (PCEPA) - in 2014 that criminalizes new aspects of sex work (e.g., clients, third party advertising). One of the explicit goals of end-demand approaches is to increase access to services and supports for sex workers, despite substantial evidence that criminalization impedes access. This study aimed to longitudinally evaluate the impact of the PCEPA on sex workers’ access to HIV care, primary care, and community/sex worker-led services in Vancouver, Canada.

Methods: Data were drawn from a prospective community-based cohort of women sex workers, known as AESH (An Evaluation of Sex Workers’ Health Access) represented by experiential team members. Multivariable logistic regression with generalized estimating equations (GEE) examined the independent effect of the post-PCEPA period (2015-2017) versus the pre-PCEPA period (2010-2013) on sex workers’ utilization of HIV care and community-driven services and supports, using time-updated data.

Results: In separate multivariable confounding models, the post-PCEPA period was independently correlated with significantly reduced odds of utilizing community-driven (e.g., sex worker-led, Indigenous, migrant/ refugee, women or youth-specific) services and supports (AOR 0.58; 95%CI: 0.49-0.73). There was no evidence of increased access to HIV-specific services among sex workers living with HIV following implementation of the new laws (AOR 1.30; 95%CI: 0.85-2.00). The post-PCEPA period was also correlated with significantly reduced odds of accessing health services when needed (AOR 0.59; 95%CI: 0.45-0.78).

Conclusions: Findings show no increase in utilization of HIV care or other health services post-PCEPA, and rather a reduction in odds of accessing community-driven supports and health services when needed. Findings demonstrate that end-demand approaches to criminalize sex work may not only reproduce the harms of previous criminalized approaches to sex work in Canada, but may further exacerbate barriers to accessing health and community-led services that have been proven to be key contributors of better health outcomes. There is a critical evidence-based need to move away from criminalized approaches to sex work to increase access to services and supports in terms of HIV care, primary care, and community/sex worker-led services.

“Ending demand” in France: The impact of the criminalisation of sexworkers’ clients on sexworkers’ health, security and exposure to HIV

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1CNRS - Sciences Po, Centre de Recherches Internationales, Paris, France, 2Medecins du Monde (Doctors of the World), France Fieldwork Operations, Paris, France, 3Aix-Marseille University, Laboratory or Mediterranean Sociology, Marseille, France

Background: As of April 2016 France criminalized sexworkers’ clients as part of new legislation aimed at “fghting against the prostitution system” inspired by the so-called “Swedish model”. Detractors of the new legislation have cited the risks that the new law increases sexworkers’ vulnerability and exposure to stigma and violence, hinders their access to health and legal services and increases risks of exploitation in the sex industry. Based on these arguments, Medecins du Monde (Doctors of the World) initiated a survey aimed at evaluating the impact of the law on sexworkers’ health, rights and well-being.

Methods: Research was conducted between April 2016 and January 2018 based on mixed-methodology including qualitative semi-directive interviews and a questionnaire-based quantitative survey. Two researchers in social sciences oversaw research methodology and data analysis, and data collection was undertaken with a strong involvement of 13 civil-society organisations (health NGOs, community-based health NPOs and sex worker groups). 70 semi-directive interviews with sex workers, 28 interviews with outreach service-providers and 583 questionnaires completed by sexworkers were collected in 9 different cities and overseas territories.

Results: The most direct effect of the 2016 law on sex workers has been an acute increase in their socio-economic vulnerability. This vulnerability is interconnected with a multiplicity of factors including: the increase of violence: degrading working conditions; negative impact on sexworkers’ health. Our research also highlights the decrease in condom use and the increasing difficulty for sex workers to negotiate safe-sex practices as well as the difculty of accessing treatment for HIV+ sexworkers. Whilst it is still too early to evaluate the impact in terms of HIV infections, the research points to an increase in some STIs, notably of syphilis, amongst sexworkers in France.

Conclusions: Sexworkers are a key population in the fight against HIV. Our research clearly demonstrates the negative consequences of the criminalisation of clients on sexworkers’ ability to practice safe sex and prevent HIV infection. The results have far-reaching implications for policy-makers considering the legal framework around sexwork and are highly relevant to health workers, activists and sex-worker groups advocating to improve the rights of sexworkers and mitigate the negative impacts of repressive policy.
**THAD0201**

Criminal justice involvement as a social determinant of sexual risk among male migrant and non-migrant market vendors in Kazakhstan: Implications for HIV prevention and human rights

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**Background:** This longitudinal study assessed associations between criminal justice involvement (CJI) and sexual risk behaviors in a sample of male migrant and non-migrant vendors in the largest open-air marketplace in Central Asia. We hypothesized that questioning by market officials and migration police, experiencing arrest and incarceration would be associated with greater likelihood of sex under the influence of drugs or alcohol, more than one sexual partner, condomless sex, seduction sex, condomless sex while traveling, and more than one sexual partner while traveling.

**Methods:** We employed respondent driven sampling (RDS) to recruit 1,342 male vendors consisting of external migrants from Tajikistan, Uzbekistan, and Kyrgyzstan, internal migrants and a non-migrant comparison group from Kazakhstan. Multiple imputation with chained equations (ICE) adjusted for bias introduced from missing data at baseline and 3, 6, and 12-month assessments (5,883 observations). Multi-level logistic regression with time period fixed effects and random intercepts estimated odds ratios (OR) of associations between CJI and sexual risk behaviors overall and by non-migrant and migrant groups.

**Results:** Table 1 provides CJI, and sexual risk behaviors stratified by migration status. In multivariate models, questioning by market officials predicted increased risk of condomless sex (OR=1.02, SE=0.01, p<0.001), sex under the influence of drugs/ alcohol (OR=1.02, SE=0.01, p<0.001). Arrest predicted increased risk of sex under the influence of drugs/alcohol (OR=1.01, SE=0.01, p<0.01). Incarceration predicted increased risk of sex under the influence of drugs/alcohol (OR=1.02, SE=0.01, p<0.01). Arrest predicted increased risk of sex under the influence of drugs/alcohol (OR=1.02, SE=0.01, p<0.01). Arrest predicted increased risk of sex under the influence of drugs/alcohol (OR=1.02, SE=0.01, p<0.01). More than one sexual partner while traveling (OR=1.02, SE=0.01, p<0.01). More than one sexual partner while traveling (OR=1.02, SE=0.01, p<0.01). More than one sexual partner while traveling (OR=1.02, SE=0.01, p<0.01). Contact with migration police predicted increased risk of sex under the influence of drugs/alcohol (OR=1.01, SE=0.01, p<0.01). Imigration status was linked to enhanced barriers to health access. Findings suggest that enforcement-based approaches to sex work may exacerbate poor health access amongst sex workers in indoor venues, particularly recent im/migrants. Legal reforms that decriminalize sex work, avoid conflation of sex work and sex trafficking, and enable safer indoor workspaces are recommended.

**Conclusion:** Im/migrant sex workers had higher odds of worrying about inspections and their consequences, and worrying about inspections was linked to enhanced barriers to health access. Findings suggest that enforcement-based approaches to sex work may exacerbate poor health access amongst sex workers in indoor venues, particularly recent im/migrants. Legal reforms that decriminalize sex work, avoid conflation of sex work and sex trafficking, and enable safer indoor workspaces are recommended.

**THAD0202**

Harms of workplace inspections for im/migrant sex workers in indoor establishments: Enhanced barriers to health access in a Canadian setting

B. McBride, K. Shannon, P. Dufty, M. Braschel, S.M. Goldenberg

**ABSTRACT**

**Background:** New end-demand sex work legislation (PCEPA) was passed in Canada in 2014, the enforcement of which may disproportionately impact im/migrant women in indoor venues due to its focus on third party advertising and conflation of sex work with sex trafficking (forced sexual labour). Im/migrant sex workers face intersecting concerns regarding criminalization, restrictive immigration policies, and poor health access, yet evidence is limited regarding how experiences and perceptions of criminalized enforcement impact health access. This study examined correlates of worrying about workplace inspections by authorities and modeled the independent effect of worrying about inspections on health access amongst indoor sex workers over a 2.5-year period (2014-2017).

**Methods:** Longitudinal data were drawn from AESHA, a community-based prospective open cohort involving 900+ sex workers across Metro Vancouver. Experiential (current/former sex workers) and non-experiential staff guided participants through interviewer-administered semi-annual questionnaires. Bivariate and multivariable logistic regression with generalized estimating equations (GEE) were used to investigate factors correlated with worrying about workplace inspections, using time-updated data at each semi-annual visit. A separate confounder model was used to examine the independent effect of worrying about inspections on barriers to health access.

**Results:** Across the 2.5-year study, of 397 indoor sex workers, 23% experienced workplace inspections and 51.6% worried about legal, economic or social consequences of inspections. In multivariable GEE analyses, worry about inspections was correlated with recent im/migration (adjusted odds ratio[AOR] 3.19, 95% confidence interval[CI] 1.77-5.53), police harassment (AOR 3.49, 95%CI 1.92-6.34), workplace violence (AOR 1.66, 95%CI 1.09-2.52), and enhanced work stress (AOR 1.05 per additional point on work stress scale, 95%CI 1.01-1.09). In a multivariable GEE confounder model adjusted for key confounders, worry about inspections had an independent effect on enhanced barriers to health access (AOR 1.45, 95%CI 1.06-1.91).

**Conclusions:** Im/migrant sex workers had higher odds of worrying about inspections and their consequences, and worrying about inspections was linked to enhanced barriers to health access. Findings suggest that enforcement-based approaches to sex work may exacerbate poor health access amongst sex workers in indoor venues, particularly recent im/migrants. Legal reforms that decriminalize sex work, avoid conflation of sex work and sex trafficking, and enable safer indoor workspaces are recommended.

**Table 1. Population estimates of CJI and sexual risk by migration status (obs. 5868)**

<table>
<thead>
<tr>
<th>Migration Status</th>
<th>Overall % (obs.)</th>
<th>Male migrant % (obs.)</th>
<th>Internal migrant % (obs.)</th>
<th>Non-migrant % (obs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex under the influence of drugs/alcohol</td>
<td>11.47(43)</td>
<td>15.08(41)</td>
<td>11.60(21)</td>
<td>12.49(20)</td>
</tr>
<tr>
<td>Transactional sex</td>
<td>7.31(72)</td>
<td>6.76(44)</td>
<td>7.99(101)</td>
<td>6.47(239)</td>
</tr>
<tr>
<td>Unprotected sex</td>
<td>35.53(609)</td>
<td>32.54(321)</td>
<td>34.66(585)</td>
<td>34.28(1515)</td>
</tr>
<tr>
<td>&gt;1 sex partner while traveling</td>
<td>3.16(31)</td>
<td>3.71(30)</td>
<td>4.24(59)</td>
<td>4.84(145)</td>
</tr>
<tr>
<td>Questioning by market officials</td>
<td>1.05(21)</td>
<td>1.40(21)</td>
<td>1.11(11)</td>
<td>1.42(48)</td>
</tr>
<tr>
<td>Questioning by migration police</td>
<td>3.10(50)</td>
<td>3.22(10)</td>
<td>1.12(24)</td>
<td>3.47(18)</td>
</tr>
<tr>
<td>Arrest</td>
<td>26.58(711)</td>
<td>10.37(120)</td>
<td>7.69(190)</td>
<td>12.37(1021)</td>
</tr>
<tr>
<td>Incarceration</td>
<td>4.27(125)</td>
<td>2.48(23)</td>
<td>1.83(34)</td>
<td>2.51(182)</td>
</tr>
</tbody>
</table>

**Conclusions:** Findings underscore the need for structural interventions that target law enforcement and other criminal justice policies to facilitate HIV prevention interventions with key populations including male labor migrant market vendors in Kazakhstan.

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**ABSTRACT INDEX**

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Migrant’s perspective on TB and HIV in relation to healthcare services: A qualitative study in Stockholm, Sweden

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Background: While most refugees are young adults in relatively good physical health, the unprecedented stress and trauma that most are exposed to on-route affects their mental well-being and also favors the spread of infectious diseases, such as HIV and tuberculosis (TB) and challenges their health. In Sweden, newly arrived migrants are offered a free-of-charge examination to identify and provide treatment of infectious diseases, including HIV and TB. However, little is known about the migrants’ knowledge and attitude towards HIV and TB screening in the host country. We aim to explore the knowledge and attitudes about HIV and TB in relation to the healthcare services through migrant’s perspective in Stockholm.

Methods: Focus group discussions (FGD) and in-depth interviews (IDI) with migrants were conducted during late 2017 and early 2018 in various settings; specialized health clinics for migrants and civil societal organizations meeting newly arrived migrants in Stockholm, Sweden. The FGD were organized with homogenous groups of 7 individuals based on gender, age range and language. The IDI with 6 migrant men and women were utilized to allow for sensitive thoughts to emerge. The interviews were done with migrants with latent TB, and migrants have that not been tested for HIV since arrived to Sweden. We conducted latent content analysis.

Results: In Sweden, migrants reported the following: experience stigma associated with testing for HIV and TB, fear of positive diagnosis for TB and HIV infection: limited knowledge about available services to screen and treat for HIV/TB, delay timely healthcare seeking due to fear of and stigma, and fear of losing social and family support in the case of HIV/TB diagnosis.

Conclusions: HIV and TB screening are perceived as a necessity for newly migrants and receive information upon arrival to Sweden. Crowded living conditions, language barriers, stigma, myths about HIV and TB, as well as fear of deportation also add to reluctance of migrants to seek for screening, delaying diagnosis and treatment. It can be seen as an opportunity to critically evaluate actions taken for newly arrived migrants, and to learn from and to share experiences between policymakers and service providers concerning migrant’s health in Sweden.

Ensuring access to primary care for undocumented migrants in England

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Background: In the UK, the National Health Service (NHS) is a comprehensive health service providing free healthcare to all UK residents. It is funded by taxation i.e it is not an insurance-based or contributory system. However, in England undocumented migrants are not eligible for free care and are charged for accessing certain services.

Description: Migrants, especially from sub-Saharan Africa, are amongst the most affected by HIV in the UK. Black African men and women living in the UK making up 1.8% of the UK population but 35% of all people accessing HIV care.

Despite securing free HIV treatment for migrants in 2012, we continued to be concerned about charging migrants for other elements of healthcare, which would deter migrants from accessing healthcare and reduce opportunities for migrants to be tested and diagnosed. Primary care is a key site for HIV diagnosis and in England migrants are more likely to be diagnosed with HIV in primary care than in a sexual health clinic.

The Government has looked to implement primary care charging for a number of years. Most recently, in the Government’s 2015-16 consultation on further extensions of charging, the Government canvassed views of stakeholders on charging in primary care. We submitted a consultation response detailing the public health impact of such a move. We also supported a coalition of other NGOs to respond making the case for access to primary care. In early 2017, the Government announced that they were putting off immediate plans to charge in primary care.

Lessons learned: We have ensured that, despite the current anti-immigration policy context in England, primary care remains free for everyone irrespective of residency status. The public health argument, in a political climate where migrants are a marginalised and politically unpopular group, is an argument that policy-makers have particularly taken note of. Important to the success of our campaigning has been: a united voice from the HIV sector including clinicians, strategic coalitions with health and migration organisations, mobilising parliamentarians, and utilising the evidence base.

Conclusions: Advocacy will continue to ensure that migrants continue to access primary care and other vital parts of the health service.

Community monitoring in HIV prevention programs with sex workers in Kyrgyzstan

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Background: The goal is to regularly monitor the quality of services and legal barriers that prevent sex workers from participating in HIV programs, including monitoring of: - approaches to working with sex workers - adequacy of services in terms of needs and context - work of state agencies Monitoring in the field is accompanied with technical assistance to NGO.

Description: Tais Plus conducted monitoring by the community during 2016-2017 in the framework of the Global Fund program, the components “Community Systems Strengthening” and “Removing Legal Barriers” (CSS and RLB).
Monitoring tools have been developed for conducting focus groups with NGOs in the following areas: VCT, STI services, capacity of NGOs to work on CSS and RLB.

For 2 years, Tais Plus staff has visited 6 NGOs on a quarterly basis, which implement HIV prevention programs with sex workers in Kyrgyzstan. During each visit, focus groups were held with NGO staff, as well as meetings with sex workers, during which participants shared their concerns and feedback on the work of NGOs, and also discussed their barriers and opportunities to actively participate in HIV and rights programs. Conclusions/recommendations from each visit were agreed with NGOs, and then sent to the principal donors funding HIV and rights programs to inform them about the need to make changes in current activities.

Technical advice was based on the SWIT.

Lessons learned:
- 10 Tais Plus staff participated in monitoring visits, 8 of them - on a voluntary basis.
- 5 visits were made to most of the NGOs.
- 47 employees from 6 NGOs participated in monitoring, including focus groups discussions and on-the-job trainings.

The proposals to improve the following program areas with sex workers were developed and agreed with NGOs: information work, VCT, legal barriers, community strengthening, STIBSRHR services, and increasing NGO capacity. These proposals are addressed to both NGOs and donors.

Conclusions/Next steps:
- Monitoring through community should be an integral part of HIV programs, and its results should be used to plan and adjust programs.
- Ensure training employees who are sex workers of visited organizations to monitor and then form mixed monitoring teams.

THAD0302

When situations go from bad to worse: Strengthening collective action during periods of crisis through concrete guidance and principles for engagement

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Background: Acute violence, defined as periods of increased severe emotional, physical, sexual, and economic abuse, against key populations—men who have sex with men, people who inject drugs, sex workers, and transgender women—is increasing, including in East Africa. Recent examples include the torture of peer educators, the arrest of mobile outreach teams, and the ransacking of key population-identified community-based organizations (CBOs)—all of which disregard human rights and undermine efforts to curb the HIV epidemic. While local actors lead the response to acute violence, international and regional stakeholders—such as global and regional key population networks, international non-governmental organizations (NGOs), and donors—must be able to play an effective role if requested.

Methods:

In 2017, the Technical Advisory Group on Violence, Stigma, and Discrimination Against Key Populations supported by the PEPFAR and USAID-funded LINKAGES project, convened CBOs, NGOs, United Nations agencies, donors, security experts, and global and regional key population networks working in East Africa to identify current challenges in acute violence responses, articulate principles for local engagement, and generate recommendations for international and regional actors.

Results: Barriers to appropriate and effective responses by international and regional stakeholders include: acting without guidance from those most affected, causing added stress and danger for local actors; a failure to adequately resource program staff most at risk, increasing their vulnerability; and support to individual local partners instead of collectives, resulting in duplicative investments and fractured coalitions. Recommendations include deference to local actors, appropriate resourcing, and pre-emptively forming local collectives and international and regional coordinating bodies that can act in a unified immediate way. Principles to guide international or regional actors’ engagement reinforce the importance of: embracing “first, do no harm” in every aspect of key population programming, avoiding false dichotomies between human rights and HIV objectives, and striving to take a long-term view even during a crisis.

Conclusions:

International and regional actors operating in East Africa and beyond can strengthen their responses to acute violence by taking concrete steps, grounded in principles for engagement, thereby protecting key population members’ human rights and removing barriers to the effective implementation of HIV programs.

THAD0303

Monitoring and evaluating technical assistance to key populations and HIV projects in Russia: Removing legal barriers and community systems strengthening

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Background: In 2015-2017, non-governmental organizations in Russia delivered HIV services for people who use drugs, sex workers and men who have sex with men with the support of the Global Fund to Fight AIDS, Tuberculosis and Malaria. The service component was aligned with an advocacy component, which included community systems strengthening activities (CSS) to empower and mobilize key affected populations (KPs) to engage in meaningful dialogue with authorities, and activities to educate KPs and provide them with tools to challenge discrimination and remove legal barriers (RLB) for HIV services. In 2016 the Canadian HIV/AIDS Legal Network provided legal technical assistance (TA) for the advocacy component.

Description: A Monitoring, Evaluation and Learning framework was designed to collect and analyze quantitative and qualitative data to assess (1) how staff of HIV projects and KP representatives rated the TA, and (2) how the access to legal aid changed as a result of the TA.

Lessons learned: Through the TA, access to legal aid significantly improved. Over 500 community legal workers (CLWs) and KPs participated in CSS/RLB capacity-building and networking activities. CLWs consulted with 7,683 clients and the TA team provided direct legal support for 950 clients. Of 1,195 documented cases, 929 were partially or fully resolved, including through formal complaint and court procedures (680 cases) and legal mediation. Two shadow reports to two UN treaty bodies resulted in strong recommendations to Russia regarding the discrimination and HIV prevention among SW and PWUD. CLWs and project managers rated the TA as a very important component in vitalising legal advocacy and integrating human rights promotion and protection into national, community-based programs.

Conclusions/Next steps: Legal TA is important to help CLWs and KPs navigate complex legal environments, encourage and empower them to address discrimination and human rights violations, thus reducing the risks of HIV. With the support of the Elton John AIDS Foundation, the Legal Network will implement the “best practices” of the 2016 TA project in its current 2017-2020 legal TA project in St. Petersburg to help people who use drugs access a continuum of HIV care services.
THAD034
The Caribbean civil society shared incident database: A monitoring and reporting mechanism to strengthen community activism to address human rights violations

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Background: People living with HIV and key populations in the Caribbean frequently experience human rights violations including denial of access to health, housing, employment, as well as social exclusion and violence.

Description: In 2016, the Caribbean Vulnerable Communities Coalition (CVCCI) established the Shared Incident Database (SID), the first regional civil society-led human rights monitoring mechanism which records, analyses and exchanges information on rights violations. It facilitates comprehensive data collection through standardised intake procedures which enhance the capacity of KPs and CSOs to document rights breaches and enables data sharing to support redress or engagement with policy, public health and legal decision-makers. Clients identifiable details are only visible at an organizational level and there are varied data access levels within an organization profile. At an organizational, national and regional level the database generates non-identifiable aggregated data with geographic identifiers. The database is linked to redress opportunities such as Cari-bono which is a network of lawyers around the Caribbean who will be offering pro-bono services to cases documented. Technical assistance was provided to civil society organizations to build capacity in the community monitoring of legal rights and use of SID.

Lessons learned: As a result of improved community monitoring of legal rights, there have been five legal challenges filed before the courts in Jamaica, Guyana and Trinidad & Tobago respectively.

The database has support the building of CSO capacity to carry out redress for their clients. While CSOs engage their clients around redress, it provides capacity building opportunity for community members to take on self-advocacy. For instances where persons are not aware of the official patient complaint mechanism, SID has proven to be viable substitute once there is an understanding between the CSOs documenting the right violations and the health care officials.

Conclusions/Next steps: Use one of the incidents entered into SID to undertake strategic litigation for the improvement of the legal enabling environment for PLHIV and key populations. To have CSOs documenting rights violations in all the Caribbean countries and territory Increase awareness.

THAD035
Strengthening HIV-related community organizations: Evidence from a large-scale program in India

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Background: Community-organizations (COs) are at the front lines of combating the AIDS epidemic, particularly among marginalized populations. Yet they often have institutional weaknesses that make their sustainability uncertain. The Bill and Melinda Gates Foundation, through its Avahan program in India, supported the development and strengthening of COs in high HIV prevalence states to help reduce socioeconomic vulnerabilities among key populations. We assessed the capacities of the COs over a three-year period in program implementation, resource mobilization, networking, and advocacy.

Methods: The training of the COs to deliver quality services was based on four pillars:
(i) strengthening institutional capacity,
(ii) improving access to social protection schemes,
(iii) enhancing financial security and
(iv) providing effective social justice and security efforts.
Further COs' capacities were strengthened in resource mobilization, advocacy, networking, etc. Data collected in two survey rounds during 2015 and 2017 from 48 COs have been used in the analysis, that includes descriptive statistics, frequencies and bivariate techniques.

Results: More than 42,000 new members were enrolled across the COs in the last three years. A three-fold increase was found in their corpus fund from an average of US$ 2,965 per CO in 2014 to US$ 8,844 in 2017. Similarly, the COs have been immensely successful in raising funds from various sources; 71% of COs have generated funds in 2017 as compared to 45% in 2014. COs generated on average US$ 3,604 in the last three years. 55% of which was raised in the program’s last year. COs engage in different district level forums, government officials and institutions increased significantly over time. Police (30% vs 75%), Social welfare department (32% vs 81%), Judiciary (31% vs 75%) and with formal financial institutions (37% vs 77%)

Conclusions: Most of the COs demonstrated significant improvement in increasing their corpus fund through resource mobilization, establishing networks with a wide range of stakeholders, and taking up various income generating activities. Strengthening COs to implement focused interventions inculcates ownership among members and an increased probability of organizational sustainability.

THAE01
Confronting violence against women

THAE0101
What do we know about interventions to prevent and reduce gender-based violence among young people living with, or most affected by, HIV in low- and middle-income countries? A systematic review

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Background: Adolescents and young people are disproportionately affected by gender-based violence (GBV). GBV is associated with an increased risk of HIV acquisition and can disrupt access to treatment and retention in care, resulting in worse HIV outcomes. This systematic review aims to assess effectiveness of existing GBV interventions evaluated among young people vulnerable to HIV aged 10-24 in low- and middle-income countries (LMICs).

Methods: Studies were identified by searching databases, grey literature, trial registries, back referencing and contact with researchers and program implementers. Abstracts were screened by two researchers according to the inclusion criteria pre-specified in the review protocol. Randomized, cluster-randomized and quasi-experimental studies with control group were included if they assessed GBV or attitudes towards GBV as an outcome. Data were extracted using a form adapted from the Cochrane Collaboration and narratively synthesized. Study quality was assessed using the Cochrane Risk of Bias tool.

Results: Thirty studies with 35,322 participants were included. Interventions were structural (9), school-based (4), community-based (2), and individual-focused (2). Interventions aimed to empower young women (9), change behaviors (4), remove economic barriers among young women (2) or change gender norms (2). All interventions had multiple components (e.g. life-skills and health education, micro-grants, or social support). ONE intervention specifically included a key population (sex-workers): the remaining included young people in high HIV-prevalence settings. No interventions for HIV+ adolescents were found. Overall, the studies had a median risk reduction of 15% (range: 4-60%) in self-reported GBV exposure favoring the intervention, and TWO studies reported a median risk reduction of 7% (range: 1-25%) in self-reported...
GBV perpetration favoring the intervention. SIX studies reported reductions in physical/emotional intimate partner violence. THREE studies reported reductions in sexual coercion/violence. ONE study reported reduction of verbal assault by opposite sex, and FOUR studies reported reduction of any sexual assault/forced sex. No harmful effects could be observed. Structural and school-based interventions were most effective.

Conclusions: Structural and school-based interventions targeting behaviors, economic barriers, negative gender norms and promoting empowerment may help to substantially reduce and prevent GBV among young people vulnerable to HIV in LMICs. Evidence on effective GBV interventions for young key populations is urgently needed.

THAEo102

WINGS of hope: Evaluating effects of integrating a brief gender-based violence prevention intervention with HIV counselling and testing among women who use drugs in Kyrgyzstan


Background: Gender-based violence (GBV) negatively impacts access of women who use drugs (WWUD) to HIV prevention and to drug treatment. Collaboratively with consultants at Columbia University Social Intervention Group, partner Kyrgyz-based NGOs and GLORI Foundation, we developed WINGS of Hope intervention that includes GBV screening, brief intervention and referral to treatment service (SBIRT) with HIV counseling, testing and linkage to care. We evaluated the feasibility and acceptability of WINGS (Women Initiating New Goals for Safety) GBV prevention model adapted for helping WWUD in Kyrgyzstan to access HIV prevention and harm reduction services.

Methods: In 2013-2016, 213 WWUD in Kyrgyzstan participated in WINGS of Hope intervention study. Each participant attended the 2-session GBV SBIRT intervention that included raising awareness about different types of GBV and how GBV increases risk for substance misuse and HIV, screening for GBV, safety planning, and identifying goals to increase safety. Women participants were offered voluntary HIV rapid testing and counseling, increased from 37 to 61%, from 14 to 29% (Tz=52). 141 (SA=119; Tz= 22) reported lifetime experiences of violence at baseline. Including GBV screening within HIV counselling sessions was feasible, provided continuous training and staff support was available. Overall, study participants were amenable to GBV screening, provided that the basic principles of confidentiality, staff empathy, and absence of judgment were observed. Participants who reported abuse said that it was reassuring and helpful to talk to friendly, non-judgemental counselors. Challenges reported by HIV counselors included: initial discomfort in asking about violence; facilitating disclosure of suspected cases; length of time taken to complete the sessions; and offering help when participants did not want any referrals. Staff felt supported by regular debriefings, a directory of referral services for GBV, and an on-site social worker.

Conclusions: Overall, our study suggests that integrating GBV screening into HIV counselling and testing for AGYW is acceptable and feasible when appropriate referral, staff debriefing and technical support are offered, and basic principles of empathetic listening and confidentiality are respected. It is essential that counseling for this group is adolescent-friendly and non-judgmental.

THAEo103

Integrating gender-based violence screening and support into HIV counselling and testing for adolescent girls and young women accessing PrEP in South Africa and Tanzania - experiences from the EMPOWER study

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Background: Partner violence may undermine oral PrEP use. Yet evidence is scarce on how to best to support PrEP use while decreasing vulnerability to violence. We assessed the feasibility and acceptability of integrating gender-based violence (GBV) screening and support into HIV counselling for adolescent girls and young women (AGYW) accessing oral PrEP.

Methods: EMPOWER is an open-label PrEP demonstration project for AGYW (16-24 years) in South Africa and Tanzania. We adapted HIV counselling and testing guidelines for lay counselors to include five questions about exposure to gender-based violence (GBV), recommended by the World Health Organisation. Participants were screened at baseline and at each follow-up visit. We analysed data from counselling sessions observations (n=10 in SA only) and in-depth interviews with participants (n=39, SA = 25, Tz = 14) and clinical staff (n=13, SA = 10, Tz = 3). Themes explored included: comfort with GBV screening sessions, usefulness of risk assessment and safety planning, and appropriateness of referrals to GBV support services.

Results: We screened 619 and enrolled 431 HIV negative AGYW (SA=379; Tz=52). 141 (SA=119; Tz= 22) reported lifetime experiences of violence at baseline. Including GBV screening within HIV counselling sessions was feasible, provided continuous training and staff support was available. Overall, study participants were amenable to GBV screening, provided that the basic principles of confidentiality, staff empathy, and absence of judgment were observed. Participants who reported abuse said that it was reassuring and helpful to talk to friendly, non-judgemental counselors. Challenges reported by HIV counselors included: initial discomfort in asking about violence; facilitating disclosure of suspected cases; length of time taken to complete the sessions; and offering help when participants did not want any referrals. Staff felt supported by regular debriefings, a directory of referral services for GBV, and an on-site social worker.

Conclusions: Overall, our study suggests that integrating GBV screening into HIV counselling and testing for AGYW is acceptable and feasible when appropriate referral, staff debriefing and technical support are offered, and basic principles of empathetic listening and confidentiality are respected. It is essential that counseling for this group is adolescent-friendly and non-judgmental.

THAEo105

Group therapy for gender-based violence (GBV): Reducing HIV and GBV risk among adolescent girls and young women in Nairobi’s informal settlements

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Background: The 2015-2018 USAID/Kenya and East Africa funded Afya Jijini program is implementing the Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) intervention to help empower adolescent girls and young women (AGYW) and reduce their HIV risk in Nairobi, Kenya’s informal settlements. Five in every 10 Kenyan wom
en (about 47%) between ages 15 to 49 have experienced at least one form of violence in their lifetime. Adolescent girls and young women in Nairobi’s informal settlements are uniquely vulnerable to HIV. Their vulnerability cuts across behavioral, social and biological factors. AGYW often engage in age-disparate and/or transactional relationships as a result of poverty and unemployment, putting them at increased HIV risk. The perception that AGYW can negotiate monogamy, condom use, as well as request their male sexual partners (MSPs) to get circumcised, is still largely unheard of for most AGYW living in the project’s catchment areas.

**Methods:** Group therapy for GBV, facilitated by a trained trauma counselor allows AGYW to cultivate trust and share GBV experiences during group sessions. This therapy includes recognition of emotional self-awareness, followed by cognitive autonomy sessions that enable AGYW to take responsibility for their own change. The therapy sessions provided post violence counseling support to 2,452 enrolled AGYW at 12 safe spaces across Mukuru Kwa Njenga Ward. Ninety-five percent (n=2,320) of AGYW accessed counseling for physical violence, with 5% (n=124) reached with emotional counseling. Afya Jijini worked with the girls and formed post GBV support groups with over 1,050 (43%) AGYW.

**Results:** The need for trauma counseling support and information sharing on GBV-related matters is pivotal to AGYW transformation. The earlier the AGYW are exposed to GBV prevention information, the increased likelihood of reporting GBV cases. Multiple platforms for GBV prevention awareness is key for communities to shun negative gender norms. Post GBV therapy groups offer a base for advocacy and networking for collective voice against the social issue.

**Conclusions:** Discussing GBV is a taboo issue in Kenya. Through group GBV therapy sessions, AGYW find a platform to discuss these issues. Furthermore, AGYW are able to recognize their roles in mitigating GBV.
Background: Although shorter leukocyte telomere lengths (TL) of people living with HIV have been reported, TL investigations in HIV-relevant immune subsets remain scarce. Immune aging, including subset-specific TL attrition and imbalance in senescent/proliferative CD8 T cell distributions, likely link HIV with premature age-related comorbidities among people on stable cART. It is unknown whether this link exists for HIV slow progressors (SP).

Our objective was to characterize immune subset TL in SP to determine whether their ability to control HIV protects against HIV-modulated immune aging. We hypothesized that TL shortening and senescent CD8 T cell subset expansion would be mitigated in SP compared to cART-controlled HIV+ non-slow progressors (NSP).

Methods: Live PBMCs were obtained from cART-controlled NSP and HIV- women enrolled in the CARMA cohort, and SP from the Canadian Cohort of HIV+ Slow Progressors. Groups were matched 1:1:1 for age. CD4 T cells, proliferative (ICD28-), senescent (ICD28+ CD8 T cells), and (ICD19+) B cells were sorted by FACS, and their relative TL measured by multiplex qPCR. Groups were compared using Mann-Whitney or t tests.

Results: Women (n=35/group) 27-60y were well-balanced for age and ethnicity, and CD4 counts were similar between SP/NSP. All NSP were treated with combination antiretroviral therapy can survive to older ages but have an increased risk of age-related conditions compared to HIV-negative individuals. Whether HIV infection per se affects the aging process and contributes to PLWH’s susceptibility to age-related conditions remains unclear. To address this question, we determined the serum profile of N-glycans, which are powerful and reliable biomarkers of aging, in cryopreserved longitudinal serum samples from Amsterdam Cohort Studies on HIV/AIDS (ACS) participants, from before and after HIV-seroconversion (SC).

Methods: The N-glycans profile was analyzed using longitudinal serum samples from 73 ACS participants (all males, with a mean [SD] age at time of first pre-seroconversion sampling of 34.8 [7.5] years). For each subject, 3 samples were obtained between 12 and 6 months before SC and 3 samples were obtained between 6 and 60 months after SC. None of the participants were receiving antiretroviral treatment during the time of sampling. Serum glycoproteins were analyzed using DSA-FACE technology. Ten N-glycan peaks were detected; a combination of the glycoprotein profile of N-glycans, which are powerful and reliable biomarkers of ageing, in younger and older populations.

Background: Persons living with HIV (PLWH) who are successfully treated with combination antiretroviral therapy can survive to older ages but have an increased risk of age-related conditions compared to HIV-negative individuals. Whether HIV infection per se affects the aging process and contributes to PLWH’s susceptibility to age-related conditions remains unclear. To address this question, we determined the serum profile of N-glycans, which are powerful and reliable biomarkers of aging, in cryopreserved longitudinal serum samples from Amsterdam Cohort Studies on HIV/AIDS (ACS) participants, from before and after HIV-seroconversion (SC).

Methods: The N-glycans profile was analyzed using longitudinal serum samples from 73 ACS participants (all males, with a mean [SD] age at time of first pre-seroconversion sampling of 34.8 [7.5] years). For each subject, 3 samples were obtained between 12 and 6 months before SC and 3 samples were obtained between 6 and 60 months after SC. None of the participants were receiving antiretroviral treatment during the time of sampling. Serum glycoproteins were analyzed using DSA-FACE technology. Ten N-glycan peaks were detected; a combination of the glycoprotein profile of N-glycans, which are powerful and reliable biomarkers of ageing, in younger and older populations.

Results: We found a significant mean age advancement (sem) after SC of 2.6±1.6 years. SC was significantly associated with a significant increase in peaks 1 (p<0.001), 2 (p<0.001) and 3 (p<0.001) and a significant decrease in peaks 5 (p<0.001), 7 (p<0.001) (Table 1). The changes in peaks 2, 5 and 7 were influenced also by the length of time after SC.

Conclusions: We confirmed the well-known dependency with age for N-glycan peaks 1 and 6. Our results suggest that both SC and the length of time after SC may affect the aging process by acting on the glycan profile, including on peaks that thus far have not been routinely used for age prediction.

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<tr>
<th>Regression coefficient for SC event</th>
<th>p-value for SC event</th>
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<tbody>
<tr>
<td>logP1</td>
<td>0.80</td>
</tr>
<tr>
<td>p&lt;0.001</td>
<td></td>
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<tr>
<td>logP2</td>
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<tr>
<td>p&lt;0.001</td>
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<tr>
<td>logP3</td>
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<td>p&lt;0.001</td>
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<tr>
<td>logP5</td>
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<td>p&lt;0.001</td>
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<tr>
<td>logP7</td>
<td>-0.40</td>
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<td>p&lt;0.001</td>
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</tbody>
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(Table: Regression coefficient and p-value for SC event (after vs before) adjusted for age and time after SC.)

Conclusions: Contrary to our hypothesis, these data strongly suggest that cellular aging, at least within CD8 T and B subsets, may be accelerated among SP compared to HIV+ NSP and HIV- women. These results stress the importance of cART treatment and viral suppression in SP.
**THPDA0104**

Association between gut microbiota and CD4 recovery in HIV-1 infected patients

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**Background:** Changes in gut microbial composition have been described in human immuno-deficiency virus (HIV)-infected patients on antiretroviral therapy (ART). Evidences suggest that ART-treated patients with poor CD4+ T-cell recovery have higher levels of immune activation and microbial translocation. However, the association between gut microbiota and immune recovery remains unclear.

**Methods:** We performed a cross-sectional study on 30 healthy controls (HC) and 61 HIV-infected individuals, including 15 immunological ART responders (IRs), 20 immunological ART non-responders (INRs), 15 INRs and 26 untreated individuals (UV). Each subject’s microbiota composition was analyzed by metagenomics sequencing. Levels of CD4 T cells, CD8+HLA-DR+ T cells and CD8+CD38+ T cells were measured by flow cytometry.

**Results:** We identified more Prevotella and fewer Bacteroides in HIV-infected individuals than in healthy controls. Patients in INR group were enriched in Faecalibacterium prausnitzii, unclassified Subdoligranulum sp. and Coprococcus comes when compared with those in IR group. Fa. prausnitzii and unclassified Subdoligranulum sp. were overrepresented in individuals in UV group with CD4+ T-cell counts >350 cells/mm³ and <350 cells/mm³ after 2 years of ART, respectively, and 26 untreated individuals (UV). Each subject’s microbiota composition was analyzed by metagenomics sequencing. Levels of CD4 T cells, CD8+HLA-DR+ T cell counts and CD8+CD38+ T cells were positively correlated with donor’s microbiota.

**Conclusions:** Our study has shown that gut microbiota changes were associated with CD4 T cells and immune activation in HIV-infected subjects. Interventions to reverse gut dysbiosis and inhibit immune activation could be new strategies for immune reconstitution in HIV infected individuals.

**THPDA0105**

Polymorphism rs1385129 within Glut1 gene SLC2A1 is linked to poor CD4+ T cell recovery in antiretroviral-treated HIV+ individuals

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**Background:** HIV infection is associated with progressive CD4+ T cell depletion, which is generally recovered with combination antiretroviral therapy (cART). However, a significant proportion of cART-treated individuals have poor CD4+ T cell reconstitution. Abnormal glycolytic activation marked by increased CD4+ T cell Glucose transporter-1 (GLUT1) expression is associated with low CD4 T cell count in treated HIV infection. We investigated the association between the frequency of circulating CD4+Glut1+ T cell, specific single nucleotide polymorphisms (SNPs) within the GLUT1 gene, and those regulating GLUT and HIV disease progression in treatment naïve patients and immunological response to cART.

**Methods:** GLUT1 levels on CD4+ T cells was determined by flow cytometry. Study groups comprise 17 HIV-positive treatment naïve individuals with favourable disease progression (<200 CD4+ cells/µL within 3-7 years, or the loss of <80 CD4+ cells/µL/year) and 11 with non-favourable progression (<200 CD4+ cells/µL within 3 years of diagnosis, or a loss of >80 CD4+ cells/µL/year). Treated groups comprise 25 treatment responders (<500 CD4+ cells/µL; >3 years on cART) and 14 non-responders (<500 CD4+ cells/µL; >3 years on cART). SNP was evaluated in the Glut1 gene SLC2A1 (rs1385129, and rs841853), Glut1 regulatory AKT SNP 1130214 (GT) has a higher CD4+Glut1+ T cell percentage when compared to the dominant homozygous genotype (GG) (P: 0.0068; Mann-Whitney). The heterozygous genotype of AKT SNP 1130214 (GT) has a higher CD4+Glut1+ T cell percentage when compared to the dominant homozygous genotype (GG) (P: 0.0068; Mann-Whitney).

**Conclusions:** SNPs within genes that regulate glycolysis offer new insights into HIV pathogenesis and factors controlling HIV disease outcomes.
TPHDB0102 Every site counts: Detecting low frequency variants in non-subtype B HIV-1 integrase associated with drug resistance in Uganda

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Background: Next-generation (deep) sequencing provides a sensitive and cost-effective assay for low-frequency variants in diverse HIV-1 infections, but historically has been underutilized for non-subtype B HIV-1 infections in resource-limited settings. Here, we use deep sequencing to analyze samples from treatment-naive individuals and individuals experiencing virological failure on combination antiretroviral treatment in Uganda.

Our objective was to detect associations between low-frequency mutations in HIV-1 integrase and treatment outcomes in Uganda.

Methods: We retrieved a total of 362 archived plasma samples from patients at the Joint Clinical Research Centre (Kampala) with non-B infections, of which 85 were treatment-naive and 277 had experienced virological failure (VF) on first-line (N=129), second-line (N=116) or raltegravir (RAL)-based (N=30) regimens. For each sample, we extracted HIV-1 plasma RNA and generated amplicon libraries for two overlapping regions spanning HIV-1 integrase for sequencing on an Illumina Miseq. Sequencing reads were iteratively aligned with bowtie2 and subtypes were classified with SCULEAL. Amino acid presence/absence matrices were generated at a 1% frequency cutoff and multiple imputations (n=50) were analyzed by L1-norm support vector machine (SVM) classification with 5-fold cross-validation.

Results: Overall, HIV-1 subtype A (47%) was the most frequent, followed by subtype D (21%). Moreover, we detected several polymorphisms associated with integrase inhibitor resistance (e.g., E138K, P140A, Y143R, S147G, K148K) in a small number of VF samples, although none of these polymorphisms were significantly associated with treatment outcomes. Our SVM analysis determined that the mutations T93A and V126M were the most strongly associated with first-line VF; T174A and V126F with 5-fold cross-validation.

Conclusions: Detecting minority HIV-1 variants with deep sequencing is important in settings where patients frequently discontinue treatment following VF, often leading to reversion to wild-type genotype by the follow-up visit. Our method describes a general strategy for detecting potential associations between the residual polymorphisms and treatment outcomes.

TPHDB0103 Phenotypic assays of five integrase inhibitors on HIV-2 clinical isolates reveal a new resistance pathway

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Background: Integrase strand-transfer inhibitors (INSTI) represent an important therapeutic option in HIV-2-infected patients for whom the number of active ARV is limited. Efficiency of INSTI has rarely been de-
**THPDB0105**

Baseline resistance testing in the current treatment era - no longer cost-effective?

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Background: For people newly diagnosed with HIV, US guidelines recommend standard genotype testing to detect transmitted resistance to NNRTI, NRTI, and PIs, but not INSTIs. With INSTI-based regimens as preferred first-line therapy, results of a standard genotype at HIV diagnosis will influence only second-line ART selection for people who experience an adverse event (AE) on INSTIs and require an ART switch.

Methods: We used the Cost-effectiveness of Preventing AIDS Complications (CEPAC) model to examine the value of standard genotype at HIV diagnosis for people starting dolutegravir, comparing: 1) No Genotype and 2) Genotype. In both strategies (Table), patients with an AE on dolutegravir switch to rilpivirine, except those with known NNRTI-resistance in Genotype who instead transition to darunavir. In No Genotype, patients with undiagnosed NNRTI-resistance have lower virologic failure then have genotypes to guide subsequent ART.

**Results:**

For people newly diagnosed with HIV, US guidelines recommend standard genotype testing to detect transmitted resistance to NNRTI, NRTI, and PIs, but not INSTIs. With INSTI-based regimens as preferred first-line therapy, results of a standard genotype at HIV diagnosis will influence only second-line ART selection for people who experience an adverse event (AE) on INSTIs and require an ART switch.

**Key Mutations (Stanford HIV DB) G140S + Q148H G140S + Q148H G140S + Q148H**

<table>
<thead>
<tr>
<th>Additional mutations</th>
<th>G140S</th>
<th>Q148H</th>
<th>G140S + Q148H</th>
<th>G140S</th>
<th>Q148H</th>
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<tbody>
<tr>
<td>N (patients)</td>
<td>6</td>
<td>3</td>
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<tr>
<td>n (viruses)</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAL</td>
<td></td>
<td></td>
<td></td>
<td>&gt;100</td>
<td>&gt;50</td>
</tr>
<tr>
<td>IC50 (nM)</td>
<td>67</td>
<td>456</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVG</td>
<td>&gt;100</td>
<td>&gt;50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC50 (nM)</td>
<td>457</td>
<td>563</td>
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<td></td>
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<tr>
<td>BIC</td>
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<tr>
<td>IC50 (nM)</td>
<td>417</td>
<td>455</td>
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<td></td>
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<tr>
<td>CAB</td>
<td></td>
<td></td>
<td></td>
<td>3.7</td>
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</tr>
<tr>
<td>IC50 (nM)</td>
<td>436</td>
<td>572</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Table showing key mutations and fold changes](image)

**Conclusions:** We describe for the first-time, a new INSTI-resistance pathway in HIV-2-infected patients with an insertion of 5 amino-acids in the integrase. This insertion, selected under RAL-based regimen, severely impacts RAL and EVG but might also compromises CAB, DTG, and BIC susceptibility. Phenotypic susceptibility to BIC was less impacted than other INSTI under the presence of INSTI-RAM.

**Methods:** Initially clonal recombinant viruses were produced by PCR amplification under conditions where single copies of integrase were amplified. This was followed by co-transfection of integrase amplicons and linearized integrase-deleted pHNL4.3 plasmid into CEM-GXR cells. Subsequent titrating and phenotyping were performed in MT4-LTR-EBNA2 cells, where infectivity data was collected using a Spectra-max 13 Minimix 3 microplate reader. Recombinant viruses were grown under a range of concentrations of raltegravir, elvitegravir, DTG, BIC and CAB. EC50 fold-changes (FC) relative to a NL4.3 control were determined on day 3 post-infection.

**Results:** Viruses with the combination of G428S and Q91H substitutions alone had >100-fold increases in EC50 to raltegravir and elvitegravir, but relatively small changes (2-4-fold) in DTG, BIC or CAB susceptibility (Table). Viruses with progression/more substitutions showed extensive high level cross resistance to all 5 drugs (increases >50-fold). Viruses with Tg7A and L74M substitutions exhibited 6-fold greater increases in IC50 to 167 to 456-fold change to DTG, BIC or CAB compared to viruses which had only a Tg7A substitution (11 to 80-fold change). Phenotypic resistance values were strongly correlated between DTG, BIC, and CAB, with correlation coefficients ranging from 0.96 to 0.99.

**Conclusions:** Accumulation of mutations in HIV integrase led to high level phenotypic resistance to all 5 HIV integrase inhibitors in patient-derived samples. Increases in phenotypic resistance values for DTG, BIC, and CAB were almost co-linear.
Results: Among all newly-diagnosed patients, No Genotype resulted in 15,304 QALYs and cost $730,240/person; Genotype gained 0.0003 QALYs and cost $850/person more (ICER, $2.8 million/QALY gained). Among patients with transmitted NNRTI-resistance, Genotype resulted in 0.0039 additional QALYs compared to No Genotype and cost $6,590/person more ICER, $1.6 million/QALY gained. At base case assumptions, 1.1% of newly diagnosed people with HIV would benefit clinically from Genotype, but it would cost $114,510 to test 100 patients for a maximum gain of 2.6 quality-adjusted days for one person. Genotype was not cost-effective compared to No Genotype unless prevalence of transmitted NNRTI-resistance >40% and AE on dolutegravir >40%, with no suppression of NNRTI-resistant virus on rilpivirine-based ART (Figure).

Conclusions: With INSTI-based regimens as first-line treatment in the US, the standard genotype test at HIV diagnosis offers minimal clinical benefit, is more expensive, and is not cost-effective. Practice guidelines should consider removing genotypes from the recommended baseline evaluation.

Methods: From February to December 2016, 22 interviews were conducted with pharmacists in three high HIV prevalence areas (a gay neighbourhood in central Paris; Guadeloupe/French Guiana; Paris suburbs with large sub-Saharan migrant communities) and one low HIV prevalence area in Northern France.

Results: Although pharmacists saw HIV self-test provision in pharmacies as a step forward with regard to engaging their profession in a key public health issue in France, most professionals interviewed had sold relatively few self-tests, and significantly less than expected. The major concern of pharmacists was the risk associated with individuals discovering positive test results alone at home and the issue of linkage to care. The current price of self-test kits was generally considered to be too high, even for pharmacists making minimal profit. Discretion and anonymity were clearly major issues. Few clients actually asked any questions. Clients interested in HIV self-tests were generally not their habitual clientele. A number of pharmacists reported clients purchasing two tests at a time, and hypothesized that this might be for their partners. The positioning of the HIV self-test kits in the pharmacy was a key indicator of pharmacists’ attitudes with regard to self-testing. Although the law specifically states that the HIV self-test should be kept behind the counter, some pharmacists provided off-the-shelf access to ensure convenience and privacy to clients. In other pharmacies, typically in gay areas in central Paris, the self-test kits were stored behind the counter but visible to the public, with the aim of facilitating discussion with clients. Finally, in a not insignificant number of cases, no self-test kits or information on HIV self-testing were visible at all.

Conclusions: Although pharmacists see HIV self-testing as part of a significant trend in France towards facilitating access to screening for health conditions in general, price, anonymity, discretion and linkage to care remain crucial issues.

THPDC0102

Linkage to HIV care following HIV self-testing: A cluster randomised trial of community-based distribution of oral HIV self-test kits nested in four HPTN 071 communities in Zambia

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Background: HIV self-testing (HIVST) has the potential to help achieve the UNAIDS 90-90-90 targets. However, evidence is limited about how to ensure linkage to care (LTC) among individuals with HIV-positive results. We report LTC findings from a HIVST cluster-randomised trial nested within the HPTN071 (PopART) trial in Zambia. The PopART intervention was delivered in “annual rounds” from 1/12/2013-31/12/2017, during which community-HIV-care-providers (CHIPs) visited all households, and offered home-based HIV testing with a rapid diagnostic test using fingerprick blood (RDT), referral to routine clinic services, and support (including follow-up visits) for LTC.

Methods: In December 2016, 4 of the PopART intervention communities in Zambia, comprising 66 zones, were included in a cluster-randomised trial of adding oral HIVST to the standard intervention. Self-testing was offered in-person, supervised or unsupervised, and to absent partners via secondary distribution. We estimated the time from CHIP referral to LTC among individuals who were (re-)enumerated as a household member during 1/2/2017-30/4/2017, aged ≥16 years, and diagnosed HIV-positive based on initial or confirmatory (following HIVST) RDT. We used the Kaplan-Meier method for “time-to-event” analysis, and follow-up information to 30/9/2017.

Results: Among 13,267 individuals in 33 HIVST zones, 195 were diagnosed HIV-positive; additionally 20 tested HIV-positive with supervised/unsupervised self-testing but did not have confirmatory RDT, and 13 tested HIV-positive following secondary distribution but were not contacted in-person by CHIPs. Among 13,706 individuals in 33 non-HIVST zones, 204 were diagnosed HIV-positive. Among those diagnosed, 94% (184/195) in HIVST and 98% (199/204) in non-HIVST zones were referred to care. We estimated that 65% in HIVST, and 64% in non-HIVST, zones were LTC by 3

THPDC0101

Dispensing HIV self-tests in pharmacies in France: The pharmacists’ point of view

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Background: HIV self-test kits have been available in pharmacies and on pharmacy websites in France since September 2015. What are the principle obstacles and facilitators that pharmacists themselves have encountered providing self-tests and information and support for self-test clients?

(Figure. Multi-way sensitivity analysis: Genotype is cost-effective compared to No Genotype only extremely high prevalence of transmitted NNRTI-R and adverse events while on dolutegravir, as well as poor suppression of NNRTI-R with rilpivirine-based ART. NNRTI-R, NNRTI-resistant virus; PMW, people with HIV; ART, antiretroviral therapy.)

THPD01 From online to door-2-door: expanding access to HIV self-testing

ABSTRACT BOOK • WWW.AIDS2018.ORG
THPDC0103
Increasing knowledge of HIV status and demand for antiretroviral therapy using community-based HIV self-testing in rural communities: A cluster randomised trial in Malawi

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Background: HIV self-testing (HIVST) has potential to reach populations poorly served by facility-based HIV testing services. We used a cluster-randomised trial design to investigate the impact of community-based HIVST distribution on recent HIV testing and antiretroviral therapy (ART) uptake in rural Malawi.

Methods: Government clinics (n=22) and their defined rural catchment areas were allocated using restricted 1:1 randomisation to either (i) door-to-door distribution of HIVST kits by resident community-based distributors (CBD) or (ii) the standard of care (SOC). Distributors provided continuous HIVST access and option of post-test support and assisted referral to routine confirmatory testing and ART services. Social harm monitoring was also established.

The primary outcome compared recent HIV testing (previous 12 months) across arms, ascertained through population-based surveys conducted 12 months after the cluster start date in pre-defined evaluation villages. Analysis used logistic regression with adjustment for imbalance between arms. For the secondary outcome, we used generalized estimating equations to analyse cluster-level ART initiations that were recorded in clinic registers in the 12 months after cluster enrolment, adjusting for ART initiations in the preceding 12 months.

Results: A total of 83 CBDs delivered 79,349 HIVST kits over a 12 to 15-month period, with three reported social harms. Of 5,504 adults in the post-intervention survey, 42.6% were men and 15.4% were adolescents aged 16–19 years. Coverage was significantly higher in the HIVST than SOC clusters for both recent testing (64.1% versus 45.6%, adjusted risk ratio [aRR] 1.38, 95%CI 1.14-1.68) and lifetime testing (78.7% versus 78.1%, aRR 1.12, 95%CI 1.05-1.16). Differences between arms were more pronounced for adolescents (aRR 1.99, 95%CI 1.35-2.92) and men (aRR 1.94, 95%CI 1.19-3.19). Among 53,640 adults living in the defined study area, the proportion of ART initiations per 1000 adult clinic population increased in the HIVST versus SOC arm in the intervention period, adjusting for pre-intervention ART initiations (adjusted initiation risk ratio 1.36, 95%CI 1.22-1.53, p=0.01). Differences between arms were more pronounced for adolescents (aRR 2.67, 95%CI 1.71-4.17) and men (aRR 1.88, 95%CI 1.46-2.42).

Conclusions: CBD-delivered HIVST increased HIV testing coverage in rural populations, especially among men and adolescents, and population-level demand for ART. This approach can rapidly improve knowledge of HIV status in underserved populations and have a measurable impact on ART uptake.

Table 1 - Time to link to HIV care after CHIP referral, by whether individual was referred from a HIVST or non-HIVST zone

<table>
<thead>
<tr>
<th>Referred to HIV care (n/N, %)</th>
<th>Linked to HIV care, by months after referral (%)</th>
<th>Hazard ratio, 95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Overall</td>
<td>Non-HIVST</td>
<td>199/204, 98%</td>
</tr>
<tr>
<td>HIVST zones</td>
<td>RDT</td>
<td>85/86, 97%</td>
</tr>
<tr>
<td></td>
<td>Supervised</td>
<td>80/86, 93%</td>
</tr>
<tr>
<td></td>
<td>Unsupervised</td>
<td>14/16, 87%</td>
</tr>
<tr>
<td>&quot;Minimum estimate&quot; of linkage to HIV care</td>
<td>Non-HIVST</td>
<td>199/204, 98%</td>
</tr>
<tr>
<td>HIVST zones</td>
<td>RDT</td>
<td>184/199, 94%</td>
</tr>
<tr>
<td></td>
<td>Secondary distribution</td>
<td>5/5, 100%</td>
</tr>
</tbody>
</table>

(Figure 1 - Time to link to HIV care after CHIP referral, among individuals who were diagnosed HIV-positive by CHSPs)
THPDCo104
Secondary distribution of HIV self-tests as a way to promote HIV testing among male partners of young women: Subgroup analysis from a randomized trial

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2Hyanza Initiative for Girls’ Education and Empowerment, Kisumu, Kenya
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Background: HIV risk among young women in eastern and southern Africa remains extremely high and age-disparate sexual relationships are widely believed to be a contributing factor. Interventions that promote HIV testing among male partners of young women are essential for reducing HIV risk. Given compelling evidence on the acceptability of HIV self-testing (HIVST), we assessed whether provision of multiple self-tests to young women can result in higher male partner testing.

Methods: This sub-study analyzed data among a subgroup of young women aged 18-24 years who participated in a larger randomized trial conducted at clinics in Kisumu, Kenya (NCT02368225). The trial enrolled women seeking antenatal and postpartum care and randomized them to receive HIV self-tests (HIVST group) or a comparison group in which invitation cards were given to encourage clinic-based HIV testing. Women in the HIVST group also received a brief demonstration of how to use self-tests along with pictorial use instructions. Follow-up interviews were conducted with women at 3 months to assess whether partner and couples testing occurred. The primary outcome was partner testing and the secondary outcome was couples testing. Logistic regression analyses were used to compare outcomes in the two study groups.

Results: Of 599 women enrolled in the trial in 2015, 367 (62.1%) were aged 18-24 years. Eighty-eight percent of the young women were married. A total of 179 and 188 women were randomized to the HIVST and comparison groups, respectively. Follow-up interviews were completed by 347 women (94.5%). Male partner testing uptake was 92.4% in the HIVST group and 55.7% in the comparison group (odds ratio 9.7, 95% CI 5.1-18.3). Couples testing was also significantly more likely in the HIVST group than the comparison group (77.8% vs. 38.1%, odds ratio 5.7, 95% CI 3.6-9.2).

Conclusions: Provision of multiple HIV self-tests to young women seeking prenatal and postpartum care was very effective in increasing male partner and couples testing. Although not generalizable to unmarried young women, the findings suggest that HIVST can play a prominent role in facilitating testing among their male partners. As countries begin to scale-up HIVST, further investigation of secondary distribution interventions among young women is warranted.

THPDCo105
Effective promotion of MSM Self-testing in Russia in the context of growing stigma and discrimination

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Background: This project provided for free and easy access for gays and other MSM and TG to self-testing for HIV. They could get a free self-testing kit in various places: community organizations, friendly clinics, friendly commercial pharmacies, clubs and saunas, as well as by limited courier delivery and from volunteers. The project was implemented in 5 cities.

The project answers 3 major questions:
1. How to increase testing coverage?
2. What methods of self-testing kits distribution are the most convenient for MSM and TG and are cost effective for an NGO?
3. How can we make MSM and TG come to AIDS centers for confirmation testing and linkage to care?

Methods: Throughout the project, users could contact the organizers via the free 8-800 hotline or a friendly doctor at the AIDS center (whose business card was included into the self-test kit) or a peer consultant by the phone and any social media. When receiving a self-testing kit, the users were also encouraged to give feedback on the gaytest.info website using an individual code.

Results: The project supported by EJAF allowed to perform roughly the same number of HIV tests among MSM as 5 large projects supported by the Global Fund in 5 Russian cities. Over 10,000 tests were conducted within a year. Self-reports show that 28% of users leave feedback on the result of the test. 15% of them report a reactive result. As a result of case management, 230 confirmation tests were performed in AIDS centers (registered) and 186 people were enrolled in care at AIDS centers.

Conclusions: The HIV self-testing project significantly increases testing coverage of MSM and TG. Since most MSM do not turn to community organizations for services, self-testing allows to reach the groups of MSM and TG people that were not covered by testing programs earlier. We recommend self-testing as a method that can be effectively used for such key populations as MSM, SW and DJ even under high levels of stigma and discrimination.

THPDCo106
An intervention to teach young men and transgender women of color how to HIV self-test with a friend:
Lessons learned in project TRUST

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Background: Increasing consistent HIV testing among high-risk populations such as men who have sex with men (MSM) and transgender women (TW) can lead to earlier treatment and uptake of PEP/PrEP, reducing HIV transmission. HIV self-testing is a relatively novel method that may increase consistent testing by reducing the travel and time burdens, HIV stigma, and/or increasing client control.

Description: TRUST tested a behavioral intervention to increase consistent HIV self-testing among Black/African-American and Latino MSM and TW aged 18-34. The experimental arm randomized friend pairs to taking 4th generation HIV rapid tests together and a 30-minute facilitated session designed to increase motivation to test consistently, master HIV self-testing skills, and commit to consistent HIV testing. Here we describe participant experiences of the experimental arm.

Lessons learned: Correct knowledge of HIV transmission is fundamental to increasing testing motivation, yet many participants had low knowledge (e.g., the “window period;” status certainty; PEP/PrEP, etc.), indicating that HIV/sex education is lacking in primary/secondary US education. HIV testing is an anxiety-producing experience, with stigma an important driver of testing fear. “TRUST” was appropriately named, as participants chose the study friend based primarily on whether they “trusted” them. Increasing trust within the friend pair was facilitated by concrete discussion of testing plans, specifying and practicing support acts, and integrating familiarity and levity into testing. Participants reported high levels of satisfaction with the session, particularly learning how to self-test and with a friend. Increased self-efficacy and control were reported and attributed to mastering test mechanics and the realization that participants could control the setting, timing of and people present via self-testing. This last finding was consistent with the theoretical bases for the intervention, which emphasized self-determination and agentic control.

Conclusions/Next steps: Teaching friend pairs of MSM and TW of color to HIV self-test may increase consistent HIV testing among this higher risk group. Our experimental arm implementation assessment suggests that the intervention hit many of the theoretical targets and was highly acceptable to participants. Results of the trial will determine if the experimental arm outperformed the control arm on study outcomes.
THPDD01 Knowing and resolving stigma

THPDD0101
Social-structural correlates of HIV stigma among women living with HIV in Metro Vancouver

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Background: HIV stigma is widely known as a substantial barrier to accessing and use of HIV treatment and care services. Less is known about the social and structural factors that produce HIV stigma. The objective of this study was therefore to understand the social and structural correlates of HIV stigma among women living with HIV (WLWH) in Vancouver, Canada.

Methods: Data were drawn from two years of follow-up from a longitudinal community-based participatory open cohort of 318 cis or trans WLWH who lived and/or accessed care in Metro Vancouver, Canada (2014-present)Sexual Health and HIV/AIDS: Women’s Longitudinal Needs Assessment “SHAWNA”. Participants completed semi-annual interviewer-administered questionnaires by trained peer researchers/community interviewers and clinical questions by a sexual health research nurse. Stigma outcomes included three dimensions: 1) Disclosure Concerns; 2) Personalized Stigma; 3) Internalized Stigma, and an additional question measuring 4) Social Attitudes Stigma. Sexual orientation, gender identity, immigrant status and ethnic/racial identity were all measured at the initial interview; remaining social-structural variables were time-updated and measured in the last six months, including stigma outcomes. Bivariate and multivariable linear regression using generalized estimating equations for repeated measures were used to examine correlates of the four stigma measures.

Results: Overall, 215 women responded to ≥1 follow-up survey with 509 total observations. In multivariable analysis, HIV disclosure without consent was significantly associated with Disclosure Concerns (estimate=0.84, 95%CI:0.30-1.37, p=0.002). Personalized Stigma (estimate=2.17, 95%CI:1.35-2.98, p<0.001). Internalized Stigma (estimate=1.04, 95%CI:0.31-1.76, p=0.009), and Social Attitudes Stigma (estimate=0.44, 95%CI:0.11-0.76, p<0.001). Time since first diagnosed with HIV (estimate=-0.04 p/year, 95%CI:-0.08 - -0.01, p=0.016) was negatively associated with Disclosure Concerns. Physical violence by any perpetrator (estimate=0.90, 95%CI:0.13-1.67, p=0.022); poor treatment by health professionals (estimate=0.08, 95%CI:0.10-1.86, p=0.030); and physical/verbal violence associated with the participant’s HIV-positive status (estimate=1.43, 95%CI:0.49-2.38, p=0.003) were associated with Personalized Stigma. Physical violence from any perpetrator (estimate=0.41, 95%CI:0.15-0.68, p=0.002) and physical/verbal violence associated with participant’s HIV-positive status (estimate=0.38, 95% CI:0.11-0.66, p=0.006) were significantly associated with Social Attitudes Stigma.

Conclusions: Study results strongly suggest a critical need to develop strategies to address social and structural violence against WLWH, including amending Canada’s restrictive HIV disclosure laws as a structural intervention to reduce HIV stigma and promote safe disclosure for WLWH.

THPDD0102
HIV-related stigma and discrimination among health care personnel in Thailand: Results of the 2017 national surveillance survey

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Background: HIV-related stigma and discrimination (S&D) is a major obstacle in the attempt to end the AIDS epidemic. Stigma and discrimination that occur within health facilities are of particular concern. To monitor this issue, Thailand developed a national surveillance system to monitor S&D in government health facilities.

Methods: Thirty provinces, 12 provinces that serve as the centers for Thailand’s 12 health regions as well as the capital city Bangkk, were selected as national surveillance sites. All government hospitals with antiretroviral treatment clinics in each province served as survey venues. Both health staff and supportive staff providing services directly to the patients (regardless of patient’s HIV status) were eligible to participate in the survey. The sample size at each health facility was determined proportional to the size of health staff of the whole province. Simple random sampling was used to identify potential participants. The participants completed a standardized questionnaire capturing actionable drivers and manifestations of HIV-related S&D in health care facilities online using a smartphone or tablet. The composite indicators, defined as the percentage of positive responses with at least one question within a particular domain, were computed and reported as the main outcomes.

Results: Of the 2,615 participants, 78.2% were females and 51.2% were professional health staff. The average age was 38.6 years old. The most frequently reported composite indicators of the drivers of HIV-related S&D were negative attitudes toward people living with HIV (PLHIV) (92.1%), followed by fear of acquiring HIV while caring for PLHIV (50.5%). The most frequently reported composite indicators of the manifestations of stigma were over-protecting oneself while caring for PLHIV (56.7%), followed by observed discrimination towards PLHIV during the last 12 months (25.8%). Compared to non-professional staff, professional staff were more fearful acquiring HIV while caring for PLHIV (OR=1.53, 95%CI 1.24-1.88), but had fewer negative attitudes toward PLHIV (OR=0.50, 95%CI 0.40-0.65).

Conclusions: The survey provided evidence of HIV-related S&D in Thai health facilities. The information could be used as an advocacy tool for policy change and to tailor stigma reducing interventions at the local level.

THPDD0103
Socio-structural protection from internalized HIV stigma among South African adolescents living with HIV: The potential of clinic-community collaborations for stigma reduction

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Background: Southern Africa is home to 2 million adolescents living with HIV (ALHIV), who struggle to adhere to HIV treatment and care partly due to exceptionally high levels of self-stigma. South Africa’s new National Strategic Plan HIV, TB and STIs includes a key objective to halve HIV-related self-stigma by 2022 but there is no evidence of scalable interventions to achieve this. This study examined protective factors in both clinics and communities that could reduce self-stigma among ALHIV. **
Venues (TRUST/RV368) study utilizes respondent-driven sampling to recruit MSM into a prospective cohort at ICARH site in Abuja, Nigeria. Eligibility criteria included male sex assigned at birth and at least 16 years of age in Abuja. Total of 1480 participants.

Results: The sample consisted of participants who were primarily under 25 years of age (60%), had completed high school or less education (70%), identified their sex as male (82%), had never disclosed their same-sex practices to a family member (83%), engaged in both insertive and receptive anal sex with male partners in the past 12 months (53%), and approximately half had a female sex partner in the past 12 months. Bivariate analysis revealed that in creating sexual stigma was associated with increasing incident HIV and/or STI infections in a dose-response association (low: 10.6%, medium: 14.2%, high 19.0%, P=0.008).

Conclusions: The path analysis model revealed that MSM who were in higher stigma classes at baseline were more likely to contract HIV/STIs over the course of the study, and this was partially explained by stigma’s association with suicidal ideation, suicidal ideation’s association with condomless sex with casual sex partners, and condomless sex’s associati

Background: Sexual stigma is the co-occurrence of the following four components within a power imbalance: labeling, stigmatizing, separation, and status loss and discrimination specific to sexual minorities because of same-sex practices. Although sexual stigma has been found to be associated with HIV prevalence and with avoidance of seeking health care, it remains unknown whether sexual stigma drives onward transmission of HIV and sexually transmitted infections (STIs) among Nigerian MSM. Sexual stigma has also been found to be associated with condomless sex among MSM across a variety of settings outside of Nigeria.

Methods: Total population sampling of ALHIV aged 10–19 from 53 public health facilities in the Eastern Cape. South Africa was used. Self-stigma was measured via the adolescents living with HIV stigma scale (ALHIV-SS). Community protection was measured via adolescent report of:

1. no experiences of discrimination
2. no perceived stigma in the community.

Clinic protection was measured via five key adolescent-reported indicators:

1. No past-year ART stockouts
2. Flexible clinic appointments that prevented excessive school truancy
3. Adolescent-sensitive healthcare providers,
4. Perceived data confidentiality and
5. Access to a regular HIV support group.

A multivariate logistic regression tested associations between clinic and community protection and self-stigma controlling for age, gender and knowledge of HIV status. A marginal effects model tested potential additive effects of combining clinic and community protection.

Results: 90.1% of eligible ALHIV were interviewed (n=1060, 55% female, mean age – 13.8, 21% living in rural locations and 67% vertically infected). Prevalence of self-stigma was 26.5%. At the community level, protection from discrimination (OR: 3.8; CI: 2.2–6.3) and non-stigmatizing perceptions (OR: 4.0; CI: 2.9–5.4) decreased odds of self-stigma. At the clinic level, reliable ART stocks (OR: 4.0; CI: 2.3–7.2), flexible appointment times (OR: 7.8; CI: 6.0–9.3) and kind healthcare providers (OR: 5.8; CI: 4.1–9.3) decreased odds of self-stigma among ALHIV. Age, gender, HIV status awareness, clinic confidentiality and support group access were not associated with self-stigma. Prevalence of self-stigma dropped from 88.8% among ALHIV without clinic or community protection to 12.9% among ALHIV with both clinic and community protection (Figure 1).

Conclusions: Findings suggest that a combination of clinic and community interventions hold promise for adolescent-centred HIV care. Self-stigma among ALHIV can be substantially reduced by addressing stigma in communities and strengthening health systems.

THPDD0104

Pathways from sexual stigma to incident HIV and sexually transmitted infections among Nigerian MSM

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Background: Sexual stigma is the co-occurrence of the following four components within a power imbalance: labeling, stigmatizing, separation, and status loss and discrimination specific to sexual minorities because of same-sex practices. Although sexual stigma has been found to be associated with HIV prevalence and with avoidance of seeking health care, it remains unknown whether sexual stigma drives onward transmission of HIV and sexually transmitted infections (STIs) among Nigerian MSM. Sexual stigma has also been found to be associated with condomless sex among MSM across a variety of settings outside of Nigeria.

Methods: The Network-Based Recruitment of MSM into HCT, Care, Treatment and Prevention Services at Trusted Community-based Venues (TRUST/RV368) study utilizes respondent-driven sampling to recruit MSM into a prospective cohort at ICARH site in Abuja, Nigeria. Eligibility criteria included male sex assigned at birth and at least 16 years of age in Abuja. Total of 1480 participants.

Results: The sample consisted of participants who were primarily under 25 years of age (60%), had completed high school or less education (70%), identified their sex as male (82%), had never disclosed their same-sex practices to a family member (83%), engaged in both insertive and receptive anal sex with male partners in the past 12 months (53%), and approximately half had a female sex partner in the past 12 months. Bivariate analysis revealed that in creating sexual stigma was associated with increasing incident HIV and/or STI infections in a dose-response association (low: 10.6%, medium: 14.2%, high 19.0%, P=0.008).

Conclusions: The path analysis model revealed that MSM who were in higher stigma classes at baseline were more likely to contract HIV/STIs over the course of the study, and this was partially explained by stigma’s association with suicidal ideation, suicidal ideation’s association with condomless sex with casual sex partners, and condomless sex’s association with HIV/STI acquisition. Therefore, our findings highlight the need to incorporate mental health issues of MSM in HIV and STI programming in Nigeria. One option would be to adopt WHO’s Mental Health Gap Action Programme intervention.

THPDD0105

Project on HIV destigmatization in the marriage equality movement in Taiwan

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Background: In 2016–17, the marriage equality debate was heated in Taiwan, and certain anti-LGBTQ+ groups have used HIV-related issues to attack the LGBTQ+ community, spreading false information about LGBTQ+ and HIV/AIDS via mass and social media. Gay and bisexual men, especially those living with HIV/AIDS (PLWHA), have become a major target of rumors and slanders. This presentation aims to introduce how Taiwan Tongshi (LGBTQ+) Hotline Association tackled the HIV stigma incurred in the marriage equality movement, and how we destigmatize the disease and reflect on the issue.

Description: This project adopts two strategies of destigmatizing HIV while promoting marriage equality:

1. Analyzing and responding to false information regarding LGBTQ+ and HIV/AIDS. We designed an easy-to-understand version of "HIV/AIDS for Dummies," and have distributed the correct information to the general public via social media.

2. HIV+OK Campaign: We have invited people to express their support for PLWHA with actions through organizing public events, campaigning on social media, and taking actions on Taiwan LGBT Pride Parade.

Lessons learned: The "HIV/AIDS for Dummies" has attracted 107,353 views and public discussions. Our targeted audience is not limited to the LGBTQ+ community but also their parents and LGBTQ+-friendly heterosexuals. Meanwhile, the HIV+OK Campaign has encouraged people to express their support for PLWHA with actions through organizing public events, campaigning on social media, and taking actions on Taiwan LGBT Pride Parade.

Conclusions/Next steps: Examining the implementation and outcomes of this project, we found that

1. This project is the first time for LGBTQ+ group to initiate large-scale, broad-scope public dialogues about HIV related issues, not just focusing on LGBTQ+ community.

2. There is an obvious lack of anti-discrimination HIV/AIDS education that targets adults in Taiwan, enabling the false information about HIV/AIDS to be spread rapidly. We urge that the government devote more state resources to this issue.

3. The fight for equal rights for PLWHA cannot be independent from LGBTQ+ movements and the marriage equality movement. They have to ally with one another to move forward.
THPDD0106

Stigma as a barrier to obtaining quality VCT services: Monitoring outcomes from the Zaporizhzhia region of Ukraine

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Background: Due to the pervasiveness of homophobia and transphobia in Ukrainian society, we decided to research the prevalence of stigma towards MSM and LGBT people by health professionals and NGO social workers providing VCT services in the Zaporizhzhia region. Additionally, we examined providers’ awareness levels in regards to the specifics of MSM/LGBT counselling.

Description: With support from ECOM, we piloted an advocacy project, which included the monitoring of VCT providers in both NGO and public health care settings. The program also included training elements, as well as the development and regional-level approval of an Algorithm and practical recommendations for the consultation of MSM/LGBT counselling.

Based on our findings, we organized a training on SOGI and MSM/LGBT counselling for 100 representatives from every VCT point in the region. After having jointly analysed the problems that we uncovered with local authorities, the Zaporizhzhia Department of Health adopted an Algorithm for counselling MSM and LGBT people and approved our recommendations on the prevention of stigma and discrimination in the provision of health care services.

Lessons learned: The monitoring visits revealed a range of shortcomings and gaps in the health care sector, including inadequate accessibility to HIV testing, violations of VCT principles, homophobia and transphobia, and a widespread lack of knowledge of key populations’ issues. Our follow-up advocacy activities were designed to decrease the number of rights violations experienced by MSM/LGBT people accessing health care in our region and to reduce the overall level of stigma and discrimination.

The project confirmed that:
- Provider-based stigma and inadequate knowledge of LGBT issues remain salient barriers to obtaining quality services;
- The initiative and meaningful involvement of affected communities is essential in order to promote any positive changes.

Conclusions/Next steps: Raising tolerance levels towards MSM/LGBT significantly decreases stigmatization within professional circles and, subsequently, helps fight the HIV epidemic. Our positive experience using the methodology of “test clients” suggests that this research method can be applied to future projects aimed at other key populations.

THPDD0201

Multi-level barriers to antiretroviral therapy initiation, retention, and adherence for female sex workers living with HIV in South Africa

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Background: South Africa has a generalized HIV epidemic that disproportionately affects female sex workers (FSW). FSW experience individual, network, and structural barriers to initiation and sustained engagement in antiretroviral therapy (ART). Here, we use a modified sociocultural model (SEM) to map ART initiation, retention and adherence barriers among FSW in South Africa.

Methods: FSW living with HIV (n=24) and key informants (n=15) participated in semi-structured, in-depth interviews from September-November 2017 in Durban, South Africa. FSW participants were sampled using maximum-variation sampling, ensuring variations in sex work and ART experiences. Key informants included providers at various levels, brothel managers, and police. Qualitative data were coded using a grounded theory approach in Atlas.ti. B. Matrices were used as a post-coding technique to map emergent themes at each level of the SEM including individual, network, community, and public policy levels.

Results: Each level of the SEM presented specific barriers to initiation, retention, and adherence for FSW living with HIV (Figure 1). Diagnosis prior to universal test and treat, lack of clinic card, and incarceration were policy-level challenges among FSW and related to ART initiation, retention and adherence, respectively. Initiation and retention in care was affected at all levels, with emphasis on individual-level barriers, while network- and individual-level barriers predominately affected ART adherence. At the network- and community-level, FSW experienced unique barriers generally and based on their sex work venue (indoor v. outdoor) and primary work time (nighttime v. daytime) respectively. FSW identified no community-level barriers related to ART adherence.

Conclusions: While ART is well known to improve clinical outcomes, and decrease onward HIV transmission, these data highlight the sustained barriers to ART initiation and retention among FSW living with HIV in South Africa. Moving forward necessitates tailored yet scalable interventions to address level-specific barriers among FSW and ultimately optimize sustained treatment outcomes.

*Figure 1. Challenges engaging in HIV Treatment among female sex workers living with HIV in Durban, South Africa*


**THPDD0203**

“They must understand us as sex workers”: Health service perspectives among female sex workers in the context of PrEP and early ART introduction in the TAPS Demonstration Project, South Africa

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**Background:** Female sex workers (FSWs) are a key population and could greatly benefit from HIV prevention methods such as pre-exposure prophylaxis (PrEP). However, FSWs often experience difficulties accessing health services which could pose a barrier to PrEP uptake and retention. We explored previous health service experiences and suggestions for best practices with FSWs in focus group discussions (FGDs) as part of designing the TAPS Demonstration Project.

**Methods:** FGDs were conducted in Johannesburg and Pretoria, and examined opportunities and barriers for safe and efficient PrEP delivery within the context of TAPS. Sex worker peer educators recruited participants through social networks using snowball sampling. Facilitation was in English with adaptation by facilitators into local languages as needed. Transcripts were translated and transcribed into English. Data were subjected to a thematic analysis.

**Results:** Four FGDs were conducted in each of the two sites engaging 69 participants, ages 20-60. Overwhelmingly, participants voiced concerns about stigma and negative treatment of FSW in public health facilities. This was seen as a major potential barrier to successful provision of PrEP and early ART as FSWs would not attend clinics where they had been negatively treated. “Feeling free” to openly discuss health issues, such as burst condoms, STIs, or even sexual assault, was critically important, as was accessibility. Some FSWs felt that getting to the clinic when they lived some distance away would be challenging for monthly clinic visits. Mobile delivery was highly recommended. Consistency and flexibility in service provision (e.g. aligning clinic times, regular mobile visits) were recurring themes as part of effective, quality care. Peerguided education, navigation, and service were highlighted as an important best practice.

**Conclusions:** Service provision sensitised and tailored to sex workers needs will be critical to successful provision of PrEP and early ART. Stigmatization of sex workers in clinic environments is well-documented, yet little has been published from FSW perspectives about how to address these issues. Involving FSWs will help to build relevant services especially when implementing new interventions.

**THPDD0204**

Occupational barriers to antiretroviral therapy adherence, sources of support, and coping strategies for female sex workers living with HIV in South Africa

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**Background:** Despite advances in antiretroviral therapy (ART) globally, achieving sustained viral suppression among persons living with HIV continues to be a major challenge in the HIV response. Social and structural barriers impede ART adherence and are heightened among marginalized and key populations including female sex workers (FSW) in South Africa. The objective of these analyses is to characterize FSW-specific barriers and facilitators to ART adherence affecting clinical outcomes and HIV prevention goals.

**Methods:** Semi-structured, in-depth and key informant interviews were conducted with 24 FSW living with HIV and 15 key informants in Durban, South Africa from September-November 2017. FSW and key informants were recruited using maximum-variation and snowball sampling respectively. FSW were recruited on key variants including: type of sex work venue, primary work time, and ART-naivety and use. Data collection and analysis were iterative; transcripts were coded and analyzed using grounded theory in Atlas.ti 8.

**Results:** Multiple relevant themes were reported that included sex work venues dismissing FSW known to be living with HIV based on ART use, lack of clinic cards and ART by clients, and concerns of wage loss if HIV status were disclosed to clients, colleagues, and pimps/managers either by being seen at an HIV clinic or by carrying ART. Occupational pressures including short term or seasonal migration for work further challenged engagement in treatment programs while pressures to use drugs and alcohol from clients or the use of similar substances to desensitize themselves challenged adherence to ART. Support systems to optimize ART included FSW receiving HIV treatment support from peers. In addition, many FSW reported individual coping strategies to overcome adherence barriers including sharing and purchasing ART from peers, planning for spontaneous client demands and approaches to facilitate taking medications at work while limiting unwanted disclosure of status.

**Conclusions:** Taken together, these data highlight the occupational barriers to accessing and taking ART among FSW living with HIV. While coping strategies included social cohesion among FSW, ART sharing and purchasing may be associated with suboptimal treatment outcomes. Considering these occupational pressures on FSW is important when designing and implementing HIV treatment programs to support sustained ART engagement.

**THPDD0205**

The sociability of risk: Sex work, criminalization and HIV/AIDS in Kampaia, Uganda

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**Background:** In Kampala, Uganda women engaging in “high risk” sexual practices, like commercial sex work, have an estimated 33-37% HIV seroprevalence (Vandepitte et al. 2011; Hladik et al. 2017). In response to this statistic I set out to investigate how women manage daily risks associated with sex work, criminalization, and HIV/AIDS.

**Methods:** Primary ethnographic data collection occurred over fifteen months within two Kampala Divisions (Rubaga and Makindye), involving participant observation, group discussions, and informal, unstructured interviews with female commercial sex workers. Research insights then informed policy analysis.

**Results:** The study reveals that women’s social networks have the greatest impact on their ability to manage daily risks. However, three important variables intervene with women’s risk management: (1) the sex work environment, (2) divergence in women’s social relationships, and (3) the current policy approach guiding HIV healthcare. The study reveals that a woman’s physical sex work environment, such as the room she rents in a brothel, impacts her ability to safeguard private property (e.g., condoms, cash, medications, clothing, shoes, etc.). In turn, a woman with fewer personal belongings is perceived by other women in the brothel as less capable of minimizing risks, such as police abuse, arrest, client violence, and/or contracting HIV, and therefore less deserving of social relationships in the brothel. Alternatively, women deemed more capable of maintaining their social ties are far more likely to develop cash reserves in order to purchase medications, improve their brothel working and living conditions, receive and retain condom supplies, and/or frequently travel outside the brothel to receive healthcare and/or improve their commercial sex work prospects. Data furthermore reveals how current HIV interventions, prioritizing individualized behavior, undermine women’s social resources (i.e., their social networks and social capital). The study documents women’s struggles to adhere to recommended HIV/AIDS treatment protocols when they believe they must choose between their individualized HIV healthcare plan and demands from their social network (i.e. the social practices minimizing daily risks associated with sex work and criminalization).

**Conclusions:** In conclusion, this research underscores the sociability of women’s HIV risk, risk management, and the implications of these social processes on current HIV/AIDS prevention and treatment protocols.
**THPDD0206**

**Differentiated ART delivery model for female sex workers in Uganda: Community client led ART delivery to improve outcomes**

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**Background:** In 2013, Uganda National ART guidelines recommended test and start for all key populations. The AIDS Support Organization (TASO) started implementing these guidelines in 2014. In 2016, TASO ART data showed 16% ART retention of FSW. To support improved outcomes, TASO expanded differentiated ART delivery model and adapted it for FSWs.

**Description:** TASO has been implementing a client-managed group model of differentiated ART delivery called Community Client Led ART Delivery (CCLAD) since 2012. In 2017, this was expanded and adapted for FSWs. Eligible FSWs who consent to be on group model, were grouped by geographical area into a peer support group of five to ten members. The group selected a peer leader who is responsible for collecting 3 monthly ART refills. All group members attend 6 monthly clinical evaluations and annual viral load monitoring at TASO clinic.

**Lessons learned:** Between October 2016 and June 2017, more than 7,000 FSWs were reached with a behavior change campaign. A total of 5,775 HIV tests were completed and 525 people living with HIV were identified (positivity rate = 9.1%). Of those identified as HIV+, 81.5% were linked to care and 23.6% of those linked to care were initiated on ART. Over the same time period, a cumulative number of 216 FSWs were in care with 89.8% being on ART of which 90.9% were virally suppressed. All 24 FSW in CCLAD group had viral suppression above 95%.

**Conclusions/Next steps:** Key populations can benefit from having access to differentiated ART delivery models. In Uganda, FSWs with access to a differentiated ART delivery model with community ART distribution and less frequency clinical consultations had good client outcomes. This model supported retention in care by tailoring services for a highly mobile population.

**THPDE0101 #NextGeneration: Programming for adolescents**

**Integrated youth-friendly health services lead to substantial improvements in uptake of HIV testing, condoms, and hormonal contraception among adolescent girls and young women in Malawi**

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**Background:** Adolescent girls and young women (AGYW) in sub-Saharan Africa (SSA) experience high incidence of HIV, pregnancy, and sexually transmitted infections (STIs), but face numerous barriers to HIV and sexual and reproductive health (SRH) care-seeking. In this analysis, we assessed whether a model of integrated youth-friendly health services (YFHS) for AGYW led to increased uptake of condoms, HIV testing, and hormonal contraception, compared to standard of care (SOC).

**Methods:** Through the Girl Power study, four comparable public sector health centers were selected in Lilongwe, Malawi and randomly assigned to either the SOC or YFHS. The SOC offered vertical HIV testing, STI management and family planning in 3 separate areas with providers who received no additional training. The other three health centers offered YFHS, which consisted of these same services in an integrated fashion, in youth-dedicated spaces, with peers and providers trained in youth-friendly approaches. In each health center, AGYW 15-24 years old were enrolled and followed for one year for uptake and frequency of HIV testing, condoms, and hormonal contraception. The SOC and YFHS models were compared using adjusted risk differences and incidence rate ratios and ninety-five percent confidence intervals.

**Results:** One thousand AGYW enrolled (N=250/health center). Median age was 19 years (inter-quartile range 17-21 years). Compared to AGYW in the SOC health center, those in the YFHS health centers were 23% (CI: 17%-29%) more likely to ever receive HIV testing, 57% (CI: 51%-63%) more likely to ever receive condoms, and 30% (CI: 34%-45%) more likely to ever receive hormonal contraception. Compared to AGYW in the SOC, AGYW in the YFHS models accessed HIV testing 2.4 (1.9-2.9) times more often, condoms 7.9 (CI: 6.0-10.6) times more often, and hormonal contraception 6.0 (CI: 4.2-8.7) times more often. Each of the three YFHS health centers performed better than the SOC on each indicator.

**Conclusions:** In public sector health centers an integrated model of YFHS that included brief provider training and modest clinical modifications lead to considerably higher SRH and HIV service utilization for AGYW. Implementation science is needed to guide scale-up of this highly promising service delivery model.

**Table 1. Comparison of the SOC Clinic (Model 1) to the YFHS Clinics (Models 2-4)**

<table>
<thead>
<tr>
<th>Proportion of Participants Who Ever Received the Service Over One Year</th>
<th>Mean Number of Times Service Received Per Participant Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC (N=250)</td>
<td>YFHS (N=750)</td>
</tr>
<tr>
<td>Condoms</td>
<td>HIV Testing</td>
</tr>
<tr>
<td>26%</td>
<td>97%</td>
</tr>
</tbody>
</table>

*All models control for age, number of children, and marital status measured at baseline. Some models also controlled for baseline HIV testing, condom use, and hormonal contraceptive use.

**Figure 1. Proportion of AGYW who Received Each Service by Arm**

[Image: Figure 1. Proportion of AGYW who Received Each Service by Arm]
Background: Adolescents living with HIV (ALHIV) spend a significant proportion of their daily lives in schools. In 2016, with support from ViiV Healthcare, the Elizabeth Glaser Pediatric AIDS Foundation implemented the innovative peer-designed fast-track linkage-to-care and early re-suppression among ALHIV.

Homa Bay County developed key HIV strategies including: a) fostering direct linkages with HCFs and schools in Kenya. RCP worked closely with the Ministry of Education (MOE) and Ministry of Health (MOH) to design and implement school-based interventions to promote HIV education and support for ALHIV. The aim of this analysis was to evaluate the implementation of RCP school-based interventions conducted in 2017.

Description: RCP conducted two main interventions in the Homa Bay County boarding schools:

- Enhanced partnership between schools and 50 RCP HCFs;
- Built capacity of adolescent health advocates (counseling teachers, school-matrons, nurses and boarding in-charge managers).

A sensitization meeting was held with 70 secondary boarding school in-charge managers, principals and MOE officials in August 2017. During August-September 2017, RCP conducted a two-day capacity building workshop for 90 school-based adolescent health advocates from 44 high volume local secondary boarding schools.

Lessons learned: By November 2017, 50 boarding schools in Homa Bay County developed key HIV strategies including: a) fostering direct linkages with HCFs; b) formation of School Health Committees (SHC); c) Training of adolescent health advocates; and d) support of ALHIV. By December 2017, 50 SHC were formed and >3000 students (both HIV+ and HIV-) were reached with education on HIV, HIV stigma, antiretroviral treatment, pre-exposure prophylaxis, and sexual and reproductive health. Fifty schools implemented activities targeting ALHIV, parent representatives and linked RCP HCFs teams. All 50 schools implemented adherence counselling, confidential storage and access to HIV medications for ALHIV.

Conclusions/Next steps: Schools provided daily support to ALHIV from accessing care, medications to retention in care. The uptake of the general HIV education and support services for ALHIV was high in schools of Homa Bay County, Kenya. Going forward, RCP works to expand collaboration between HCFs and schools with the goal to increase long-term retention in care and on treatment, and achieve high levels of virologic suppression among ALHIV.

TPHPE0103

Cash+Care: Parenting support and violence reduction programme associated with reductions in adolescent HIV-risks in South Africa: A cluster randomized trial of a ‘DREAMS’ and 4Children-implemented programme ‘Parenting for Lifelong Health’

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Background: Adolescent HIV-risk behaviors are increased by family violence, low parental supervision, substance use and poverty. ‘Cash + care’ structural approaches can reduce adolescent HIV-risks, but parenting a teenager is complex and challenging. WHO, UNICEF, USAID-PEPFAR and academics developed and tested a parenting support and violence reduction program for low-resource settings, to be used as part of structural prevention programs.

Methods: Pragmatic cluster randomized trial (n=1100 participants, 40 clusters) in South Africa’s rural and urban Eastern Cape. Adolescents and caregivers participated in 14 evidence-based sessions (i.e. conflict reduction, protection from sexual abuse in the community, family budgeting), implemented by local community members with NGO’s Clowns Without Borders, REPSi, UNICEF, USAID-PEPFAR and academics developed and tested a parenting support and violence reduction program for low-resource settings, to be used as part of structural prevention programs.

Results: The intervention did not impact all parenting outcomes (i.e. neglect), but had significant impact on six key HIV risk reduction factors: lower family violence (caregiver report (IRR 0.55, 95% CI 0.40-0.75, P<0.001); improved involved parenting (caregiver report d=0.86 (95% CI 0.64-1.08, P<0.001); less adolescent report d=0.28 (95% CI 0.08-0.48, P=0.006) and less less poor supervision (caregiver report d=−0.09 (95% CI −0.23 to −0.07, P=0.001). This was also associated with lower alcohol and drug use amongst adolescents (IRR=0.56, 95% CI 0.33-0.93, P=0.006) and amongst caregivers (IRR=0.67, 95% CI 0.49-0.93, P=0.041) and with improved planning for protection against sexual predators (caregiver report d=0.48 (95% CI 0.24-0.72, P<0.001); adolescent report d=0.73, 95% CI 0.05-0.59, P=0.041).

Conclusions: This cluster RCT in South Africa shows that an intervention to support families can reduce direct risks for adolescent HIV-acquisition: violence, low supervision, food insecurity and substance use. The programme is being adapted and scaled in 8 countries in the region through DREAMS, 4Children, USAID, UNICEF and by national governments. Strengthening families may be an essential component of adolescent HIV prevention in Africa.
THPDE0104
Improving timely linkage to care among newly diagnosed HIV-infected adolescents: Results of SMILE

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Background: In the U.S., youth are the least likely among people of all age groups to link to HIV medical care quickly following a positive HIV-test result. Delayed linkage to care deprives youth of the benefits of HIV treatment and risks increased HIV transmission. Interventions to improve the rates of timely linkage to care for youth represent an urgent national priority.

In 2009, we initiated the Strategic Multisite Initiative for Identification, Linkage and Engagement (SMILE) program to improve timely linkage to care among newly diagnosed HIV-infected youth in 8 urban U.S. adolescent medicine clinical trials units (AMTU). We deployed a dedicated linkage-to-care specialist to link youth to an infectious disease physician within 42 days of a positive test result.

In 2013, we additionally pursued local organizational, institutional, community, and policy changes to address structural barriers to youth’s timely access to care through coalitions convened by each AMTU.

Methods: We collected anonymized clinical patient records from 2008 to 2015. Data included demographics and dates of HIV testing and medical care linkage events for 1656 newly diagnosed HIV-positive youth ages of 12-24. We plotted the linkage-to-care interval in days for each quarter from the start of 2008, prior to the start of SMILE, through 2015.

Results: At the start of SMILE, the average number of days between HIV test result and linkage was 951. This reflects, in part, that youth who had HIV tests long before the program’s initiation ultimately linked to care within 42 days of a positive test result.

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Results: At the start of SMILE, the average number of days between HIV test result and linkage was 951. This reflects, in part, that youth who had HIV tests long before the program’s initiation ultimately linked to care during its start-up phase. By end of 2012, the average number of days to linkage had decreased to 25 (Figure 1). By the end of the initiative (2015), the average number of days to linkage had fallen to 16.

Conclusions: Integrated, multi-level interventions that draw on existing community resources can dramatically improve timely linkage to care among high-risk youth.

THPDE0105
90-90-48: The reality of viral suppression among ART-initiated adolescents in South Africa

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2Stellenbosch University, Stellenbosch, South Africa.
3University of Cape Town, AIDS and Society Research Unit, Cape Town, South Africa.

Background: Global fast-track targets include 90% viral suppression among all ART-initiated persons. Data suggests adolescents have worse viral suppression rates than children and adults, but little is known on adolescent progression through the HIV treatment cascade. This study examines the HIV treatment cascade for a large sample of HIV- adolescents in South Africa.

Methods: 1,058 ART-initiated adolescents (10-19 years) from 52 urban and rural healthcare facilities in the Eastern Cape were interviewed (March 2014-September 2015). Data were extracted from paper-based medical records from all facilities (including records from multiple facilities) through January 2018. Predictors of progression through cascade were identified using sequential multivariate logistic regressions, with age (10-14/15-19 years), sex, urban/rural residence, mode of infection, decentralised/centralised ART care, and time on ART entered simultaneously. Interactive effects and moderating effects of gender and mode of infection were tested with regressions, corrected with the Benjamini-Hochberg procedure.

Results: 92.5% of adolescents had viral loads available in clinic files. 63.2% had viral loads recorded in the past 2 years. At most recent viral load, 78.5% of measurements were ≤50 copies/mL, but only 58.8% were undetectable (<50 copies/mL). Participants were female (54.0%), median age 13 years (IQR 11-16), urban-living (76.8%), and 30.0% attended 12 healthcare facilities.

Adolescents on ART for < 2 years were more likely to lack viral loads from the past 2 years (OR 5.73 [95%CI 1.82-18.08], p<0.003), and decentralised care was protective only for females (OR 2.56 [95%CI 1.40-4.64], p=0.002).

Viral load ≤50 copies/mL was associated with older age and rural-living (OR 2.18 [95%CI 1.58-3.00], p<0.001; OR 1.88 [95%CI 1.06-3.32], p=0.031). Older adolescents, those on ART for < 2 years, and decentralised adolescents were less likely to have undetectable viral loads (OR 0.65 [95%CI 0.49-0.87], p=0.003; OR 0.36 [95%CI 0.13-0.91], p=0.047; OR 0.74 [95%CI 0.57-0.98], p=0.039).

Conclusions: Viral suppression rates remain low among adolescents in South Africa. Older, recently initiated, and decentralised adolescents were least likely to be virally suppressed—potentially due to down-referrals from tertiary paediatric facilities to generalised primary clinics. With 30% of adolescents receiving care in multiple facilities, interventions supporting patient linkages to care may be essential for adolescents transitioning across multiple forms of care.

THPDE0106
A randomized, controlled trial of a patient-centered disclosure counseling intervention for Kenyan children living with HIV

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1Indiana University School of Medicine, Ryan White Center for Pediatric Infectious Disease and Global Health. Department of Pediatrics, Indianapolis, United States.
3University of Massachusetts Boston. John W McCormack Graduate School of Policy and Global Studies. Boston, United States.
4Brown University. Department of Biostatistics. Providence, United States.

Background: For children living with HIV, learning about their HIV status (“disclosure”) is a critical process within their transition to adulthood. Caregivers of perinatally HIV-infected children frequently worry about the impact of disclosure, while also reporting delayed disclosure can
hurt medication adherence. We evaluated the impact of a patient-centered, culturally- and age-appropriate disclosure counseling intervention among Kenyan children and their caregivers.

Methods: We conducted a prospective, clinic-cluster randomized trial in which we followed child-caregiver dyads (children ages 10-14) attending eight clinics randomized to intervention or control at a large HIV treatment program in Kenya. All patients at the intervention clinics had access to intensive counseling (family, one-on-one, and peer group sessions) with trained disclosure counselors and culturally-tailored materials, compared to control clinics with standard care. Disclosure was treated as a time-to-event outcome, measured on a discrete time scale, with assessments at 0, 6, 12, 18, and 24 months. Mental health and psychosocial outcomes were assessed using standardized questionnaires.

Results: The 285 children were mean age 12.3 years, 52% female, with average time-on-treatment of 4.4 years. At baseline, 32% of the children reported that they knew their HIV status already (no difference between control and intervention groups). Disclosures in both control and intervention arms increased over follow-up, but the intervention arm had significantly more disclosures. Using child-reported disclosure, the prevalence of disclosure increased significantly between the baseline and 24 months of follow-up from 29.2% to 56.0% in the control arm and from 33.2% to 74.0% in the intervention arm (difference of 15.5%, 95% confidence interval: 3.7, 27.3). Overall, there were no significant differences in mental and behavioral health outcomes, although trends suggested mental and behavioral distress increased at month 6 in the intervention group as disclosures increased, and then decreased compared to controls thereafter.

Conclusions: This study provides evidence for an effective, clinic-based intervention to increase disclosure of HIV status to children living with HIV. Making counseling support available throughout the disclosure intervention to increase disclosure of HIV status to children living with HIV could be critical for improving treatment adherence. Further research is needed to understand the impact of community mobilization interventions on disclosure.

Results: During the observation period, 311 events were carried out at a total combined cost of $90,448. Of this total, 54% were associated with community mobilization activities with mean cost of $348 (95% CI 137,559) for activities ranging from dialogue with people living with HIV (PLHIV) to broader community. The cost of Information, Education and Communication (IEC) production and printing was $4,404 (95% CI 7217, 16025) or 15% of total, while the cost of running a community advisory board (CAB) to ensure rights of clients was $348 (95% CI 137,559) or 23% of total. Remaining costs were associated with orientation of the media and community leaders as well as monitoring and evaluation activities.

Conclusions: We present one of the first comprehensive set of estimates of the costs of community related activities carried outside the healthcare facilities to support UTT. The costs vary widely across broad categories due to mix of fixed (equipment rental) and variable costs (distance traveled, food), while CAB costs were high due to initial capital investment needed in training support. Future funding and planning should use these cost estimates to ensure that scarce resources for community mobilization are used to largest possible health and social benefit.

<table>
<thead>
<tr>
<th>Events</th>
<th>Mean cost per event (USD) (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Orientation</td>
<td>$1,267</td>
</tr>
<tr>
<td>Media Orientation Workshop</td>
<td>$933</td>
</tr>
<tr>
<td>Information, Education and Communication (IEC) material</td>
<td>$4,404 (7217, 16025)</td>
</tr>
<tr>
<td>Community Mobilization Events</td>
<td>$231 (198-265)</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>$145 (98-192)</td>
</tr>
<tr>
<td>Community Advisory Board (CAB)</td>
<td>$348 (137-559)</td>
</tr>
</tbody>
</table>

(Average cost of community events in support of UTT policy in Swaziland)

THPD0202

Increased domestic financing of key population-led health services (KP-LHS): Lessons from Thailand’s transition planning and response

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Background: As international donors such as The Global Fund (GFATM) and PEPFAR transition out of middle-income countries, there is an urgent need for domestic budgets of countries to increase their financial commitments to the HIV response. In Thailand, nowhere is this more urgent than with HIV cascade interventions for key populations (KPs) most successfully delivered by civil society organizations (CSOs) uniquely able to reach these often marginalized persons affected and infected by HIV. Yet these critical KP-LHS have thus far failed to attract increased domestic financing because of poor targeting of scarce resources, pervasive stigma and discrimination towards KPs, and a lack of contracting mechanisms to fund CSOs providing KP-LHS.

Description: The Thailand National Health Security Office (NHSO) committed approximately $5 million starting in 2016 for initiatives to increase access to HIV testing and antiretroviral treatment among KPs. The initiative was designed to tap the expertise of KP-led organizations, many of whom have been traditionally financed by GFATM and PEPFAR. NHSO developed reimbursement schemes based on cost estimates of “reach-recruit-test-treat-prevention-retain” activities which vary for each KP group. These amounts were made available to organizations such as CSOs, hospitals, and provincial health offices providing services for KPs through contracts with NHSO.

Lessons learned: Despite the increases in government budgetary support for KP-LHS, certain gaps remain. An estimated 60% of the total were funds provided to CSOs and 40% were provided to hospitals. NHSO identified the following gaps and needs: strengthening of systematic management of funding and service monitoring, accreditation system

THPD0201

Empirical cost of community mobilization activities to support the scale-up of Universal Test and Treat in Swaziland

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Background: Swaziland and many other countries in sub-Saharan Africa are adopting the 2015 World Health Organization (WHO) antiretroviral therapy (ART) guidelines and implementing universal test and treat (UTT). However, it has become increasing clear that without successful community mobilization activities and demand generation, UTT will not lead to substantial increases in ART coverage. Here we present for the first time empirical cost estimates of community mobilization implemented as part of UTT in Swaziland.

Methods: From September 2014-August 2017, we collected comprehensive data from community partners supporting the transition of fourteen public health facilities from the previous standard-of-care (SOC) to UTT as part of a stepped-wedge implementation trial. The activities included community dialogues and mobilization events to educate both targeted and broader community as facilities introduced UTT. We carried out bottom-up costing of sub-activities for total unit cost estimation. The mean costs of each activity type are presented in USD (S).
to ensure organizational and service capacity of CSOs; ensuring that unit cost reflects appropriate operational costs of CSOs; funds integration with other funding sources for greater coverage.

**Conclusions/Next steps:** NHSO will work with stakeholders to address these challenges through establishment of an accreditation process to ensure organizational capacity to manage funds and provide services, conducting of costing studies to ensure alignment of service reimbursement for KP-LHS under models applicable to each KP group and local epidemic contexts, and strengthening local fund management entities to manage and monitor NHSO funding.

**THPDE0203**  
*Last to be funded, first to be cut: An analysis of current funding trends to local community organisations in the Positive Action Network*

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**Background:** To enable the global community to meet its own Fast Track targets. UNAIDS estimates that approximately US$ 262 billion will need to be spent on HIV responses in 2020. Despite this, there was a $51 million reduction in donor Government funding for HIV between 2015 and 2016. The critical role of community-based interventions in the fight against HIV has never been in question, but if funding squeezes are affecting these small groups in equivalent proportions, we could see transmission rates and HIV-related deaths rise as a result.

**Description:** VIV Healthcare is conducting a comprehensive survey of organisations engaged in our Positive Action for Children Fund (PACF) and Positive Action for Girls and Women (PAGW) online communities. The survey of 350 current and former grantees and over 2000 community members seeks to understand funding trends since 2015, how grant durations are spread, and in what proportions different funder types are contributing to community HIV interventions in low resource settings.

**Lessons learned:** Preliminary findings from community based organisations (CBOs) indicate that funding opportunities are unchanged (less than 20% change) in the past two years. The number of international funders funding local CBOs has also remained unchanged. This is despite the High Level Meeting in 2016 proposing increased funding to local communities to optimise investments in health services. Offering a rare insight into funding levels in communities, these results are valuable in allowing us to quantify the recent funding trends for grassroots CBOs for the first time, and determine whether the globally reported percentages for funding to CBOs are reflected in the experiences of respondents on the ground.

**Conclusions/Next steps:** The results point to the urgency in prioritising funding to local communities if we are to meet funding commitments and ensure that investments in health systems are optimised. Further research will be needed to assess the intensity of fundraising required to achieve the current level of funding versus previous years.

**THPDE0204**  
*Post-global fund HIV financing: A promising transitioning model and the implementation of plan from the SHIFT (Sustainable HIV Financing in Transition) program in Thailand*


**Background:** Thailand has been a recipient country of the Global Fund to Fight against AIDS, Tuberculosis and Malaria (GFATM) since 2004 with the accumulative amount of US$287.4 million which sustains 95.0% of the programs implemented by civil society organisations (CSO) 5.0% is supported by the Subsidiary Fund of the Thai government. The country has been categorised as an upper-middle-income country in 2011, partly resulting in the out- transitioning of GFATM, negatively affecting sustainability of CSO-implemented HIV programs.

**Description:** The initial of 30 CSOs, including MSM, transgender women, sex workers, PWID organizations, gathered in late 2015 to form CSO Resource Mobilization (CRM) under AIDS Almost Zero program to address HIV financing sustainability and currently supported by the SHIFT program to increase fiscal space, allocative efficiency, effective transitioning plan and funding mechanisms for CSOs. We have been advocating the National Health Security Office (NHISO) for a regular annual scheme for CSOs working with key populations. The goal is to reach US$14.7 million/year and US$ 5.9 million has been successfully allocated in 2018 and with the Disease Control Department to increase the Subsidiary Fund from US$1.5 million to US$3 million. To minimize the risks of sole government funding, the CRM have initiated a public-private partnership program to raise funds for US$1.5 million with an exponentially annual increase for five consecutive years.
THPDEo205
A sustainable approach to providing HIV services and information at the community level: A longitudinal exploration of female community health entrepreneurs' performances

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Background: Community health entrepreneurship is an innovative way of providing rural communities access to primary healthcare by harnessing the entrepreneurial skills of lay health workers. Previous research shows that community health entrepreneurs have a highly beneficial impact on communities' knowledge of HIV prevention. However, it remains unclear how the performance of these entrepreneurs evolve over time. Hence, this study aimed to longitudinally compare the performances of lay health workers and community health entrepreneurs. The findings of this study aim to contribute to the construction of a sustainable primary sexual and reproductive healthcare model.

Methods: Data were collected using a tablet-based performance survey in a six-month quasi-experimental study. The study aimed to sample 500 female lay health workers from two rural districts in East and Central Uganda who were recruited to become a community health entrepreneur. A random sample of 150 participants would receive their training directly, whereas the other 350 would start six months later. Mixed models were used to longitudinally assess the difference in performance indicators between the two groups. These indicators included their income, self-esteem, and availability of essential medicines and equipment.

Results: A group of 56 female community health entrepreneurs successfully completed their training directly, followed by a second group 77 six months later. After six months, the entrepreneurs showed sustained performance over the lay health workers. The community health entrepreneurs proved to have a key role in providing rural populations with basic services and products for sexual and reproductive health. The entrepreneurs had a higher availability of essential medicines (OR: 3.39, 95%-CI: 2.03; 5.65) and key equipment (OR: 1.87, 95%-CI: 1.03; 3.37). In addition, their Rosenberg self-esteem score increased with 1.24 points (95%-CI: 0.09; 2.39) more than that of lay health workers, whereas their weekly overall income increased with $8.96 (95%-CI: $3.59; $14.32) more than that of lay health workers. The entrepreneurs had a higher availability of essential medicines (OR: 1.87, 95%-CI: 1.03; 3.37). In addition, their Rosenberg self-esteem score increased with 1.24 points (95%-CI: 0.09; 2.39) more than that of lay health workers, whereas their weekly overall income increased with $8.96 (95%-CI: $3.59; $14.32) more than that of lay health workers.

Conclusions: Female lay health workers who were trained to become a community health entrepreneur showed an increased and sustained performance in the medium-term. This study provides the first evidence that community health entrepreneurship may be a sustainable and lasting model through which to organise sexual and reproductive healthcare.

THPDEo206
Building a constituency of advocates for sustainability: Identifying the capacity needs of HIV CSOs and key populations to advocate for HIV financing and sustainability in Indonesia, Malaysia, Philippines and Thailand

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Background: In response to declining donor funding for HIV, the Sustainable HIV Financing in Transition (SHIFT) Programme is supporting HIV financing advocacy for CSOs in four middle-income countries in Southeast Asia through capacity building and strategic information. APCASO, a regional sub-recipient of SHIFT, conducted a needs assessment for CSOs and key population (KP) groups in Indonesia, Malaysia, Philippines and Thailand in 2017 to identify their capacity needs in relation to HIV financing advocacy.
**THURSDAY 26 JULY**

**Poster Exhibition**

**Eliminating/Silencing latency**

**THPEA001**

The Mitochondrial Antiviral Signaling protein plays an essential role in the activity of several latency-reversing agents

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2. University of Virginia, Department of Pathology, Division of Microbiology and Immunology, Charlottesville, United States
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**Background:** The Mitochondrial Antiviral Signaling protein (MAVS) is part of the cell’s innate immune mechanism of defense. MAVS plays an important role in activating NF-B after the cytosolic RNA sensors retinoic acid-inducible gene I (RIG-I) and melanoma differentiation-associated protein 5 (MDA5) recognize viral infections. MAVS can also sense cellular stress and activate an anti-inflammatory (AOS) response through the activation of NF-B. Because NF-B is a main transcription factor for HIV, we wanted to address what role MAVS and the AOS response plays in HIV reactivation from latency.

**Methods:** We first tested whether activation of the AOS response reactivates latent HIV using a tumoral latency model, a primary cell model of latency, and cells from aviremic participants. Next, we generated a clone lacking MAVS in the tumoral cell model of latency JLAT using CRISPR/Cas9. Using this system, we further characterized the role of MAVS in viral reactivation mediated by the AOS response. We then addressed whether MAVS plays a role in viral reactivation mediated by several known latency-reversing agents (LRAs). Finally, complementation studies were performed to demonstrate the requirement of MAVS for the activity of several LRAs.

**Results:** Our results indicate that the AOS response can reactivate latent HIV through the activation of NF-B in a MAVS dependent manner. Interestingly, several LRAs with different putative mechanisms of action, such as HDAC inhibitors and PKC agonists, exert part of their anti-latency activity by inducing an AOS response and require MAVS to fully reactivate latent HIV.

**Conclusions:** Our results indicate that the activity of many clinically relevant LRAs is partially due to their induction of an AOS response and NF-B activation and suggest a central role of the mitochondria and MAVS in controlling HIV transcription in response to cellular stress.

**THPEA002**

Potency of latency-reversing agents and CTL exhaustion balance the killing of HIV inducible provirus

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2. Hospital Universitari Vall d’Hebron, Institut de Recerca (VHIR), Universitat Autònoma de Barcelona, Barcelona, Spain
3. Universitat de Vic–Universitat Central de Catalunya, Vic, Spain
4. University of Oxford. Peter Medawar Building, Department of Paediatrics, Oxford, United Kingdom

**Background:** The clinical use of Latency-reversing agents (LRA) in HIV cure interventions has demonstrated detectable perturbations on the viral reservoir with no measurable reductions. Thus, many questions regarding immune surveillance of HIV-reactivated cells continue unanswered. Here, we aimed to determine magnitude and kinetics of recognition of HIV-reactivated cells by CTL and to evaluate the impact of CTL exhaustion as a balancing factor of the magnitude of the killing of inducible provirus.

**Methods:** We developed an HIV ‘Resting-Like cell model’ (RELI) that allowed simultaneous monitoring of ‘HIV shock and CTL kill’. Briefly, RELI cells were treated with LRA for 48h. After that, cells were washed and co-cultured for 20h with CTL clones or bulk CDB+ T-cells from HIV-infected patients. We monitored the potency of LRA-inducible HIV reactivation by intracellular p24 staining and assessed the magnitude of CTL killing by differences in frequency of p24+ cells in the absence or presence of CTL/CDB+. We measured the kinetics of CTL recognition and killing of reactivated cells at 3, 6 and 20h post co-culture. We evaluated exhaustion of CTL/CDB+ by PD-1, LAG, TIM3 and CD39 expression.

**Results:** We demonstrated an increase in the magnitude of the killing of HIV-infected cells by CTL through reactivation with SAHA or Panobinostat (p<0.01). Our findings were confirmed in co-cultures of bulk CDB+ from HIV-infected patients (p<0.05, n=7). The kinetics experiment revealed early recognition of HIV-inducible provirus by CTL starting at 3h, where the speed of killing correlated with the magnitude of reactivation (r=0.82, p<0.005 at 3h; r=0.93, p<0.0005 at 6h). Besides, magnitude of CTL killing in response to HIV-reactivation was reduced upon the co-expression of three or more exhaustion markers (p<0.05). In bulk CDB+, we observed a correlation between the magnitude of killing and the lack of exhaustion markers.

**Conclusions:** Our results support the contribution of CTL responses to the clearance of HIV-inducible provirus upon LRA treatment. Moreover, our findings indicate the importance to maximize LRA potency for the rapid recognition and killing of HIV-reactivated cells by CTL together with the evaluation of CTL exhaustion in HIV-infected patients to optimize ‘shock & CTL kill’ strategies.

**THPEA003**

Combinations of maraviroc with other latency reversing agents to activate latent HIV-1 in rCD4+ T lymphocytes

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Hospital Universitario Ramón y Cajal - Instituto Ramón y Cajal de Investigación Sanitaria, Infectious Diseases Service, Madrid, Spain

**Background:** HIV-1 remains incurable due to latent reservoirs established in non-activated CD4+ T cells. Current efforts to achieve a functional cure rely on immunomodulatory strategies focused on enhancing the functions of cytotoxic cells. Implementation of these actions required a coordinated activation of the viral transcription in latently infected cells so that the reservoir became visible and accessible to cytotoxic cells. As no latency-reversing agent (LRA) has been shown to be completely effective so far, new combinations are of increasing importance. Recent data show that maraviroc, the CCR5 antagonist with clinical use, is a new LRA due to its ability to activate NF-B and to induce viral reactivation in latently infected cells. Our objective was to find combinations of maraviroc with other LRAs that potently reactivate HIV-1.

**Methods:** rCD4+ T cells were stimulated with maraviroc (0.05, 0.5 µM) alone or combination with other LRAs including vorinostat (335 µM), panobinostat (30 µM), romidepsin (40 nM), JQ1 (0.5 µM) and disulfiram (500 nM). PMA or PHA were used as positive control. Cellular viability and proliferation were measured by quantifying ATP and Ki67 levels, respectively. Then, a latently model based on treating primary resting CD4+ T cells with CCL19 (29nM) before in vitro HIV-1 infection with X4-NL4-3 was used. HIV-1 replication was assessed by quantifying p24 antigen in the culture supernatant 24h and 72h post-stimulation.

**Results:** Cell cycling was not detected in any of the double or triple combinations tested except for maraviroc+romidepsin+JQ1 (Fig. 1a). However, most of the triple combinations reduced cellular viability and were rejected (Fig. 1b). Maraviroc and 0.05 µM were both efficient in reactivating HIV-1 replication but 0.5 µM was slightly superior. Maraviroc (5 µM) reactivates HIV-1 replication with the same potency as positive controls after 24h and 72h stimulation, which was around 10- and 18-fold, respectively (Fig. 1c). Maraviroc plus disulfiram is the only combination maintaining these levels.
Conclusions: Maraviroc reactivates HIV-1 replication in vitro. A combination of maraviroc plus disulfiram maintains the effect without resulting in cellular toxicity or proliferation. Ex vivo studies are required to highlight the importance of this combination before moving into in vivo assays. Given that activity of PI3Ki may be different in an immortalised cell line, we also evaluated these drugs in CD4+ T cells from HIV-infected individuals on ART (n=4). In one of four participants, compared to DMSO or either drug alone, there was a reduction in HIV integrated DNA with PI3Ki and romidepsin (15% decline) and Wortmannin and PMA/PHA (24% decline). Venetoclax induced a decline in HIV DNA alone and this was not increased by the addition of RMD or PMA/PHA. Conclusions: PI3Ki inhibitors together with LRAs have minimal effects on apoptosis in the J-Lat6.3 cell line while in CD4+ T-cells from HIV-infected individuals on ART, a reduction in HIV DNA in one individual was observed. Further work is needed to define the optimal combination of LRAs with PI3Ki inhibitors to reduce latently infected cells.

Immunotherapy

THPEA005

Use of the immunomodulatory activity of tyrosine kinase inhibitors to elicit cytotoxicity against HIV-1 infection

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Background: Due to reservoirs, HIV-1 infection cannot be cured with current ART, even in the presence of latency reversal agents (LRAs). Cytotoxic cells such as NK and CD8+ T-lymphocytes should be activated to destroy latently infected cells. However, attempts to reactivate the reservoir with LRAs cannot be effective in the absence of a potent cytotoxic response. We previously described that tyrosine kinase inhibitors (TKIs) imatinib and dasatinib, successfully used for treating chronic myeloid leukemia (CML), impede HIV-1 replication. TKIs also increase populations of NK (CD3-CD56+), NK-LGL (CD56+CD57+), and T-LGLs (CD3+CD57+) cells in patients. In this work, we analyzed whether TKIs may promote cytotoxicity to destroy HIV-infected cells.

Methods: CD4+ T-cells isolated from PBMCs of healthy donors (n=6) and activated with PHA/IL-2 for 3 days were cocultured with autologous NK and CTLs, previously treated with imatinib 10mM or dasatinib 37.5nM, and then infected with NL4-3_Renilla. Same procedure was performed with PBMCs from patients with CML treated with dasatinib (n=6) or imatinib (n=6), except for TKI treatment in vitro.

Results: 1) CD8+ T-cells and NKs isolated from healthy donors and treated in vitro with imatinib or dasatinib showed an average cytotoxic potential >2-fold against HIV-1 infection, regarding the same cells untreated, when cocultured with autologous CD4+ T-cells infected with HIV-1. 2) CD8+ T-cells and NKs isolated from CML patients on treatment with imatinib or dasatinib for more than 6 months showed cytotoxic potential >2-fold against autologous CD4+ T-cells infected ex vivo. 3) These PBMCs from CML patients treated with dasatinib showed 41.15-49.1% and 5.6-fold increase of CD56+/CD16+, CD56+/CD57+, CD56+/NKGD2+ and CD56+/CD168+ cells, respectively. PBMCs from CML patients treated with imatinib showed 27.2%, 20.0%, and 2.0-fold increase of CD56+/CD16+, CD56+/CD57+, and CD56+/NKGD2+, respectively, with no changes in CD56+/CD168+ population, regarding healthy controls. 4) Synthesis of IFNg in response to CEF peptides was 5.1- and 2.0-fold increased in PBMCs of CML patients treated with dasatinib or imatinib, respectively.

Conclusions: TKIs such as imatinib and dasatinib may act as immunomodulators, increasing cytotoxicity of NK and CTLs in vivo. Once the virus is activated by LRAs, co-treatment with TKIs may destroy latently HIV-infected CD4+ T-cells.

[Figure 1. HIV-1 replication in CCL19-treated CD4+ T cells after stimulation with maraviroc]
**ThePAA006**

**Administration of rhIL-15 in combination with anti-PDL1 (Avelumab) in SIV-infected RM**

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Biomèdica de Barcelona, Barcelona, Spain, DC) based vaccine elicits T-cell responses associated with a reduction of viral load set-point around 94% in chronic HIV-1 infected patients after 12 weeks of an analytical therapy interruption (ATI). To better understand the efficacy of this vaccine, we assessed the impact on differential expression of microRNA.

**Methods:** 39 chronically -HIV-1 infected patients on ART were randomized 111 to receive: 3 doses of MD-DCs pulsed with inactivated autologous HIV-1 separated by two weeks interval (weeks 0,2,4) and ATI w0 (ATIw0-DC-HIV-1, n=2) vs the same immunogen and ATI w4 (ATIw4- DC-HIV-1, n=12) vs 3 doses of non-pulsed MD-DCs and ATI w4 (DC- control, n=12). Total RNA from frozen PBMC was used to perform the Affymetrix 4.1 Array Strips. Differential miRNA (DEmiRNA) expression and enrichment analyses was performed using t-test as implemented in the Bioconductor. miRwalk v2.0 and DAVID softwares were used to identify validated gene targets and functional annotation pathways respectively.

**Results:** After normalization, differential regulation of 30 miRNAs were found in ATIw0-DC-HIV-1 and 66 DEmiRNA in ATIw4-DC-HIV-1 groups, respectively, as compared with the DC-control group. Fourteen of these DEmiRNAs were shared by both DC-vaccine groups (ATIw0-DC-HIV-1 and ATIw4-DC-HIV-1) (p-value < 0.05; -0.5>FC>0.5). 4/14 DEmiRNA had the highest significance (p-value < 0.005; -0.5>FC>0.5) and were selected for the enrichment analysis (hsa-miR-4708-5p, hsa-miR-4731-5p, hsa-miR-765-5p, hsa-miR-8770-5p). These DEmiRNA target a total of 378 validated genes that are involved mainly in the humoral immune response and in the regulation of regulatory T-cell differentiation pathways.

**Conclusions:** The vaccination with a MD-DC based immunogen against HIV-1 infection was associated with the expression of miRNA involved in the in the humoral immune response and in the regulation of regulatory T-cell differentiation pathways.

**Genetherapy**

**ThePAA008**

**Differences in antiviral efficacy and expression profile of anti-HIV RNAs expressed from the RNA polymerase III promoters U6, 7SK and H1**

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**Background:** AIDS remains a globally distributed disease, despite the various drugs available to treat HIV infection. An alternative approach to classical treatments is to use gene therapy vectors to deliver antiviral molecules to hematopoietic stem cells (HSCs) and make all major HIV producing cells resistant to HIV replication. This could be achieved by engineering HSCs to permanently produce antiviral RNAs and eliminate the need for daily medication.

While clinical trials are already in progress with this approach, there are conflicting results reported in the literature as to the optimal promoter for expression of anti-HIV RNAs. We hypothesize there will be an optimal promoter for each RNA candidate to ensure maximal antiviral efficacy and minimal toxic effects.

In this study, two anti-HIV short hairpin (sh)RNA were compared for their effects on HIV production, cellular toxicity and metabolite profile, when expressed from different RNA polymerase III promoters U6, 7SK and H1.

**Methods:** Co-transfections were performed in HED293T cells with an HIV-2 molecular clone (pHil-3) and a plasmid expressing shRNAs from modified H1, 7SK or U6 RNA Pol III promoters. Viral production was quantified by HIV-1 reverse transcriptase activity in co-transfected cell supernatants. Cellular toxicity was measured by metabolic enzyme activity and the metabolite profile of shRNAs was evaluated by RNA sequencing in shRNA transfected cells.

**Results:** For both shRNA candidates, the U6 and 7SK promoters produced more effective anti-HIV RNAs. Changing the sequence of the U6 and H1 promoter to their natural sequences resulted in the expression of less effective shRNAs. Transfection of shRNA is expressed from different RNA Pol III promoters did not change effects on cellular toxicity but had major effects on their metabolite profile.
Conclusions: Our results suggest that RNA Pol III 75K and U6 promoters express more effective anti-HIV shRNAs compared to H1 promoters with no further improvement when changing the promoters to their natural sequence. We also demonstrate the metabolite profile of anti-HIV shRNAs is variable when expressed from the different promoters. Combination anti-HIV RNA gene therapy is among the top approaches to cure HIV infection and our results will help in the selection of optimal promoters for the expression of anti-viral RNAs.

THPEA009

Cell-based gene therapy to treat HIV-1/AIDS

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Background: HIV-1 drug therapies are effective at suppressing the viral load in patients to block disease progression, but drugs cannot eradicate HIV-1 from an infected individual and therefore have to be taken life-long. Because there is also no protective vaccine available, it remains important to develop more durable therapeutic approaches against HIV-1. A gene therapy to protect cells against HIV-1 would seem ideal as it requires only a single treatment. The gene therapy can be based on diverse methods for gene silencing (e.g. RNAi) or gene disruption (e.g. CRISPR-Cas) and we have tested such anti-HIV genes that act in a strictly sequence-specific manner. However, these antivirals do not block infection by the virus particle and do not prevent integration of the viral DNA genome into that of the host cell.

Methods: In order to realize an early block, we designed a gene therapy based on anti-HIV-1 peptides that block the membrane fusion process during virus infection. We evaluated the efficacy of three generations of anti-HIV-1 peptides (C46, T1249 and T2635), which were produced by the engineered cells either as membrane-anchored or secreted protein.

Results: Both peptide forms exhibit robust and broad spectrum anti-HIV activity and the third generation peptide was more active than the first and second generations. Under HIV-1 pressure, the membrane-anchored peptides conferred a profound selective survival over control cells. The secreted peptides also demonstrated potent antiviral activity and were in addition able to protect non-modified bystander cells.

Conclusions: The anti-HIV-1 peptides block virus infection at the virus entry step. A small percentage of modified cells may suffice to stop virus replication and disease progression because the survival advantage is predicted to lead – over time – to a majority of HIV-resistant cells. Secreted peptides have the additional advantage of protecting bystander cells. In conclusion, anti-HIV-1 peptide-based gene therapeutics may provide a strong benefit to AIDS patients and could present an attractive alternative to current antiretroviral drug regimens.

HIV controllers (including post-treatment controllers) and long term non-progressors

THPEA010

HIV-B^57+ HIV controllers demonstrate an efficient antibody profile

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ANRS CD21 Cohort


Background: Current HIV vaccination strategies strive to induce anti-HIV antibodies (Abs), of which several types are of interest. Among them, neutralizing Abs are able to protect macaques against experimental infection but are difficult to induce by vaccination. HIV Controllers (HICs; undetectable viral load without treatment) constitute an interesting cohort for Ab profiling. Indeed, the polyfunctional activities of IgG1s and IgG3s and the induction of anti-gp41 IgG2s were associated with HIV control and slower disease progression. Recently, HIV-Env-specific memory B cells frequency was found to correlate with neutralizing activity in HICs positive for the HLA-B*57 protective allele. This suggests that a specific Ab profile participating in the control of HIV might have been induced in HICs.

Methods: Our study aims to characterize Ab isotypes and their functional responses in the sera of 37 HICs (separated in HLA-B^57+ and HLA-B^57-), compared to 21 chronic progressors (evolving to disease).

Results: We analyzed isotype distribution in the different cohorts by ELISA and antigen detection. Remarkably, these neutralizing activities positively correlate with IgG subtype detection in HLA-B^57+ positive HICs. These results demonstrate that HIC patients display an unexpected Ab isotype profile. Anti-HIV Ab detection is associated with neutralizing activity in HLA B^57+ HICs suggesting that neutralization may contribute to HIV control in this patient subgroup. Conversely, the absence of correlation between Ab profile and neutralization in HLA B^57- HICs further suggests that additional Ab functions may be involved. An in-depth characterization of said Ab profile will guide the design of new immunogens for a future vaccine.
Founders viruses/transmission bottleneck

THPEA011

Envelope biological properties of early and late HIV-1 variants issued from a same transmission cluster

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Background: Recent studies suggested that during the sexual transmission of HIV-1, a single transmitted/founder (T/F) virus among the numerous viral variants present in the donor is transmitted most often. This results in a genetically restricted viral population at the beginning of infection. The aim of our study was to compare the biological properties of envelope glycoproteins of HIV-1 variants circulating during the early and late phase of infection within a transmission cluster. Our hypothesis was that, if transmitted variants have a selective advantage, envelopes of viruses found at the early stage of infection should share some biological properties.

Methods: A transmission cluster of 4 patients infected by subtype B viruses was included in the ANRS Primo cohort, with available early (<3 months) and late (18/24 months after infection) plasma samples for each patient. We produced Env-pseudotyped viruses expressing the envelope glycoproteins representative of the viral population infecting each patient at the early (early viruses) and late (chronic viruses) stage of infection, and compared their sensitivity to a panel of broadly neutralizing antibodies (bNAbs) and entry inhibitors.

Results: We observed that early viruses of the 4 patients used exclusively the CCR5 co-receptor, whereas chronic viruses of 2 subjects were able to use the 2 co-receptors CCR5 and CXCR4. Early viruses were more sensitive than chronic viruses to bNAbs PG121 and 10-1074 targeting the V3 region, as well as to the mini-CD4 MabU1. Conversely, they were more resistant to the fusion inhibitor T20. This observation may reflect a better ability of early viruses to fuse with their target cells. Interestingly, differences in sensitivity/resistance between early and late viruses were associated with identical envelope amino acids changes in all four patients.

Conclusions: The analysis of early and late variants of HIV-1 circulating within a transmission cluster allowed us to compare the evolution of closely related viral variants in 4 different patients. We observed that envelopes of early and late viruses of all 4 patients shared similar biological properties, associated with identical molecular features, suggesting a common viral evolution in the 4 patients.

THPEA012

Chronic binge alcohol consumption influences the establishment of founder virus populations in rhesus macaques mucosally-inoculated with SIVmac251

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Background: Alcohol abuse is highly prevalent among HIV-infected and at-risk people, resulting in increased risk of HIV transmission and adverse effects on disease. Using SIV-infected rhesus macaques exposed to chronic binge alcohol (CBA), our studies have shown that CBA enhances susceptibility to rectal mucosal SIV challenge and increases set-point viremia. We hypothesized that CBA altered early virus-host interactions, affecting the establishment of transmitted/founder virus populations and their subsequent replication dynamics to impact disease progression.

Methods: To address our hypothesis, alcohol was delivered daily via gastric catheters to 13 male rhesus macaques beginning 3 months prior to SIV-inoculation. Peak blood alcohol levels of 50-60mgM were obtained following administration, while sucrose was administered to 11 controls. Following rectal infection with SIVmac251, founder virus populations in animals were characterized using single genome amplification (SGA) of SIV-gp150 and compared to inoculum genotypes. To more thoroughly assess viral populations and monitor evolution, we utilized a novel next generation deep sequencing assay targeting envelope V1-V2. De novo cluster and principal coordinate tools in Mothur, were used to analyze and compare virus populations, with a mean of 750 sequences from each animal. Viral RNA levels in plasma and lymph node cells were measured by qPCR.

Results: Within the SIV inoculum, 17 unique V1-V2 genotypes which clustered into three main genotypes (G1, G2, G3) were identified by SGA. Analysis of founder virus populations revealed that CBA animals expressed a more diverse founder virus population when compared to controls (p<0.001), with a predominance of G2 and a significant reduction in G3 sequences observed in CBA animals. At 10 weeks SIV, we observed a small increase in viral diversity among control animals, while CBA animals showed a significant reduction in diversity (p<0.01) and selection for G1 sequences. Concomitantly, CBA animals showed significantly higher levels of viral RNA in both plasma and lymph node cells (p<0.05).

Conclusions: These observations suggest that CBA mitigates early innate host selective pressures to establish more diverse virus population in tissues of CBA animals. The establishment of genotypes that are expressed at higher levels plays an important role in accelerating disease progression in CBA animals.

Preclinical drug development, including prophylactic drug and microbicide development

THPEA013

Pharmacokinetics of VM1500A long acting injectable formulations for HIV-1 infections treatment and prevention after repeat-dose administration in dogs


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Background: VM1500A is a new, potent non-nucleoside HIV-1 reverse transcriptase inhibitor (NNRTI). Its orally-bioavailable prodrug, Elsulfavirine (Elpida®, VM1500), is currently marketed in Eastern Europe as an oral QD regimen for HIV/AIDS treatment. Unique pharmacokinetic properties (T1/2 ~ 9 days) of VM1500A suggest a possibility for long-acting formulation development.

Methods: VM1500A was subjected to polymorphism analysis via generation of corresponding amorphous forms and evaporative/low-temperature crystallization from 50 different solvents. Two aqueous nanosuspensions of VM1500A polymorph I with particle size distribution (PSD d90) of 306 or 411 nm were prepared by wet milling. Formulation safety and pharmacokinetics (PK) were studied in beagle dogs, following three once-monthly 10 mg/kg IM injections of 306 nm VM1500A plasma concentrations were measured using LC-MS/MS.

Results: A total of twenty morphoforms of VM1500A were identified. Of out those, two (morphoforms I and X) were found to be stable. Morphoform I was selected for further studies. All studied formulations were well-tolerated, no adverse reactions were observed, including at the injection site. Dosage with 306 nm-formulation provided more stable drug plasma concentrations than dosing with that of 411 nm. Following three once-monthly 10 mg/kg IM injections of 306 nm VM1500A formulation, drug plasma levels were maintained above 40 ng/ml for at least 4 months. These levels exceeded the clinically- efficacious VM1500A plasma concentrations.

Conclusions: This study supports further development of VM1500A long-acting injectable formulations to enable infrequent dosing.
THPEA014
Membrane cholesterol maintains structural stability of the HIV-1 envelope glycoproteins and their resistance to antibody neutralization

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Background: Diverse strains of HIV-1 differ in their sensitivity to neutralization by patient sera. Tier-1 isolates and lab adapted strains are globally sensitive whereas Tier-2 and Tier-3 isolates are more resistant. We have recently shown that global sensitivity to antibody neutralization is associated with structural stability of the Env trimer. Multiple interactions in the ectodomain of Env control its resistance to structure-perturbing treatments. We hypothesized that interactions between Env and the lipid membrane may also affect stability of Env. Specifically, we examined the effects of membrane cholesterol on Env structure, function and neutralization sensitivity.

Methods: Diverse Tier-2-like strains of HIV-1 were treated with the cholesterol-depleting agent methyl beta cyclodextrin. To quantify changes in Env conformation we measured the effect of cholesterol depletion on binding of monoclonal antibodies to virus particles using a luminescence-based assay. We also examined the effects of cholesterol depletion on virus sensitivity to structure-perturbing treatments, including exposure to pH and antibodies.

Results: Depletion of cholesterol from viruses enhances exposure of multiple partially-cryptic epitopes, including the coreceptor-binding site (CoR-BS) and membrane-proximal ectodomain region (MPER) of gp41. Conformational effects were isolate-specific and corresponded well with measured changes in virus infectivity. Structurally-unstable Env variants that assume a CD4-bound conformation are highly sensitive to depletion of cholesterol. Similarly, cholesterol depletion acted in synergy with cold, which also induces an “open” form of the trimer, to effectively inactivate the virus. Importantly, we found that mild depletion of cholesterol from viruses enhanced their sensitivity to neutralization by antibodies that target the CoR-BS, V3 loop of gp120 and MPER at concentrations that are otherwise non-inhibitory.

Conclusions: Resistance of Tier-2 HIV-1 isolates to antibody neutralization is associated with stability of the Env trimer. Depletion of cholesterol from Tier-2-like viruses destabilizes the trimer and sensitizes the virus to host antibodies. This destabilization-based approach can be combined with microbicides or vaccine strategies to reduce mucosal transmission of HIV-1.

THPEA015
Release and safety profile of drug loaded innovative bioadhesive vaginal microbicide gels to prevent HIV and HSV infections

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Background: Epidemiological studies have demonstrated that there is a strong synergy between HSV and HIV. HSV infection also increases the risk of HIV acquisition. A combination of antiretroviral tenofovir along with antiherpetic acyclovir for vaginal mucosal delivery is an attractive approach. We have previously shown that drug loaded SR-2P gel demonstrates a significantly improved toxicity profile compared to N9 gel when administered intravaginally.

Results: The pH and osmolality of drug-loaded vaginal gel was found to be 4.82 ± 0.01 and 55 ± 5.3 mOsm/kg respectively. Ideally, it is recommended that the osmolality of a personal lubricant not exceed 380 mOsm/kg in order to minimize any risk of epithelial damage. Mucoadhesive strength of the drug-loaded vaginal gel measured by texture analyzer using porcine tissue with and without mucin disc was found to be 561.4 ± 56.43 dynes/cm² and 368.09 ± 50.80 dynes/cm² respectively. In-vitro drug release in phosphate buffered saline of pH 7 resulted in about 5.0 ± 1.18% (33.36 ± 12.67 µg) of tenofovir and 0.5 ± 0.14% (33.34 ± 6.88 µg) of acyclovir released in 6 h from a 200 µl of drug-loaded vaginal gel. Further about 3.31 ± 1.19% (35.67 ± 12.75 µg) of tenofovir and 2.01 ± 1.35% (95.5 ± 64.21 µg) of acyclovir was retained in the porcine vaginal mucosa after 24 h of release study. From our biomarker analysis of both vaginal brush and tissue samples, we have determined that drug loaded SR-2P gel demonstrates a significantly improved toxicity profile compared to N9 gel when administered intravaginally.

Conclusions: We conclude that this gel prototype is well tolerated and is capable of delivering both acyclovir and tenofovir in vaginal tissues at levels that could provide protection against both HSV and HIV infection.

Immunotherapy (including broadly neutralizing antibodies)

THPEA016
Bovine monoclonal antibodies with human CDRH3 size neutralize heterologous HIV viruses

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Background: Cloned immunoglobulin (Ig) genes from HIV-1 infected patients with elite antibody responses yield potent and broad HIV neutralizing antibodies (bnAb) with unusually long and highly mutated CDRH3 domains. Passive infusions with these bnAb give sterilising protection against lentiviral infection in animal transmission models. A vaccinated cow with HIV Env-gp140 produced antibodies that neutralised 90% of 27 Env-pseudotyped reporter viruses including Env from clade A, B and C reference panels. The antibodies from this cow inhibited human broadly neutralizing antibody VRC01 and PGt141 binding to CD4bs epitope.

Methods: In this study, we used HIV Env antigen scaffold and trimer proteins to isolate anti-HIV memory B cells. The Cells were FACS sorted and variable heavy (VH) and light (VL) genes were amplified and cloned into human constant region expression vector. The antibodies were expressed and characterised for envelope binding and neutralisation activity.

Results: In total, 52 monoclonal antibodies were isolated belonging to 4 main clonal families. The antibodies in each clonal family had the same VH but different VL genes. The antibodies had VH size of between 121 aa (CDRH3 13 a.a) and 134 aa (CDRH3 26 a.a). Out of all expressed antibodies, nine monoclonal antibodies were selected for further characterisation. Five antibodies were able to bind RSC3 but not RSC3 (g273/P363N) but only one of these antibodies (1z2B) with a short CDRH3 (13 a.a) could neutralise A6D pseudovirus specifically. This antibody also showed heterologous neutralization against tier 1 pseudoviruses (MN and SF162), so far the antibody was specific for CD4bs of HIV Env protein.

Conclusions: Though it is shown in a previous study that an Env immunogen with a native-like structure (GOSIP) is more efficient in eliciting heterologous neutralising antibodies than other forms of Env, we showed that cows vaccinated with A6D soluble gp140 were also able to elicith neutralising antibodies. Interestingly, we also showed that bovine antibodies with even a human-sized short CDRH3 could neutralise different HIV viruses.
**Abstracts**

**THPEA017**

IL-7 as an adjuvant for mucosal vaccine development

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**Background:** Despite considerable research efforts, mucosal immunity remains particularly difficult to stimulate through vaccines. Systemic injection of IL-7 stimulates chemokines-induced recruitment of circulating T-cells into mucosae.

**Methods:** The optimal dose of IL-7 to be sprayed on mucosal surface was defined on 14 rhesus macaques. On mucosal biopsies collected after IL-7 administration, we quantified local transcription of 19 chemokines by qRT-PCR and cell infiltration by immunohistochemistry plus image analysis. Six macaques were immunized with antigens IDT and the HIV-1 gp120-Fl peptide applied directly on the vaginal mucosa, two days after either IL-7 or PBS administration. The immunizations were repeated thrice, four months apart, and the macaques were euthanized 2 weeks after the last immunization. Antigen-specific IgA and IgG productions were quantified in vaginal secretions by ELISA. Antigen-specific plasma cells were detected by reverse immunohistochemistry in tissue, and by B-cell ELISPOT in PBMCs.

**Results:** A significant overexpression of twelve chemokines was observed 48 hours after mucosal administration of 10µg of IL-7. Subsequently, mDC, macrophage, NK, B- and T-cell numbers significantly raised in the IL-7-treated mucosae, suggesting massive chemokine-driven infiltration. Administration of antigens led to a stronger mucosal immune response in the IL-7-treated macaques as compared to animals immunized with antigens alone. Robust production of antigen-specific IgAs and IgGs was detected in vaginal secretions. The immunizations repeated three times sustained mucosal-specific immune responses. Antigen-specific-antibody secreting cells were recovered from PBMC and more DT-specific plasma cells were found in the vaginal mucosae. IgA isotype and the draining lymph nodes (IgG isotype) of IL-7-treated macaques. Tertiary lymphoid organs were observed in vaginal mucosae (IgA isotype) and the draining lymph nodes (IgG isotype) of IL-7-treated macaques only. Antigen-specific-antibody secreting cells were recovered from PBMC and more DT-specific plasma cells were found in the vaginal mucosae (IgA isotype) and the draining lymph nodes (IgG isotype) of IL-7-treated macaques.

**Conclusions:** Pre-treatment by non-traumatic vaginal administration of IL-7 (10µg by spray) allows for the development of a strong mucosal immune response in macaques following subsequent mucosal vaccination, through local chemokine expression and the recruitment of immune cells in the vaginal mucosa. The mucosal localization of IgA-specific plasma cells argues for their main contribution in the high levels of specific-IgAs evidenced in the vaginal secretions. These data suggest that IL-7 could be used as a mucosal adjuvant to elicit vaginal antibody response, the most promising way to confer protection to numerous STD.

**Antibodies**

**THPEA019**

HIV-1 lineage envelope proteins based on viral sequences from elite neutralizers

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**Background:** Cleaved, native-like Env trimers can induce autologous Tier 2 neutralizing antibody responses in animals. The challenge now is to broaden these responses to target heterologous Tier 2 isolates by inducing broadly neutralizing antibodies (bNAbs). The evolving envelope trimers in individuals that are naturally infected with HIV and that develop bNAbs can be taken as blueprints for vaccine design.

**Methods:** We generated recombinant envelope trimers based on early viral sequences from two elite neutralizers participating in the Amsterdam Cohort Studies on HIV/AIDS and infected with subtype B viruses, termed AMC009 and AMC011. The introduction of SOSIP and additional stabilizing mutations allowed for the generation of stable native-like trimers with desirable antigenic properties.

**Results:** Rabbits immunized with AMC011 trimer or a trivalent cocktail of Env trimers developed autologous as well as sporadic heterologous Tier 2 neutralizing antibody responses. Heterologous neutralization could be depleted by the corresponding Env trimers, proving that the neutralization stemmed from trimer-directed antibodies. We also generated recombinant trimers based on viral sequences from subsequent time points to generate lineage immunogens. Analysis of the AMC009 lineage proteins suggests viral escape from multiple antibody specificities, whereas the AMC011 lineage was under pressure from the recently isolated bNAb ACS202 targeting the gp120-gp41 interface including the fusion peptide.

**Conclusions:** Lineage immunogens based on the evolving Env sequences in elite neutralizers might be attractive vaccine candidates.

**Novel vectors and strategies**

**THPEA028**

A novel vaccine platform using Env-incorporated particles for induction of broader anti-HIV antibody responses

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**Background:** Efficient antibody induction is a principal strategy for the development of effective vaccines toward globally HIV-1 control. Virus particles carrying Env trimers may be a promising immunogen for effective anti-HIV antibody induction, but inactivated HIV virions that carry only 10-20 molecules of Env trimers are not good for immunogen. In the present study, we developed novel vaccine using Sendai virus (SeV)-based particles carrying Env trimers antigen for efficient anti-Env antibody induction.

**Methods:** We designed a novel chimeric HIV Env antigen, HIV EnvF, consisting of the extracellular regions (gp120) of HIV Env and the transmembrane/cyttoplasmic tail region of SeV F. By using HIV BG505 (Clade A) and A8-EO (Clade B) strains, we obtained BG505 EnvF and AD8EO EnvF, respectively. We constructed F-deleted SeV vector expressing EnvF (SeV-EnvF) and non-infectious SeV particles carrying EnvF (NVF-EnvF). BALB/c mice received the first vaccination with SeV-BG505 EnvF, the second with NVF-BG505 EnvF, and the third with NVF-BG505 EnvF or NVF-AD8EO EnvF. Anti-HIV-1 Env gp120 antibodies in plasma after vaccination were examined by ELISA using BG505 and BALC C12/gp20 antigen.

**Results:** EnvF was shown to form trimers and be efficiently incorporated into SeV-based particles. Anti-BG505 gp120 antibody responses were efficiently induced after the first vaccination with SeV-BG505 EnvF and boosted after the second with NVF-BG505 EnvF in mice. Comparison of two groups receiving NVF-BG505 EnvF and NVF-AD8EO EnvF at the third vaccination indicated more efficient induction of antibodies specific to Clade B (BALC C12) than those specific to Clade A (BG505) gp120 by NVF-AD8EO EnvF immunization, implying the multiple immunization with NVF-EnvFs derived from variants of HIV strains to induce broader antibody responses.

**Conclusions:** Our vaccine system may provide a novel vaccine platform using Env-incorporated particles for induction of broader anti-HIV antibody responses.
THPEA020
Characterization of serum- and colon- and serum- derived antibodies in dairy cows vaccinated with HIV-1 gp140 envelope proteins
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Background: Dairy cows can produce antibodies with neutralizing activity against heterologous tier 2 viruses from different clades. Previously we have shown that these antibodies have high affinity for clade B envelope proteins and compete with the monoclonal antibodies B12 and VRC01, indicating they target CD4 binding site (CDbs), a feature of neutralizing antibodies. We assessed the reproducibility of these high quality vaccine responses in a larger number of cows, and tested whether other Env gp140 trimer immunogens could increase the breadth or potency of the bovine antibodies.
Methods: 32 cows were vaccinated with recombinant HIV-1 gp140 envelope uncleaved trimers (clade B AD8, clade B PSC89, clade C MW1 and clade A KNH1-SOSIP cleaved trimer. A first dose was given several weeks before conception, followed by 3 boosts during pregnancy in a period of 52 weeks. Sera and colostrum milk were collected from each cow and their immune response was evaluated for gp140 binding breadth, binding site analysis, neutralizing activity and antibody-dependent immunity.
Results: The fully glycosylated chronic B-clade AD8 Env gp140 elicited the highest binding potency and breadth against different envelope proteins. These cows generated antibodies that compete with neutralizing antibodies such as VRC01, B12 (CDbs-specific) and PGt12 (V3 glycan), and display neutralizing activity against a panel of HIV-1 pseudoviruses. Moreover, a boost with the modified Env BG505 SOSIP gp140 enhanced the neutralizing activity of bovine serum, while the same modification in the AD8 protein (AD8 SOSIP gp140) only increased binding breadth. Finally, the Fc portion of these bovine antibodies bind to the cellular receptor FcgRlla, allotype R131 and interact with different cell types.
Conclusions: The vaccine formulated with AD8 gp140 generated antibodies with the highest titre and affinity and broadest binding for envelope proteins of different clades. The neutralizing activity correlates with the presence of antibodies that bind to CDbs and V3-glycan neutralizing epitopes. Binding to FcgRlla associates with the generation of antibody-dependent cellular phagocytosis (ADCP). All these features are applicable to produce a topic microbicide that can be used when other preventive treatments, such as PREP, drugs, are less effective in preventing HIV transmission.

THPEA022
Monoclonal antibodies from vaccinated rabbits reveal an immunodominant epitope at the gp41 subunit of soluble HIV-1 envelope trimers
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Background: To overcome HIV-1 viral diversity a vaccine needs to induce broadly neutralizing antibodies (bNAbs). Although bNAbs can be found during natural infection, they are generally not elicited by vaccination. Characterizing the immune responses elicited by soluble antigenic mimics of the surface expressed Envelope (Env) trimer will provide a better understanding which epitopes are targeted and why there is limited breadth.
Methods: Monoclonal antibodies (mAbs) were isolated from four AMCo08 SOSIP.v4.2 protein immunized rabbits. AMCo08 SOSIP.v4.2 is a subtype B based, stabilized, soluble Env trimer. mAbs were isolated by single-cell sorting of B cells and subsequent amplification and cloning of the heavy and light chain variable regions of the expressed antibody. mAb characteristics were determined by neutralization assay. ELISA, and negative stain-electron microscopy (NS-EM).
Results: We isolated 21 HIV-specific mAbs, of which 16 bound heterologous Env trimers. Four mAbs from two rabbits showed homologous neutralization and cross-neutralization of another subtype B virus. Three of these mAbs were clonal family members. Varying ELISAs revealed that the four mAbs targeted the same epitope on the gp41 subunit of the Env trimer. Deeper analysis by NS-EM indicated an upward angle of approach for the clonal family members. Interestingly, mutant and competition ELISAs showed that several non-neutralizing mAbs isolated from the same rabbits target the gp41 subunit in a comparable fashion, although with slightly different approach angles and glycan dependencies. This region might be less accessible on viruses with all glycans in place, and display neutralizing activity against a panel of HIV-1 pseudoviruses. Moreover, a boost with the modified Env BG505 SOSIP gp140 enhanced the neutralizing activity of bovine serum, while the same modification in the AD8 protein (AD8 SOSIP gp140) only increased binding breadth. Finally, the Fc portion of these bovine antibodies bind to the cellular receptor FcgRlla, allotype R131 and interact with different cell types.

THPEA021
Similar antibody responses elicited in BG505 SHIV infected and BG505 SOSIP trimer immunized non-human primates
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Background: The human immunodeficiency virus (HIV) remains a global health threat and the development of an effective vaccine is highly desirable to eradicate the HIV/AIDS pandemic completely. The major focus of HIV vaccine development is to induce potent immunity that protects against infection. However, vaccines against HIV have not yet been able to induce such protective immune responses. Broadly neutralizing antibodies isolated from HIV-1 infected individuals have revealed that the human immune system is capable of eliciting responses that can protect against infection. Recently, soluble native-like HIV envelope glycoproteins (BG505 SOSIP664 trimers) were developed, which induced neutralizing serum responses against the homologous virus in both macaques and rabbits. However, it is still unclear if these native-like trimers are capable of eliciting similar responses compared to natural infection.
Methods: Non-human primates (NHP) were immunized with BG505 SOSIP.v4 trimers or infected with the homologous BG505 SHIV. Immunogen-specific IgG+B cells from 2 BG505 SOSIP immunized and 4 BG505 SHIV infected NHP were single cell sorted to obtain monoclonal antibodies (mAbs). These antibodies were further characterized for their binding and neutralization characteristics using Enzyme-Linked Immuno Sorbent Assay (ELISA). Negative stain Electron Microscopy and neutralization assays. The viral population from the BG505 SHIV infected NHP were sequenced over time as well.
Results: We were able to isolate over 50 mAbs with a diverse set of characteristics from 5 of the 6 NHP. Both neutralizing and non-neutralizing mAbs were isolated with distinct epitopes such as the fusion peptide and strain-specific glycan holes. mAbs elicited by the BG505 SOSIP trimer showed similar characteristics compared to the mAbs from the BG505 SHIV infected NHP, however mAbs from the SHIV infected NHP showed more neutralization and no mAbs that target the base of the trimer.
Conclusions: The results suggest that immunizing with the BG505 SOSIP trimer mimics infection correctly, however the BG505 trimers also elicited non-neutralizing mAbs to the base of the trimer in addition to neutralizing mAbs to more relevant epitopes, such as the fusion peptide. The knowledge obtained in this study will help design immunization strategies to broaden the response after vaccination.
Co-infection: TB and other mycobacteria

THPEA024

Factors associated with the occurrence of deaths in patients co-infected with HIV and TB at the three health districts of Casamance (Senegal)

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Background: HIV infection remains the leading cause of increased incidence of tuberculosis. We performed this work to describe socio-demographic characteristics and identify factors associated with death in patients coinfected with TB and HIV.

Methods: This was a descriptive and analytical retrospective cohort study. It concerned all HIV-infected patients with all forms of tuberculosis confirmed by bacteriology and/or the Xpert-MTB/RIF test and who were included and monitored at the services of the health districts of Bignona, Ziguinchor and Oussouye from 1 January 2014 to 31 December 2016.

Results: A total of 126 cases were collected during the study period. The mean age of patients was 41.77 ± 12.16 years with extremes ranging from 19 to 87 years. Females were predominant (53.1%) with a sex ratio of x. Clinically, 88% (n: 115) of patients were in severe immunosuppression (CD4< 200 / mm3). The isolated lung form accounted for 44.00% (n: 56) and the extra-pulmonary form 40.00% (n: 50). The mean CD4 + T cell count was 26 ± 243 / mm3 with extremes of 2 to 989 / mm3. Twenty-three percent (23%) of the patients had severe immunosuppression (CD4 < 200 / mm3). All patients had received antituberculous treatment and 96% of them had started ARV treatment. The overall cure rate was 74.34%. In multivariate analysis with binomial regression, four (4) factors were significantly associated with the occurrence of death. WHO clinical stage 3 and 4 at baseline (OR = 3.12, 95% CI: 1.44 at 6.76), male sex (OR = 3.12, 95% CI: 1.44 at 6.76), late delay> 3 weeks of ARV treatment after the start of antituberculous treatment (OR = 3.12, 95% CI: 1.44 at 6.76), male sex (OR = 3.12, 95% CI: 1.44 at 6.76). Male sex (OR = 3.12, 95% CI: 1.44 at 6.76). Male sex (OR = 3.12, 95% CI: 1.44 at 6.76).

Conclusions: This study has shown that the high case-fatality rate in co-infected patients, when the discovery of HIV infection is late (WHO stage III and IV) and/or when the ARV treatment delay is greater than 3 weeks. It is therefore necessary to strengthen HIV testing of TB patients and to provide early treatment for HIV infection.

Co-infection: Viral hepatitis

THPEA025

HIV and hepatitis B virus (HBV) co-infection leads to an increase in intracellular hepatitis B surface antigen and HBV DNA in hepatocytes: A potential mechanism for adverse liver outcomes

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Background: HIV infection significantly alters the natural history of chronic hepatitis B (HBV). Compared to HBV mono-infection, HIV-HBV infected individuals experience accelerated progression of liver disease and increased liver-related mortality. HBV-active antiretroviral therapy (ART) including tenofovir has improved rates of virological control, however liver related mortality and morbidity remains increased.

Conclusions: Thus, AMCoB SOSIP.2 Env trimmer immunization induced NABs and non-NABs targeting the gp41 subunit of the Env trimmer. Viral variability of this region and the suboptimal angle of approach provide an insight in the lack of neutralization breadth and will guide future immunogen design.
We hypothesized that direct interactions between HIV and HBV in the hepatocyte, in the presence and absence of HBV-active ART, drives adverse liver outcomes.

Methods: The hepatocyte cell lines HepG2, C3 and AD38 expressing HBV or HepG2 cells (not expressing HBV) were infected with laboratory strains of wild-type (WT) HIV (INL-3) or vesicular stomatitis virus (VSV)-pseudotyped HIV expressing enhanced green fluorescent protein (EGFP). Sodium taurocholate co-transporting polypeptide (NTCP)-expressing HepG2 cells were infected with HBV inoculum derived from AD38 and subsequently with HIV. EGFP expression was quantified by flow cytometry; integrated HIV DNA and mRNA level of HBV-related transcription factors by qPCR; intracellular HBsAg by western blotting; and HBV DNA by southern blotting. Comparisons between conditions were made using a student t-test.

Results: VSV-pseudotyped HIV infection of hepatocytes resulted in 70% of cells expressing EGFP after 4 days. The administration of rategravir and efavirenz prior to infection led to a reduction and elimination of EGFP expression respectively. Both drugs results in elimination of integrated DNA. No EGFP expression was observed following infection of hepatocytes with WT VSV-pseudotyped HIV infection resulted in a significant increase in intracellular HBsAg, HBS RNA and HBV DNA.

Conclusions: HIV-HBV co-infection of hepatocytes significantly increased intracellular HBsAg, HBs RNA and HBV DNA. These adverse effects on HBV replication may contribute to accelerated liver disease in individuals with HIV-HBV co-infection.

Novel assays of immune responses

THPEA026
Could DBS specimens reduce overestimation of HIV incidence using BED CEIA assay?

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Background: The established algorithm for HIV incidence estimation is screening HIV positive specimens with BEDTM CEIA assay followed by Avidity assay. The ‘AwareTM BEDTM CEIA HIV-1 incidence test (lgG-Capture HIV-EIA)’ is reported to overestimate HIV incidence. Also shipping DBS specimens to developing countries, logistic issues and cold-chain maintenance of plasma specimens from remote areas is major disadvantage. The efficacy of dried blood spots (DBS) must be studied, which can serve as better alternative for plasma specimens. Use of DBS provides minimally invasive specimen collection and simple processing steps when compared to plasma specimens. In this study, we compared matched plasma and DBS specimens on BEDTM CEIA assay and the results were confirmed with modified BioRad QS HIV-1/2 Plus O Avidity based assay.

Methods: Parallel DBS and plasma specimens were collected from 152 HIV infected injecting drug users across 7 different sites from north India. Both these plasma and DBS specimens were run on BEDTM CEIA. Quantitative values (i.e. normalized optical density (Specimen/Calibrator) OD-n) obtained from plasma and DBS specimens in BEDTM CEIA assay were compared to derive r2 values and mean difference. The categorical results between plasma and DBS were compared to derive Cohen’s kappa co-efficient 0. Apart from this, specimens with discrepant results between plasma and DBS were run on BioRad Avidity assay using plasma specimens.

Results: The co-efficient of determination r2 (Figure 1) and mean difference for quantitative OD-n values between plasma and DBS specimens was 0.95 and -0.11, respectively. A higher OD-n values were obtained from DBS specimens compared to plasma specimens. The Cohen’s kappa co-efficient 0 value derived between plasma BED and DBS BED was 0.9. Six specimens are classified recent using plasma specimens were marked long term (LT) in DBS specimens. These results were confirmed to be LT in BioRad Avidity assay.

Conclusions: Plasma and DBS specimen OD-n values were highly correlated. However, plasma specimens were found to be overestimating HIV incidence than DBS specimens using BEDTM CEIA assay. The DBS specimens could be a better alternative method for estimating HIV incidence in resource-limited settings. Added advantage with the DBS specimen is sample collection procedure with finger prick.

THPEA027
The clinical performance and diagnostic accuracy of an instrument-free low-cost point-of-care CD4 test (VISITECT® CD4) as performed by nurses, counsellors and laboratory staff among pregnant women in South Africa

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Background: CD4 testing continues to be important for triaging care after an HIV diagnosis and during treatment. The VISITECT® CD4 is the first-ever instrument-free low-cost, point-of-care CD4 test. The test is semi-quantitative, providing a result of above or below 350 CD4/mm3. Results are interpreted visually after 40 minutes by comparing the intensity of the test line with the reference line.

Methods: We assessed the clinical performance and diagnostic accuracy of the VISITECT® CD4 test among HIV-infected pregnant women in South Africa. Nurses performed testing at the point-of-care using both venous and finger-prick blood, and counsellors and laboratory staff tested venous blood in the clinic laboratory (four tests/participant). Staff attended three days training. Performance was compared to mean CD4 count from duplicate CD4 flow cytometry tests (FLAGKalibur Tlocun). Results: At Rahima Moosa Mother and Child Hospital, 156 patients were enrolled between March and June 2017, providing a total of 624 VISITECT® CD4 tests (488 venous and 156 finger-prick). Of 624 tests, 28 (4.5%) were inconclusive (eight invalid results and 20 incorrectly performed). A Generalised Linear Mixed Model performed on 559 valid reference results and VISITECT® CD4 results showed a better diagnostic performance of the VISITECT® CD4 on venous blood (sensitivity=81.7%, 95%CI:72.3-911; and specificity=82.6%, 95%CI:771-88.1) as compared to finger-prick blood (sensitivity=60.7%, 95%CI:45.0-76.3; and specificity=89.5%, 95%CI:83.2-95.8; p=0.001). Importantly, there was no difference in the performance of the VISITECT® CD4 by cadre of health workers.
Novel approaches to assess viral load and ARV resistance/tropism

THPEA029
Pooled nucleic acid testing strategy for monitoring HIV-1 treatment in resource limited settings

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Background: In treated HIV-infected patients, quantification of the viral burden and identification of drug-resistant mutations are important tools to monitor the outcomes. However, in resource-limited settings like India viral load quantification and drug resistance assay is still hampered by the high cost. Here we standardized a more efficient combined pooled nucleic acid amplification (NAT) test and drug resistance (DR) assay to monitor patients receiving ART.

Methods: 325 participants on first line ART with virologically suppressed at wk-24 were followed up until wk-48. Participants were screened for suppressed plasma viral load (pVL) using Abbott RealTime HIV-1 assay (40-1000000 copies). All the plasma samples were pooled by combining five samples of 200µL each for a total of 1mL in each pool were subjected to quantitative PCR to amplify HIV-1 RT region and positive minipool were deconvuluted by individually testing fortquantiative PCRfollowed by genotyping.

Results: Of these 325 participants, 277 (85.4%) were females with the median age of 39 (IQR 33-44) and majority of the patients were on Tenofovir+Lamivudine. EFavirenz regimen with the median pVL of 4395 (IQR 179-67159). Out of 65 pools,13 were positive. Testing of all samples individually revealed that one of the pool contained two positive samples. All positive samples had viral load >1000 copies/mL, thereby meeting the definition of failing ART (4.3%). Altogether, the NAT pools had a negative predictive value of 100% and positive predictive value of 100%. Similarly, the sensitivity for detecting patients failing therapy was 100% (95% CI 76.84% to 100%), with a specificity of 100% (95% CI 98.82% to 100%) and there would have been 3 times cost saving with pooling NAT PCR compared to individual PCR. Of the patients failing first-line ART, 28.5% had NRTI resistance/tropism and 71.4% had NNRTI resistance mutations and K10N (57.14%) was the predominantly found NNRTI mutation.

Conclusions: Pooled NAT-DR assay is a reliable strategy to drastically reduce the cost and sustainability of the virologic monitoring and can thereby facilitate the scale-up of successful HIV treatment programs in resource-limited settings.

Dried blood spots stored at room temperature should not be used for incidence testing

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Background: We investigated the effectiveness of using dried blood spots (DBS) stored at room temperature (-18°C) for cross-sectional HIV incidence testing using two serologic assays. DBS results were compared to results obtained with plasma samples.

Methods: Matched DBS and plasma samples (36 paired samples) were collected in the HPTN 068 trial in South Africa 2012 to 2014. Samples were shipped to the United States and were stored with desiccant at room temperature prior to testing. Two assays were evaluated: the Maxim HIV-1 Limiting Antigen Avidity EIA (LAg-Avidity, measured in normalized optical density [OD-n]) and a modified BioRad HIV-1/2 Plus O Avidity-based assay (BioRad, measured in percent avidity). The following assay cutoffs were used to indicate recent HIV infection: BioRad < 40%; LAg-Avidity < 1.5 OD-n. The performance of stored plasma and DBS specimens was compared for each assay. In addition, the effect of storage time at room temperature was assessed for DBS.

Results: Compared to plasma, the median absolute percent difference in avidity obtained with DBS samples was -47.0% (IQR: -13.5, -75.0) for the BioRad assay and -52.2% (IQR: -30.3, -73.3) for the LAg-Avidity assay. A higher percentage of samples had results below the assay cutoffs when DBS samples were used for testing compared to plasma: 53% (15/28) vs. 17% (4/24) for BioRad; 63% (17/27) vs. 18% (5/29) for LAg-Avidity. The percentage of samples with results below the assay cutoffs was also higher using DBS samples for individuals who were HIV-infected for >1 year: 38.8% (47/121) vs. 0.8% (1/121) for BioRad; 45.3% (56/121) vs. 5.0% (6/121) for LAg-Avidity. For the LAg-Avidity assay, for each log increase in viral load there was a 21% increase in the absolute difference between DBS to plasma OD-n values; no such effect was seen with the BioRad assay. For the DBS BioRad assay, there was a significant increase in false-recent misclassification for individuals infected >1 year with each additional year of sample storage (yearly Prevalence Ratio: 1.67 [95% CI 1.18, 2.37]; P<0.01). This was not seen with the plasma samples.

Conclusions: DBS samples stored at room temperature should not be used for cross-sectional HIV incidence estimation using serologic incidence assays.
able and equipment-free lateral flow strip in a cartridge for the separation of plasma from whole blood, resulting in a Filtered Plasma Spot (FPDS).

**Methods:** The “VL-Plasma” device uses specific membranes for the sequential removal of red and white blood cells, and a Whatman 903 membrane for plasma collection. HIV-infected patients attending the infectious disease clinic, University of Malaya, were enrolled. Each patient provided 100µl, 70µl and 1ml of whole blood for preparation of FDPS, DBS, and fresh plasma samples, respectively. Dried blood samples (FPDS & DBS) were dried overnight and stored in plastic bags with desiccants for 3-4 weeks at ambient temperature before testing. All samples were run on the Roche COBAS AmpliPrep/TagMan 48 system.

**Results:** Reference fresh plasma identified treatment failure in 20/132 patients (15%). Sensitivity of FDPS for detection of treatment failure was 100% (95% confidence interval [95%CI]=98.3%-100%) and specificity 100% (95%CI=96.8%-100%). In contrast, sensitivity and specificity for DBS were 100% (95%CI=96.8%-100%) and 34.8% (95%CI=26.1-44.4%), respectively. Positive predictive value and negative predictive value for treatment failure were 100% (95%CI=93.2%-100%) and 100% (95%CI=96.8%-100%) for FPDS, and 25.5% (95%CI=13.7%-31.2%) and 100% (95%CI=91-100%) for DBS, respectively. Two DBS samples and one FDPS sample failed to provide VL results. Positive predictive value of DBS was only marginally improved by using higher thresholds for treatment failure, 37.7% (95%CI=24.8%-52.1%) at 3,000 copies/ml and 57.6% (95%CI=39.2%-74.5%) at 10,000 copies/ml.

**Conclusions:** Compared to DBS, FPDS from the “VL-plasma” device can significantly improve identification of virologic failure at 1,000 copies/ml, and minimize unnecessary switching to second-line ART and/or compliance interventions. The “VL-plasma” device will increase patients’ access to VL testing, improving the effectiveness of HIV treatment in resource-constrained settings.

**THPEA032**

Provision of a clinical HIV-1 drug-resistance service by Next-Generation Sequencing (NGS) - assay development and full validation

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**Background:** Sanger population sequencing is the current standard methodology for routine clinical HIV drug resistance testing. Using this method, a single consensus sequence is generated representing the predominant HIV quasispecies within the sample. In contrast, Next-Generation Sequencing (NGS) is capable of sequencing diverse HIV quasispecies and potentially achieving the early detection of emerging minority drug-resistant variants.

Over the past two years, progress has been made to bring forward the vision of an NGS-based HIV-1 resistance testing clinical service.

**Methods:** RNA extracts from 58 retrospective clinical samples were randomly selected. The Pol genes of the samples were sequenced in parallel twice (batch A & B) by both Sanger and MiSeq. Sanger data were compared with NGS at 20%, 10%, 5% and 2% minority detection levels. A further 386 clinical samples were also sequenced in parallel during the validation process.

Sequence concordance and resistance interpretations were analyzed and any difference in nucleotide base calls that resulted in amino acid changes, including complete and partial differences in mixture calling, were recorded as mismatches.

**Results:** All (22) MiSeq runs were successful and quality metrics were consistent with more than 80% passing filters; Q scores ≥ 20 were also well above the required 80%. All key mutation sites associated with Protease, NNRTI and NRTI resistance were represented by more than 100,000 reads.

A total of 3,712 amino acids (64 codon mutations each from 58 samples) were analysed. A total of 4 amino acid mismatches (4 samples at 3 codons in batch A and 4 samples at 4 codons in batch B) were identified (20% level) with a concordance of 99.9%.

With one exception, all 388 additional samples were successfully sequenced by MiSeq. A total of 32 amino acid mismatches in 29 samples at 15 codons were identified. Of these 15 codons, one PI (I54VI), two NNRTI (K103NE and E138K), and four NRTI (K65R, T215FY, T69S and M184V) mutations conferred major drug resistance. The concordance between NGS (at the 20% level) and Sanger was 99.9%.

**Conclusions:** An NGS-based HIV resistance-testing assay has been developed, fully validated and is considered ready for implementation into routine clinical service.

**Table 1: Analytical and clinical performance of Plasma separation card**

<table>
<thead>
<tr>
<th>Sample type</th>
<th>CAP/CTM HIV-1 v2</th>
<th>cobas HIV-1</th>
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<tbody>
<tr>
<td>Limit of detection</td>
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<td></td>
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<tr>
<td>770 Copies/ml (95% CI=24.8%-52.1%)</td>
<td>770 Copies/ml (95% CI=91-100%)</td>
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<tr>
<td>Correlation to standard</td>
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<tr>
<td>Correlation (95% CI)</td>
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<tr>
<td>99% (95% CI=90-100%)</td>
<td>99% (95% CI=90-100%)</td>
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<tr>
<td>Sensitivity (95% CI)</td>
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<tr>
<td>91% (95% CI=84-96%)</td>
<td>91% (95% CI=84-96%)</td>
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**THPEA031**

A compelling alternative to dried blood spots – Pplasma separation card for the quantification of HIV-1 RNA viral load

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**Background:** Plasma HIV viral load (VL) testing is the preferred means of monitoring response to antiretroviral treatment (ART) and programme performance. While Dried Blood Spots (DBS) hold considerable logistical advantages over plasma-based VL, performance based limitations still remain. DBS VL can lead to misclassifications of virological failure at 1,000 copies/mL and have higher limits of detection (LOD) than plasma assays. We aim to evaluate the usability by health care workers (HCW) and analytical performance of a novel plasma separation card (PSC) versus plasma for the quantification of HIV-1 RNA.

**Methods:** HCW collected 140µL of finger-prick capillary blood from ~50 HIV-infected patients and transferred to the PSC, immediately after venous EDTA whole blood was drawn by venipuncture. In addition, residual venous EDTA whole blood from ~400 adult HIV-infected patients was spotted onto PSC. We determined LOD using WHO International Standard, specificity and sensitivity at 1,000 copies/mL and specimen stability at a range of temperatures and storage durations in both COBAS® AmpliPrep COBAS TaqMan® (CAP/CTM) and cobas® 8800 systems using the PSC. PSC performance was assessed in relation to EDTA plasma in both assays.

**Results:** Overall HCW rated sample collection positively, the lancet was considered easy to use, as were the capillary tube and blood transfer to PSC. Of ~100 specimens with quantitative values in both PSC and plasma, the mean log10 difference between EDTA-plasma and PSC was 0.05 copies/mL (95%CI=-0.01 to 0.11). The LOD for cobas® HIV-1 was determined at 790.2 copies/mL and for CAP/CTM HIV-1 v2 773.7 copies/mL. At 1,000 copies/mL, the sensitivity of PSC samples was 97.0% (128/132) and specificity 97.2% (134/135) for cobas® HIV-1 and showed an excellent correlation to plasma (Deming R = 0.90) over the linear range. PSC results were unaffected by different temperature and storage conditions (table1).

**Conclusions:** PSC collected samples are easy to prepare, correlate well with plasma VL and have demonstrated adequate sensitivity and specificity in a real world/clinical setting. The card provides an alternative sample collection to DBSs and, by minimising cell-associated viral nucleic acid contamination, leads to more accurate result. This PSC supports the go-go-go VL scale-up.
In-vitro activity

THPEA033
Efficacy of a novel entry inhibitor in combination with neutralizing antibodies against HIV-1 infection

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Background: Both neutralizing antibodies (NAbs) and entry inhibitors can inhibit HIV-1 infection by acting at different stages of the entry process. The combination of NAbs with entry inhibitor(s) may offer a therapeutic advantage and may be advantageous in overcoming resistance to them. Recently, we performed structure-based silico screening of a chemical library to identify novel entry inhibitors (NEIs). In this study, we evaluated the in vitro anti-HIV-1 activity of NEI as a single agent or in combination with various classes of NAbs.

Methods: All entry inhibitors were docked into the CD4 binding site of HIV-1 Env gp120 using the MOE Dock tool and ranked by donor Ddi scoring. The susceptibility of infectious HIV-1 clones to NEIs and neutralization sensitivity to NAbs were determined using the TZM-bl assay. Additionally, we investigated the combined effect of NAbs with NEIs, by Combination Indexes (CIs) using the Chow and Talalay method.

Results: The TZM-bl assays revealed that NEIs 50b, 16b and 01c exhibited significant activity against HIV-1 with IC50 values ranging from 0.8 to 4.5 μM, and the most potent inhibitor was 50b, with IC50 value of 0.80, 1.2, 1.2 and 4.5 μM for HIV-1 NL4-3, 89.6, JR-FL and the primary isolate, respectively. All three NEIs interfered with viral infection at the entry step. We further examined the combined effect of NEIs and NAbs targeting different domains in Env (VRC01, b12, PG9, PG16, 2G12 and 2F5). Synergistic anti-HIV activity (CI < 0.31 to 0.90) was demonstrated with a large number of combinations. In particular, potent synergy was observed for 50b in combination with either 2G12 or 2F5. These results suggest that combination of NEI with NAb can result in increased sensitivity to NAbs.

Conclusions: Novel entry inhibitors 50b, 16b and 01c can inhibit HIV-1 entry and combinations of a NAb with NAbs are efficacious against HIV-1. Our results support further investigation into NAb-based therapeutics and the HIV-1 entry process.

Tissue penetration

THPEA034
Plasma, CSF and brain tissue concentrations of raltegravir in ABCB1 and/or ABCG2 knockout rats

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Background: HIV-1 infection in brain is associated with long-term neuronal damage and neurocognitive disorders. Raltegravir (RAL), one of the preferred integrase strand transfer inhibitors in the current antiretroviral therapy guidelines, is highly effective in penetrating the central nervous system. The ATP-binding cassette transporter B1 (ABCB1) and G2 (ABCG2) are both expressed at the blood-brain barrier and the blood-cerebrospinal fluid (CSF) barrier, and contribute to active transport of drugs. Recently, RAL was identified to be a substrate of both transporters. In the present study, we analyzed the relations between plasma, CSF and brain tissue concentrations of RAL in ABCB1 and/or ABCG2 knockout (KO) rats.

Methods: Wild-type (WT) male Sprague-Dawley (SD) rats (n=8), Abcb1-KO male SD rats (n=8), Abcg2-KO male SD rats (n=8), and Abcb1/Abcg2-KO male SD rats (n=8) were administered an intravenous dose of RAL 100 mg/kg. Plasma, CSF and brains were taken 30 min after RAL intravenous dosing. Plasma, CSF and sliced brain tissue concentrations of RAL were measured by the liquid chromatography-tandem mass spectrometry (LC-MS/MS). Localization of RAL in sliced brains was analyzed using matrix-assisted laser desorption ionization mass spectrometry imaging (MALDI-MSI).

Results: Mean plasma RAL concentrations (standard error) of (SEM) WT, Abcb1-KO, Abcg2-KO, and Abcb1/Abcg2-KO rats were 79 ±16, 713 ±139, 118 ±25.6, and 120 ±27.7 μg/mL, respectively. Mean CSF RAL concentrations (SEM) were 2666.5 ±806.4, 5864.7 ±1003, 2836 ±826.9, and 670 ±129.8 ng/mL, respectively. Mean brain tissue RAL concentrations (SEM) were 0.033 ±0.007, 1.05±0.10, 0.070 ±0.023, and 0.14±0.014 ng/μg of protein, respectively. MALDI-MSI data showed that RAL were localized around the choroid plexus in Abcb1-KO, Abcg2-KO, and Abcb1/Abcg2-KO rat brains.

Conclusions: Mean CSF and brain tissue concentrations of Abcb1-KO and Abcb1/Abcg2-KO rats were significantly higher than WT rats. The observed association between high CSF and brain tissue concentrations of RAL and Abcb1-KO and Abcb1/Abcg2-KO may be explained by increased RAL flow in the blood-brain barrier as the result of reduced expression of ABCB1. Localization of RAL in each KO rat brains are observed in the choroid plexus. These results suggest that choroid plexus may work as a barrier for RAL transport between capillary blood and CSF, and there may be a transporter for RAL at the choroid plexus.

ART in acute infection

THPEB035
Outcomes of expedited initiation of antiretroviral therapy (ART) in individuals with acute HIV infection, British Columbia, Canada

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Background: Diagnosis of acute HIV infection may allow for interventions to reduce risk of transmission. British Columbia has implemented pooled HIV NAT testing and individual NAT testing for weakly positive EIA samples, with expedited linkage to care for acute HIV diagnoses. Outcomes of individuals with acute infection were evaluated.

Methods: Individuals with HIV diagnosis April 2009 - June 2016 were ascertained to determine stage at diagnosis. Individuals classified as acute HIV infection using Fiebig staging (Stage I-IV) were included in the analysis. Baseline variables included risk group (men who have sex with men (MSM) vs. not, and regimen type (standard 3 drug regimen or intensified 4 drug regimen (IRI)) was ascertained through linkage with the BC HIV Drug Treatment Program. Factors associated with time to ART uptake from diagnosis were determined using an adjusted Cox proportional hazards model.

Results: Overall 247 individuals with acute HIV infection initiated ART; n=50 (20%) were Fiebig I/II, n=58 (23%) were Fiebig III and 139 (57%) Fiebig IV. Median age was 33 years, 1st-3rd quartile [Q1Q3] 27 - 44 years, 89% were male, 73% were MSM. Median time to ART initiation was 28 days (Q1Q3 35 - 67) for Fiebig II/III and 51 days (Q1Q3 15 - 124) for Fiebig IV/IV (P = 0.119). Overall n=39 (16%) individuals received an IR at median 7 days (Q1Q3 6 - 11 days) and achieved suppression at 55 days (Q1Q3 32 - 95 days) vs. n=208 (84%) who received standard ART at median 55 days (Q1Q3 26 - 139 days) and achieved suppression at 127 days (Q1Q3 80 - 183 days), p < 0.001. Faster time to ART uptake was associated with being Fiebig II/III and receiving IR (hHR 14.09, 95% CI 6.13 - 32.36). Fiebig IV/IV and receiving IR (hHR 7.93, 95% CI 5.10 - 12.31) and being MSM (hHR 1.60, 95% CI 1.09 - 2.35).
Conclusions: One fifth of acute HIV infections were identified early at Fiebig stages I/II, and initiated immediate ART. The combination of systematically identifying acute HIV cases and expedited linkage to treatment results in rapid control of HIV viraemia which can reduce risk of onward transmission.

ART in first- and second-line therapies

THPEBo36
Prezent - pilot study of darunavir boosted by cobicistat in combination with rilpivirine in HIV+ treatment naïve subjects - final 96 week results

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Background: Treatment strategies with two drug regimens are being studied in an effort to control viral replication for less cost and potentially less toxicity. Prezent, the first study of the novel two drug combination of darunavir boosted by cobicistat and rilpivirine in ARV naïve subjects demonstrated virologic control both in plasma (93%) VL ≤ 50 and in the CNS (100%) VL < 20 at 48 weeks. Further, CSF concentration of both DRV and RPV exceeded IC90 in all subjects studied and was associated with significant neurocognitive improvement by MOCA score. This study assess the durability of the regimen to 96 weeks.

Methods: Extension to 96 weeks of a Phase IV open/label pilot study of DRV/Cobi and RPV demonstrated durable control of virologic replication with 100% of eligible subjects remaining well tolerated without significant AE. Based on this successful pilot study, this durable, cost effective treatment strategy warrants larger clinical trials.

Conclusions: The novel combination of DRV/Cobi and RPV demonstrated durable control of virologic replication with 100% of eligible subjects VL ≤ 50 at week 96. CD4 counts continued to increase and cognitive improvement as measured by MOCA scores were sustained. The regimen remained well tolerated without significant AE. Based on this successful pilot study, this durable, cost effective treatment strategy warrants larger clinical trials.

THPEBo37
Substantial decline in virological failure after combination antiretroviral treatment (cART) initiation in treatment-naive HIV-positive adults in the Netherlands from 1996 to 2016

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Background: We evaluated the incidence of, and factors associated with, virological failure (VF) after combination antiretroviral therapy (cART) initiation in adults in the Netherlands, since the introduction of cART in 1996.

Methods: We assessed the incidence of VF (i.e. the first of two consecutive viral load measurements ≥200 copies/ml after ≥6 months of cART) among HIV+ positive, ART-naive, non-pregnant adults in the ATHENA-cohort between 1996-2016. Time was censored at the date of last contact with HIV-care, or at the last date of cART when cART was interrupted for ≥2 weeks. We assessed the incidence of VF since cART initiation, and assessed socio-demographic and clinical factors associated with time-to-VF specifically for cART initiation between 2011-2016 using Cox regression.

Conclusions: The likelihood of VF decreased substantially by year of cART initiation: unadjusted hazard ratio (uHR) 12.6 (95%CI 10.4-15.2) in 1996-1999, 5.2 (4.3-6.3) in 2000-2005, and 2.6 (2.1-3.2) in 2006-2010, respectively compared to 2011-2016 (Figure A).

Results: During 1996-2016, 1,807 (10.6%) out of 17,044 adults experienced VF after a median of 1.4 (IQR 0.7-3.4) years since cART initiation. The likelihood of VF decreased substantially by year of cART initiation: unadjusted hazard ratio (uHR) 12.6 (95%CI 10.4-15.2) in 1996-1999, 5.2 (4.3-6.3) in 2000-2005, and 2.6 (2.1-3.2) in 2006-2010, respectively compared to 2011-2016 (Figure A).

Kaplan-Meier estimates of time-to-virological failure

[Figure A]

References


ABSTRACT BOOK • WWW.AIDS2018.ORG
During 2011-2016, 133 (2.1%) out of 6,228 people who initiated CART experienced VF after a median of 16 IQR 0.7-2.0 years. Before VF, 106 out of 133 people had ≥1 VL measurement available, of whom 66 had an undetectable VL. HIV-transmission risk group and region of origin were independently associated with VF. Adjusted hazard ratio (aHR) 1.9 (95% CI 1.0-3.5) for men with heterosexual acquired HIV-1 compared to men who have sex with men (MSM), and aHR 2.1 (1.3-3.4) for people originating from sub-Saharan Africa compared to Western Europe/North America/Australia (Figure B).

Additionally, a higher VL (aHR 15 [95% CI 1.2-2.0] per log of copies/mL) and lower CD4-cell count (aHR 2.3 [1.0-5.1] for < 50 cells/µL, and aHR 2.1 [1.0-4.5] for 50-199 cells/µL) compared to ≥200 cells/µL at CART initiation were independently associated with VF.

Conclusions: VF after CART initiation has decreased over the last two decades in the Netherlands. While the risk of VF continues to decline, additional support for non-MSM, late-presenters, and those originating from sub-Saharan Africa is warranted to further optimize cART outcomes.

**THPEB038**

B/F/TAF versus ABC/DTG/3TC or DTG + F/TAF in treatment-naive adults with high baseline viral load or low baseline CD4 count in 2 Phase 3 randomized, controlled clinical trials

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**Background:** Treatment-naive, HIV-1-infected individuals with high viral load and/or low CD4 count may be difficult to treat. In two Phase 3 studies of fixed-dose combination bictegravir/empicitabine/tenofovir alafenamide (B/F/TAF) vs. dolutegravir comparators, there were no treatment differences between arms for subgroups with HIV-1 RNA <100,000 copies/c/mL or CD4 < 200 cells/µL at baseline. No participant failed with resistance. To further characterize efficacy of B/F/TAF, we analyzed pooled results from these trials for those with high HIV-1 RNA or low CD4 count at baseline.

**Methods:** Treatment-naive, HIV-1-infected adults were randomized 1:1 to receive blinded treatment with B/F/TAF (50/200/25 mg) vs. dolutegravir/abacavir/lamivudine (DTG/ABC/3TC) (study 1490) or DTG (50 mg) + F/TAF (200/25 mg) (study 1490). Participants were recruited in North America, Europe, and Australia. To evaluate the efficacy of B/F/TAF specifically in these populations, we conducted a per-protocol (PP) analysis, which included participants who received ≥1 dose of study medication but excluded those without on-treatment results in the week (W) 48 window (unless randomized who received ≥1 dose of study medication but excluded we conducted a per-protocol (PP) analysis, which included participants who received ≥1 dose of study medication but excluded those without on-treatment results in the week (W) 48 window (unless randomized who received ≥1 dose of study medication but excluded

**Baseline HIV-1 RNA >100,000 c/mL** B/F/TAF (n=103) DTG/ABC/3TC (n=46) DTG + F/TAF (n=48)

HIV-1 RNA >50 c/mL 99% (102/103) 98% (45/46) 98% (46/48)

**HIV-1 RNA ≤50 c/mL** 1% (1/103) 2% (1/46) 2% (1/49)

Discontinued due to lack of efficacy 0 0 0

**Baseline CD4 count <200 cells/µL** B/F/TAF (n=73) DTG/ABC/3TC (n=27) DTG + F/TAF (n=32)

HIV-1 RNA >50 c/mL 99% (72/73) 96% (26/27) 100% (22/23)

HIV-1 RNA ≤50 c/mL 1% (1/73) 4% (1/27) 0

Discontinued due to lack of efficacy 0 0 0

(Week 48 Outcomes by Baseline HIV-1 RNA >100,000 c/mL and CD4 count <200 cells/µL PP Analysis Set)

**Conclusions:** B/F/TAF demonstrated potent viral suppression with no treatment-emergent resistance in treatment-naive adults with high baseline HIV-1 RNA or low CD4 count. These data provide further evidence that B/F/TAF is an appropriate treatment for a wide range of patients, including late presenters who have been historically more difficult to treat.

**THPEB039**

Virologic outcomes among treatment naive HIV+ patients initiating common first antiretroviral therapy core agents in the OPERA observational database

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**Background:** The efficacy of the commonly used core agents dolutegravir (DTG), elvitegravir (EVG), raltegravir (RAL) and darunavir (DRV) has been evaluated in clinical trials, but assessments of clinical effectiveness in real-world settings are needed. Virologic failure (VF) following core agent initiation was compared in ART-naive patients in the Observational Pharmaco-Epidemiology Research and Analysis (OPERA) cohort.

**Methods:** The study population consisted of ART-naive OPERA patients initiating DTG, Evg, RAL, or DRV between 08/12/2013 and 07/31/2016, with follow-up to 07/31/2017.

VF was defined as (i) 2 consecutive HIV viral load (VL) >200 copies/mL after 36 weeks of ART, (ii) 1 VL >1200 copies/mL with core agent discontinuation after 36 weeks, or (iii) 2 consecutive VL >1200 copies/mL after suppression (VL <150 copies/mL) before 36 weeks, or (iv) 1 VL >1200 copies/mL with discontinuation after suppression before 36 weeks.

Patient characteristics including baseline mortality index and VF frequency during follow-up were described. Survival analyses were conducted with Kaplan Meier methods and multivariate Cox Proportional Hazards modeling (covariates described in Figure 1).

**Results:** There were 5,561 ART-naive patients who initiated DTG (35%), EVG (48%), DRV (12%) or RAL (1%). Median follow-up time was 18.4 months (IQR 12.6-27.2). Compared to DTG, Evg users were younger, more likely to be male or from the southern U.S. and had lower baseline mortality index; DRV and RAL users were older, less likely to be male or Hispanic, more likely to be African American and had lower baseline CD4 cell count or mortality index; RAL users were also more likely to be from the southern U.S. and had higher baseline VL (Table 2). VF was experienced by 7.7% DTG, 9.8% EVG, 16.8% DRV and 27.0% RAL users (Figure 1).

Compared to DTG, the 47-month adjusted hazard ratio for VF was 1.20 (95% CI: 0.97, 1.49) for EVG, 2.12 (1.65, 2.74) for DRV, and 3.75 (2.61, 5.38) for RAL users (Figure 1).

**Conclusions:** In this assessment of ART-naive patients in a real-world clinical setting, DTG users were statistically significantly less likely to experience VF compared to RAL and DRV users, and marginally less likely to experience VF compared to Evg users.
**THPeb040**

 Superior efficacy of dolutegravir (DTG) plus 2 nucleoside reverse transcriptase inhibitors (NRTIs) compared with lopinavir/ritonavir (LPV/r) plus 2 NRTIs in second-line treatment - 48-week data from the DAWNING Study

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1VAP HealthCare, Bloemfontein, South Africa, 2Josiah Research, Bloemfontein, South Africa, 3Hospital Universitario San Cecilio, Granada, Spain, 4Josha Research, Bloemfontein, South Africa, 5Josiah Research, Bloemfontein, South Africa, 6PepCor, Rio de Janeiro, Brazil, 7Josiah Research, Bloemfontein, South Africa, 8VAP HealthCare, Bloemfontein, South Africa, 9Josiah Research, Bloemfontein, South Africa, 10Josiah Research, Bloemfontein, South Africa

**Background:** DAWNING is a non-inferiority study comparing DTG+2NRTIs with a current WHO-recommended regimen of LPV/r+2NRTIs in HIV-1 infected adults failing first-line therapy (HIV-1 RNA ≥400 copies/mL). At Week 48, the primary outcome was non-inferiority of DTG+2NRTIs compared with LPV/r+2NRTIs in reducing the incidence of virologic failure.

**Methods:** The study was designed to achieve non-inferiority at the 13% margin of superiority. The primary endpoint was the proportion of subjects achieving HIV-1 RNA < 50 copies/mL at Week 48. Additional analyses compared the safety and efficacy of DTG+2NRTIs against LPV/r+2NRTIs.

**Results:** At Week 48, 51% of subjects in the DTG+2NRTIs arm achieved HIV-1 RNA < 50 copies/mL, compared to 42% in the LPV/r+2NRTIs arm (difference 9.2%, 95% CI: 2.2% to 16.4%, p = 0.009 for non-inferiority). The overall safety profile was similar across treatment arms.

**Conclusions:** DAWNING demonstrated non-inferiority of DTG+2NRTIs compared with LPV/r+2NRTIs in reducing the incidence of virologic failure at Week 48. The safety and efficacy of DTG+2NRTIs were comparable to LPV/r+2NRTIs, with a slightly lower incidence of virologic failure in the DTG+2NRTIs arm.

**THPeb041**

 Virological failure through the R263K pathway to a first line Dolutegravir containing regimen

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**Background:** Dolutegravir (DTG) is a potent integrase inhibitor (INSTI) and NRTI resistance mutations while another had drug-related adverse events reported in the LPV/r group. Of 11 DTG subjects who met protocol-defined virologic withdrawal criteria through Week 52, one had treatment-emergent primary integrase-strand transfer inhibitor (INSTI) and NRTI resistance mutations while another had INSTI mutations only; in comparison, 30 LPV/r subjects met virologic withdrawal criteria, and 3 had emergent NRTI but no protease inhibitor mutations.

**Conclusions:** In DAWNING, DTG+2NRTIs demonstrated superior efficacy at Week 48 and a favourable safety profile compared with LPV/r+2NRTIs confirming interim 24-week results. The study provides important information to help guide second-line treatment decisions in resource-limited settings.

**THPeb040**

 Virological failure through the R263K pathway to a first line Dolutegravir containing regimen

M.J. Pena1, N. Chueca2, M. Hernández-Febles3, J.A. Fernandez Caballero1, F. García2, J.M. Zarzalejos3

1Hospital Universitario de Gran Canaria Dr Negrín, Las Palmas, Spain, 2Hospital Universitario San Cecilio, Granada, Spain

**Background:** Virological failure to Dolutegravir (DTG) containing regimens is a rare event. So far only a few cases have been reported in treatment-experienced individuals, commonly associated with emergence of R263K in the integrase, a substitution that confers low-level resistance against DTG and diminishes HIV DNA integration and viral fitness. In first treatment-experienced individuals, commonly associated with emergence of R263K in the integrase, a substitution that confers low-level resistance against DTG and diminishes HIV DNA integration and viral fitness. In first

**Methods:** Dolutegravir, Elvitegravir, Darunavir, Raltegravir, Dolutegravir, Elvitegravir, Darunavir, Raltegravir
to a cutaneous adverse reaction and DTG was given OD. On September 14th, CD4 count was 42 cells/μl and VL had increased to 126,393 copies/ml. Adherence was confirmed by both hospital records and patient interview, and virological failure was confirmed in a second sample (VL 208,518 c/ml).

Results: Sanger sequencing in RT and Integrase genes was performed at all time points, showing the sequential emergence of M184I (replaced by M184V), R263K, E157Q and K70E. Treatment was changed to TDF, darunavir/cobicistat (IDRT/cobi) and rilpivirine (RPV), with a VL decrease to 25 copies/ml and a CD4 increase to 302 cells/μl. A summary of resistance findings is shown in Table 1. Deep sequencing of pol and env revealed infection by a recombinant CRF01_BG form.

Conclusions: To our knowledge, this is the first report of first-line treatment failure with DTG with the selection of mutations in the integrase. Using deep sequencing we were able to trace the development and replacement of mutations. Interestingly we have shown, for the first time in vivo, the restoration of viral fitness that E157Q exerts on R263K containing pol.

### Table 1: CD4 and Viral Load Changes During the Study

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<th>Viral load (copies/ml)</th>
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(Tables)

### THPEB043
Patient satisfaction, tolerability and acceptability of Cabotegravir (CaB) and Rilpivirine (RPV) Long-Acting (LA) therapy in HIV-1 infected adults: LATTE-2 week 96 results

M. Murray1, F. Pulido1, A. Mills1, R. Moti1, R. Leblanc1, H. Jaegar1, M. Murray1, F. Pulido2, A. Mills3, R. Moti4, R. Leblanc5, H. Jaegar6, V. Chounta1, D. Dorey7


Background: Patient satisfaction, tolerability and acceptability of Cabotegravir (CaB) and Rilpivirine (RPV) Long-Acting (LA) therapy in HIV-1 infected adults: LATTE-2 week 96 results

Results: LATTE-2 randomized 286 patients into MP. At week 96, 87% (Q4W) and 94% (Q8W) of patients maintained HIV-1 RNA < 50 c/mL compared to 84% on PO (ITT-ME). Drug-related AEs included injection site pain which was the most frequently reported adverse event in the IM groups (97% in Q4W, 95% in Q8W). Patients in the Q8W group reported the highest and in the patients in the PO group reported the lowest levels of satisfaction with their HIV Treatment. Within the MP group, 37% of patients in the PO group did not find the treatment inconvenient or difficult to adhere. Results: Within the MP up to 96 weeks, patient receiving the IM combination therapy of Cabotegravir LA + Rilpivirine LA consistently demonstrated higher levels of satisfaction, tolerability and acceptability in both the Q4W and Q8W groups compared to patients on the PO group. Patients on the Q8W group demonstrated numerically higher levels of satisfaction compared to those in the Q4W group.
Background: Despite the availability of highly effective combination ART, a subset of HIV+ patients have had exposure to multiple different treatments and have limited future treatment options remaining due to development of resistance and/or intolerance. It is important to identify the prevalence of heavily treatment-experienced (HTE) patients and associated clinical characteristics to support and guide development of new therapies for this unique and under-served patient population.

Methods: Adult HIV+ patients actively followed in the OPERA care network were identified. Patients with ≥1 visit(s) in the year prior to 12/31/2016 were considered active in care. From this population, prevalence of HTE was estimated using three separate definitions; definition 1: currently on ≥4th line of ART; definition 2: exposure to ≥3 ART core agent classes prior to current regimen; definition 3: currently on core agents suggestive of HTE. Drugs from non-NRTI drug classes were considered core agents. Point prevalence (PP) and 95% confidence intervals (CI) were calculated for each definition. Overlap between definitions was explored and patient demographic and clinical characteristics were described for each definition.

Results: Of the 41,939 patients alive and in care, 1,972 (PP=4.7%; 95% CI: 4.5%, 4.9%) met definition 1; 1,758 (PP=1.8%; 95% CI: 1.7%, 2.0%) met definition 2; and 1,401 (PP=3.3%; 95% CI: 3.2%, 3.5%) met definition 3. A total of 3,908 (9.3%) OPERA patients were captured by at least one definition for HTE. 2,259 (6.6%) patients were included in more than one definition and 10 (0.02%) patients met all three definitions. (Figure 1) The patients defined with these definitions were similar in age and sex but differed substantially in race, ethnicity, and route of infection. History of AIDS-defining illness and time since ART initiation were greatest for the patients in Definition 2 with far more initiating therapy more than 10 years ago and experiencing AIDS (Table 1).

Conclusions: Three proposed definitions for identifying HTE patients in an observational database resulted in a prevalence of 1.9–4.7% of patients active in care. Minimal overlap of patients identified as HTE by these criteria suggests multiple definitions may be required to fully capture this population in need of new therapeutic approaches.

**Table 1**

<table>
<thead>
<tr>
<th>Definition</th>
<th>N</th>
<th>%</th>
<th>Definition 1: On 4th line of ART</th>
<th>N=7,972</th>
<th>%</th>
<th>Definition 2: ≥3 core agent classes</th>
<th>N=7,84</th>
<th>%</th>
<th>Definition 3: ART regimens of interest</th>
<th>N=1,401</th>
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<tbody>
<tr>
<td>Prevalence (95% CI)</td>
<td>4.7% (4.5, 4.9)</td>
<td>1.9% (1.7, 2.0)</td>
<td>3.3% (3.2, 3.5)</td>
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<td>Age, median years (IQR)</td>
<td>48.9 (41.8, 55.1)</td>
<td>50.9 (44.8, 57.2)</td>
<td>48.3 (39.5, 54.5)</td>
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<td>Female, n (%)</td>
<td>351 (17.8%)</td>
<td>139 (17.7%)</td>
<td>258 (18.4%)</td>
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<td>African American, n (%)</td>
<td>666 (33.8%)</td>
<td>256 (32.7%)</td>
<td>655 (46.8%)</td>
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<td>Hispanic, n (%)</td>
<td>576 (29.3%)</td>
<td>259 (32.0%)</td>
<td>298 (21.3%)</td>
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<td>MSM, n (%)</td>
<td>1,015 (51.1%)</td>
<td>468 (59.1%)</td>
<td>576 (41.0%)</td>
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<td>History of AIDS-defining Illness, n (%)</td>
<td>552 (28.0%)</td>
<td>360 (46.8%)</td>
<td>308 (22.0%)</td>
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<tr>
<td>Median months (IQR) from ART initiation</td>
<td>88.0 (52.8, 136.0)</td>
<td>141.6 (89.9, 206.1)</td>
<td>31.7 (9.8, 70.5)</td>
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*Prevalence calculated using a denominator of adult patients in care (n=41,899) defined as at least one clinic visit between 1/1/2016 and 12/31/2016. Baseline characteristics evaluated on 12/31/2016. Definition 1: On 4th line of ART; a change in core agent = a change in line of therapy. Definition 2: ≥3 core agent classes; started and discontinued core agents from at least three separate ART classes including PI, NNRTI, INSTI, AI or FI (see definition 3: ART regimens of interest; patients taking any of the following: DTG twice daily, DRV twice daily, ETR + DTG, INSTI + PI, MVC, or ENF + PI; Interquartile range: MSM-Mon who have sex with men/AIDS-defining illness at or prior to 12/31/2016.

**Figure 1**

A graph showing the prevalence of heavily treatment-experienced patients identified according to definitions 1, 2, and 3.
**Conclusions:** Baseline immune status of patients initiated on ART has improved with time, and early mortality has reduced substantially; however a substantial proportion of HIV patients still initiate ART with CD4 <100 cells/ul even in 2016. Strategies to implement timely ART initiation before advanced immune suppression occurs should be prioritized to reduce early mortality and improve survival.

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**Regimen simplification and switch studies**

**THPEB047**

**Durable suppression 2 years after switch to DTG+RPV 2-drug regimen: SWORD 1&2 studies**

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**Background:** Reducing long-term cumulative toxicity becomes more important in an era of near normal life expectancy for PLWHIV. Treatment modalities that reduce long term cumulative ARV exposure in the form of 2-drug regimens (2DR) are an area of active research. At 48 weeks, efficacy of DTG+RPV as a 2DR for maintenance of virologic suppression was non-inferior to 3DRs in SWORD 1&2. Improvements in bone, renal biomarkers and neutral effects on inflammatory biomarkers were documented. We summarize outcomes across weeks 100.

**Methods:** Two identical open-label, global, phase III, non-inferiority studies evaluated efficacy and safety of switching from CAR to DTG+RPV once daily in HIV-1-infected adults, with HIV-1 RNA <50c/mL (VL<50c/mL) for 26 months and no history of virologic failure. Participants were randomized 1:1 to switch immediately to DTG+RPV (Early Switch group) or continue CAR. Participants randomised to CAR with confirmed suppression at Week (WK)48 switched to DTG+RPV at WK52 (Late Switch group). Secondary endpoints included proportion of participants with VL<50c/mL at WK100 using Snapshot algorithm for ITT exposed (ITTe) population and safety evaluations.

**Results:** 1024 participants were randomized and exposed DTG+RPV 533 CAR 511, across both studies. At WK100 in the Early Switch group, 94.8% had VL<50c/mL. Low rate of snapshot virologic non-response was observed (3%). 6.4% participants met Confirmed Virologic Withdrawal (CVW) criteria. The Early Switch group demonstrated a stable safety profile consistent with each individual component; 34 participants (8%) experienced AEs leading to withdrawal. At WK100 in Late Switch group, 44.4% participants met VL<50c/mL. 2% of 153 participants met CVW criteria. Safety profile of the Late Switch group was comparable to the Early Switch group at WK48 (Table 1). One participant with RPV resistance at CVW (Early Switch group). WK100 had pre-existing NNRTI mutations at baseline. No participants developed INSTI resistance.

**Conclusions:** The novel once daily 2DR of DTG+RPV demonstrated durable maintenance of HIV suppression through Week 100, following switch from 3DR in virologically suppressed HIV-1-infected adults. The safety profile of DTG+RPV was consistent with their respective labels. A DTG+RPV 2DR offers potential for reduction in cumulative ARV exposure, without increased risk of virologic failure.
# THPEB048

Genital HIV-1 shedding with Dolutegravir (DTG) plus Lamivudine (3TC) dual therapy

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**Background:** There are limited data on genital HIV-1 shedding with dolutegravir-based antiretroviral therapy (ART) from Asia. Dolutegravir (DTG) dual therapy is recommended for virologically suppressed individuals whoSwitched to DTG and had eGFRcre < 60 ml/min/1.73 m² during acute HIV infection (AHI) were switched to DTG and had eGFRcre < 60 ml/min/1.73 m² and were not on ART at the time of acute HIV infection in Thailand.

**Methods:** Participants in the SEARCH010/RV254 cohort who had started ART during acute HIV infection (AHI) were switched to DTG and had eGFRcre < 60 ml/min/1.73 m² and were not on ART at the time of acute HIV infection in Thailand.

**Results:** Fifty-one participants were included in the analysis. ART-naïve participants were randomized to either DTG+3TC or 3-drug ART arm (N=22). In the 3-drug ART arm, 17% of participants had grade 3 eGFRcre decline at 24 weeks post-switch. eGFRcre was calculated using the MDRD equation adjusted for Thais. Those with grade 3 eGFRcre < 60 ml/min/1.73 m² had a significantly lower eGFRcre at 24 weeks after switching to DTG (p< 0.001) (Figure 1A). Furthermore, eGFRcre < 60 ml/min/1.73 m² was observed in 5/36 using eGFRcre but in none when measured by GFRcystCre. Paired t-test and McNemar’s exact test were used to compare continuous and binary variables respectively.

**Conclusions:** In this cohort of predominantly young Thai MSM, estimated renal function by eGFRcre declines might be of clinical importance in evaluating renal function in Asian individuals taking DTG and in mitigating unnecessary ART modifications.
THPEB050

Nevirapine plus Lamivudine maintain HIV-1 suppression through week 24

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Background: Simplification of HIV maintenance therapy may reduce adverse events and cost. The effect of boosted protease-inhibitor monotherapy is limited as shown by increased rates of viral blips and HIV-RNA detection in cerebrospinal fluids, most likely due to insufficient compartment penetration. For 80% of the patients with no hypersensitivity reaction at treatment initiation, Nevirapine (NVP) is characterized by an excellent long-term tolerance. For this single center pilot study we hypothesized, that a combination of NVP and Lamivudine (3TC), two active compounds with excellent compartment activity may provide an optimal HIV maintenance therapy. The aim of this pilot study is testing feasibility and efficacy of this strategy before evaluation in a larger trial.

Methods: Patients with fully suppressed HIV plasma viral load (pVL) >24 months who had >6 months on a NVP containing regimen and without previous failure of any non-nucleoside reverse transcriptase inhibitor regimens were switched to NVP and 3TC. HIV pVL was monitored monthly until week 24. The primary outcome was confirmed viral failure (RNA >100 copies/ml). The frequency of low level detection of HIV-RNA in plasma (< 20, 20-50, >50 cp/ml) was compared in each patient with pre-switch VL (Figure 1).

Results: Twenty patients (15 male) were included and reached week 24. After a total of 480 observation weeks, none of the 20 patients experienced HIV pVL >50 copies/ml (figure 1).

The frequency of low level HIV-RNA detection < 20 copies/ml (10/120) and 20-50 copies/ml (5/120) was not different from the period before randomization.

Conclusions: Our findings do not falsify the study hypothesis. This indicates that dual-treatment with NVP and 3TC warrants further evaluation as a potentially interesting maintenance strategy. A properly sized study to investigate non-inferiority of NVP/3TC bi-therapy to standard triple therapy is planned. If successful, this would result in a maintenance strategy with significant benefits in cost and reduced long-term side effects.

THPEB051

Virological monitor of the switch from RAL-containing to DTG-containing regimens in Brazil: Data from a real-world cohort

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Background: In January 2017, Brazilian MOH recommended switch to Dolutegravir-containing (DTG-C) from Raltegravir- containing (RAL-C) regimens for cases of people living with HIV (PLWHIV). This study aimed to assess virological effectiveness of switch from RAL-C to DTG-C regimens in a real life cohort from Brazilian public health system and to investigate factors associated with viral load suppression (VLS) after the switch.

Methods: We used programmatic individual-level information on viral load (VL), CD4 and antiretroviral therapy (ART) from PLWHIV, aged 18+ with RAL-C regimen who switched to DTG-C. In 2017. We assessed VLS comparing VL up to one year after the switch and time between the switch and VL from zero to 270 days. Furthermore, was conducted univariate and multivariable logistic regression to assess the association of demographic and clinical factors with VLS, among those who presented at least one VL done after switch.

Results: A total of 8,790 PLWHIV presented previous VL up to one year before the switch, and of those 5,970 regimen presented previous VL up to one year before the switch and have a VL measure at least one month after the switch and were included in the analysis. Overall, median age of 49yo (IQR=14), 62% men, 42% non-black; and median of 10 years on ART. Among those who switched with VL< 50 copies/mL, 94% maintained VLS during follow-up period. The longer the time using DTG-C regimen, the higher VLS rates, even among those who switched with higher pre-switch VL (Figure 1).

Despite the association observed in the univariate analysis for all variables, the multivariable analysis showed the following variables were positively associated with VLS: increasing age (60+ aOR 3.95[CI=2.47-4.49, compared with 15-24]; non-black race/color (aOR 1.36 95%CI=1.17-1.58, compared with black); and high CD4 at baseline (900+ aOR 6.65 95%CI=3.83-8.39, compared with <100).

Conclusions: DTG-C regimen showed early VLS at switch on those with detectable VL and VLS was maintained on those with undetectable pre-switch VL. Hence, DTG-C is an effective choice for switch on PLWHIV using RAL-C regimen. Finally, this switch might be reproduced in other low-middle income settings.

THPEB052

Uptake and effectiveness of two-drug compared to three-drug antiretroviral regimens among HIV-positive individuals in Europe

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Background: Although two-drug antiretroviral regimens (2DR) have been assessed in several randomized controlled trials, there is little information on uptake and outcomes of these regimens in routine clinical practice.

Methods: Logistic regression was used to analyse the uptake and outcomes among persons in the EuroSIDA cohort who started a 2DR with a boosted protease inhibitor (bPI), integrase inhibitor (INSTI) or bPI+INSTI.
Immediate vs. deferred switching from a boosted Protease Inhibitor (PI/r) to Dolutegravir (DTG)

suppressed patients with high cardiovascular risk or age ≥50 years: Final 96 weeks results of NEAT 022

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Background: Switching from a PI/r to DTG may improve convenience, lipids and cardiovascular risk.

Methods: NEAT022-NCT02098837 is a European, open label, randomized, non-inferiority trial. Adults ≥ 50 years or with Framingham score ≥10% were eligible if HIV RNA < 50 copies/mL for at least 24 weeks. Patients were randomized (1:1) to switch the PI/r component to DTG immediately (DTG-I) or to deferred switch at week 48 (DTG-D). Week 96 end-points were: proportion of patients with HIV RNA < 50 copies/mL, percentage change of total plasma cholesterol and other lipid fractions and adverse events.

Results: 423 (9%, 8 ARV-naïve) individuals started a 2DR and 4347 (91%, 95% confidence interval 91%-93%) started 3DR. Compared to those starting 3DR, those on 2DR tended to be older (median age 52 (IQR 46, 58) versus 46 (38, 53)), have higher CD4 counts (median 552 (95% CI 381, 788) versus 535 (341, 743) cells/μl) and controlled VL≥400 copies/ml, 87% versus 74,4% for those on 2DR were treatment-experienced, with higher cumulative exposure to all the main ARV classes. Those on 2DR also had higher levels of comorbidities including diabetes, cardiovascular disease, liver-related events and chronic kidney disease (p< 0.001 for all). After adjustment, there was no significant difference in the odds of virologic failure comparing 2DR and 3DR at 6 or 12 months (adjusted odds ratio [aOR] 1.00 (95% CI 0.79-1.28) and 0.89 (0.70-1.13) respectively; Figure). Likewise, there were no differences in the odds of immunologic response at 12 months (aOR 1.06 (0.82-1.38)). Similar results were seen comparing 2DR and 3DR at 6 or 12 months ±16 weeks in those with available data.

Conclusions: 2DR were largely used by individuals with well-controlled viremia and high CD4 counts. Virologic and immunologic outcomes were in line with results from clinical trials and suggest immunologic and virologic responses to 2DR were similar to 3DR, although confounding by indication cannot be excluded.

**Figure: Virologic failure and immunologic responses for individuals on 2DR versus 3DR ART**
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**Background:** Tenofovir/emtricitabine/efavirenz (TDF/FTC/EFV) is currently recommended as the preferred first-line antiretroviral therapy (ART) in resource-limited countries. Central nervous system (CNS) side effects and dyslipidemia are commonly associated with EFV use. Rilpivirine (RPV) has shown non-inferiority to EFV in treatment-naive patients. This study aimed to compare the efficacy and adverse effects between switching from TDF/FTC/EFV to TDF/FTC/RPV and continuing TDF/FTC/EFV in patients with complete viral suppression.

**Methods:** A randomized controlled non-inferiority trial was conducted in HIV-infected patients currently on TDF/FTC/EFV with undetectable HIV RNA (<50 copies/mL). Patients were randomized to switch from TDF/FTC/EFV to TDF/FTC/RPV (Group A) or continue TDF/FTC/EFV (Group B), and were followed up for 24 weeks. The primary endpoint was the proportion of patients with undetectable HIV RNA (non-inferiority margin of 12%). Changes in CD4 cell count, lipid profiles, and adverse events were also analyzed. (ClinicalTrials.gov NCT03251690)

**Results:** 246 patients were enrolled, 124 in Group A and 122 in Group B. Mean age was 44.6 years and 63.0% were males. Mean baseline CD4 cell count was 565 cells/mm³. Baseline characteristics including age, sex, CD4 cell count, lipid profiles, duration of ART and CNS side effects between the two groups were similar (p > 0.05). Mean baseline values for total cholesterol (TC), LDL, HDL, and triglycerides (TG) were 196, 117, 47, and 148 mg/dl, respectively. At 24 weeks, 95.9% of patients in Group A and 97.6% of Group B had maintained HIV RNA < 50 copies/mL (difference -1.68%; 95%CI, -7.06 to 3.35), showing non-inferiority of switching to TDF/FTC/RPV. Mean CD4 cell count was 584 and 581 cells/mm³ in Group A and B, respectively (p = 0.604). Mean change in lipid profiles (Group A vs B) were: TC, -22.4 vs -1.8; HDL, -4.2 vs +0.5; LDL, -6.4 vs +3.2; and TG, -29.4 vs +1.3 mg/dl (all p > 0.05). CNS side effects persisted in 0% and 6.6% of patients in group A and B, respectively (p > 0.05).

**Conclusions:** Switching TDF/FTC/EFV to TDF/FTC/RPV is non-inferior to continuing TDF/FTC/EFV in maintaining viral suppression at 24 weeks, and provides better lipid profiles and CNS side effects. Switching to TDF/FTC/RPV should be considered in HIV-infected patients on TDF/FTC/EFV with complete viral suppression.

**THPEB054**

Switching tenofovir/emtricitabine/efavirenz (TDF/FTC/EFV) to TDF/FTC/rilpivirine (RPV) versus continuing TDF/FTC/EFV in HIV-infected patients with complete virological suppression: A randomized controlled trial

**THPEB055**

Antiretroviral treatment maintenance strategies and blood telomere length change

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**Background:** We have evaluated the impact of Nucleoside Reverse Transcriptase Inhibitors (NRTI) and/or tenofovir disoproxil fumarate (N(t)RTI) sparing ART on blood telomere length (TL) in HIV-infected persons.

**Methods:** Prospective cohort of HIV-infected participants with suppressed virological replication on a stable antiretroviral treatment for at least one year. Comparing participants with current exposure to tenofovir disoproxil fumarate (TDF group) versus those never exposed to TDF (non TDF group) and receiving other antiretrovirals (NRTIs containing and N(t)RTIs sparing). TL was measured in whole blood by multiplex PCR. We estimated change in TL during follow-up (both by intention to treat and by per protocol analysis) using a multivariable linear model adjusted by baseline TL and significant confounders and a predictive model to identify independent predictors.

**Results:** 172 participants: 67 in the TDF-group (84 TDF/FTC, 27 TDF/3TC, 1 TDF/FTC/DTI) and 105 in the non-TDF group (79 receiving NRTI (11 ABC, 3 AZT, 1 d4T, 74 TDF) receiving NRTI sparing (25 without any NRTI and 5 with 3TC as the only NtRTI). Mean baseline age, % of females, years since HIV diagnosis, CD4 and years with viral load ≥50 copies/mL (TDF/non-TDF) 49.50, 30.25/18.16, 7.44/8.6, 72/67. After two years of follow-up mean TL increased 0.042 units in the whole cohort (p = 0.030).

**Conclusions:** Our results reflect in vivo the in vitro inhibitory capacity of TDF and abacavir upon telomerase. After two years, NRTI sparing ART, compared to TDF and/or abacavir containing ART, had greater gains in blood TL suggesting enhanced recovery from immunosenescence.

**THPEB056**

Efficacy and safety of switching from boosted protease inhibitor-based regimens to darunavir/cobicistat/ emtricitabine/tenofovir alafenamide for treatment of HIV-1 infection: Subgroups analysis by baseline regimen

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**Background:** Darunavir/cobicistat/emtricitabine/tenofovir alafenamide (D/C/F/TAF) 800/150/100/10 mg is a once-daily, single-tablet regimen approved in Europe and under regulatory review in the US for the treatment of HIV-1 infection. In the pivotal EMERALD trial of HIV-1-infected adults, switching to D/C/F/TAF led to non-inferior cumulative virologic rebound at Week 48 compared to continuing use of a boosted protease inhibitor (3PI). Efficacy was non-inferior to baseline in all subgroups. In the pivotal EXPEDITION trial, darunavir/cobicistat/emtricitabine/tenofovir disoproxil fumarate (control) favorable renal/bone safety was seen with D/C/F/TAF versus control. Results were consistent across age, gender, and race subgroups. Here we report Week 48 results in subgroups based on baseline PI and boosting agent.
Methods: The phase 3, randomized (2:1), non-inferiority EMERALD trial enrolled treatment-experienced, virologically suppressed HIV-1-infected adults with viral load (VL) < 50 copies/mL for 12 months (one 50≤VL<200 copies/mL allowed in prior 12 months). Previous non-darunavir virologic failure was allowed. The primary endpoint was proportion of patients with virologic rebound (confirmed VL > 50 copies/mL or premature discontinuation with last VL > 50 copies/mL cumulative through Week 48). Virologic response was VL < 50 copies/mL (FDA snapshot). Safety was assessed by adverse events (AEs). Results were evaluated in subgroups based on bPI (darunavir [with ritonavir or cobicistat] vs atazanavir [with ritonavir or cobicistat]) or lopinavir [with ritonavir]) and boosting agent (ritonavir vs cobicistat) used at baseline. Results: A total of 1141 patients were randomized and treated. At screening, use of darunavir (70% of patients) was more common than atazanavir or lopinavir (30% combined), and boosting with ritonavir (85%) was more common than cobicistat (15%). In the overall population, similar rates of virologic rebound (2.6% vs 2.1%, respectively) and virologic response (94.9% vs 93.7%) were seen with D/C/F/TAF and control; results were consistent across subgroups based on bPI and boosting agent used at screening. (Table: No patients developed resistance to study drugs. The incidence of serious AEs, grade 3-4 AEs, and AE-related discontinuations were generally similar for D/C/F/TAF and control overall and across subgroups.)

Conclusions: Virologically suppressed, treatment-experienced HIV-1-infected adults who switched to D/C/F/TAF had low, non-inferior cumulative virologic rebound rates versus continuation of prior therapy. Efficacy and safety results were similar between D/C/F/TAF and control regardless of baseline bPI and boosting agent used.

Result: There were 761 patients (85% men, 91% Caucasian, 99% antiretroviral experienced, 34% HCV coinfected, 80% prior DRV/ritonavir, 32% prior AIDS, 84% HIV RNA < 50 copies/mL, 88% ≥200 CD4/mm3) from 21 Spanish HIV Units initiating DRV/c. Thirty-six (5%) patients were excluded due to the lack of eGFR data. Baseline (mean ±SD) eGFR was 94±19 and 4.83% had eFGR below 60 increasing to 8.47% at 48 week, associated with greater eGFR decreases at 48 weeks than having not (n=463) (-11±11 vs. -5±13, P=0.021). Male gender and being treated with concomitant drugs other than antiretroviral therapy were associated with worse eGFR at 48 weeks. Initiation of DRV/c had an initial impact decreasing eGFR over time and different HIV patient’s characteristics, socio-demographics, HIV severity, antiretroviral treatment -ARV-, and concomitant medication other than ARV was explored through univariate and multivariate analyses. Ethics approval was obtained and patients signed informed consent.

Methods: Nation-wide retrospective cohort study of consecutive HIV-infected patients initiating DRV/c from June/2014 to March/2017. The eGFR was calculated with CKD-EPI in mL/min/1.73m2. Baseline values and trend over time were described. The relationship between eGFR change over time and different HIV patient’s characteristics, socio-demographics, HIV severity, antiretroviral treatment -ARV-, and concomitant medication other than ARV was explored through univariate and multivariate analyses. Ethics approval was obtained and patients signed informed consent. Results: A total of 1141 patients were randomized and treated. At screening, use of darunavir (70% of patients) was more common than atazanavir or lopinavir (30% combined), and boosting with ritonavir (85%) was more common than cobicistat (15%). In the overall population, similar rates of virologic rebound (2.6% vs 2.1%, respectively) and virologic response (94.9% vs 93.7%) were seen with D/C/F/TAF and control; results were consistent across subgroups based on bPI and boosting agent used at screening. (Table: No patients developed resistance to study drugs. The incidence of serious AEs, grade 3-4 AEs, and AE-related discontinuations were generally similar for D/C/F/TAF and control overall and across subgroups.)

Conclusions: Virologically suppressed, treatment-experienced HIV-1-infected adults who switched to D/C/F/TAF had low, non-inferior cumulative virologic rebound rates versus continuation of prior therapy. Efficacy and safety results were similar between D/C/F/TAF and control regardless of baseline bPI and boosting agent used.

Conclusion: Initiation of DRV/c had an initial impact decreasing eGFR followed by a plateau. Male gender and having concomitant drugs other than antiretroviral therapy were associated with worse eGFR at 48 weeks.

THPEB057

Real-life impact of the onset of darunavir/cobicistat on estimated glomerular filtration rate


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Background: Ritonavir-boosted protease inhibitors such as lopinavir or atazanavir have been associated with a greater decrease in estimated glomerular filtration rate (eGFR) than that of darunavir (DRV). Cobicistat (c) is known to affect tubular creatinine secretion and hence eGFR. Data on the impact of DRV/c on eGFR is scarcely known.

Methods: Nationwide retrospective cohort study of consecutive HIV-infected patients initiating DRV/c from June/2014 to March/2017. The eGFR was calculated with CKD-EPI in mL/min/1.73m2. Baseline values and trend over time were described. The relationship between eGFR change over time and different HIV patient’s characteristics, socio-demographics, HIV severity, antiretroviral treatment -ARV- and concomitant medication other than ARV was explored through univariate and multivariate analyses. Ethics approval was obtained and patients signed informed consent.

Results: There were 761 patients (85% men, 91% Caucasian, 99% antiretroviral experienced, 34% HCV coinfected, 80% prior DRV/ritonavir, 32% prior AIDS, 84% HIV RNA < 50 copies/mL, 88% ≥200 CD4/mm3) from 21 Spanish HIV Units initiating DRV/c. Thirty-six (5%) patients were excluded due to the lack of eGFR data. Baseline (mean ±SD) eGFR was 94±19 and 4.83% had eGFR below 60 increasing to 8.47% at 48 week, associated with greater eGFR decreases at 48 weeks than having not (n=463) (-11±11 vs. -5±13, P=0.021). Male gender and being treated with concomitant drugs other than antiretroviral therapy were associated with worse eGFR at 48 weeks.

Conclusions: Initiation of DRV/c had an initial impact decreasing eGFR followed by a plateau. Male gender and having concomitant drugs other than antiretroviral therapy were associated with worse eGFR at 48 weeks.
THPEB058
Switching protease inhibitors to rilpivirine in HIV-infected patients with complete viral suppression and without prior HIV drug resistance: A randomized controlled trial

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Background: Prior to the availability of rilpivirine (RPV), patients who could not tolerate efavirenz and nevirapine were treated with ritonavir-boosted protease inhibitor (PI)-based antiretroviral therapy (ART). Dyslipidemia and other metabolic complications are commonly associated with PI use. RPV could be an alternative for switching therapy in this population.

Methods: A randomized controlled non-inferiority trial was conducted in HIV-infected patients receiving ritonavir-boosted PI-based regimens with undetectable HIV RNA (<50 copies/ml) and without prior HIV drug resistance. Patients were randomized to switch from PIs to RPV (Switch Group) or continue ritonavir-boosted PI (Control Group). Primary end-point was the proportion of patients with undetectable HIV RNA at 48 weeks, with a non-inferiority margin of 12%. Changes in CD4 cell count, lipid profiles, and adverse events were also analyzed.

Results: A total of 84 patients were enrolled, 42 in each group. Mean age was 47.7 years and 53.6% were males. Mean baseline CD4 was 609 cells/mm3. Baseline characteristics including age, gender, body weight, duration of ART, distribution of NRTI and PIs used, CD4, lipid profiles, glucose, alanine transaminase (ALT) and estimated glomerular filtration rate (eGFR) between two groups were similar (p>0.05). At 48 weeks, 95.2% of patients in Switch Group and 93.9% of Control Group had maintained undetectable HIV RNA (difference rate 2.3%; 95% CI: -9.6 to 14.7), showing non-inferiority of Switch Group. Mean CD4 was 611 and 641 cells/mm3 in Switch and Control Group, respectively (p=0.062). Mean change in lipid profiles (Switch vs Control Group) were: TG, -78.3 vs -29.5 (p=0.049); TC, -2.5 vs -4.8 (p=0.038); HDL, +2.7 vs +1.7 (p=0.074); and LDL, -4.0 vs +5.0 (p=0.070) mg/dL. Mean change of glucose and eGFR were similar (p>0.05) between two groups. Mean change of ALT was significantly greater in Switch Group (18.2 vs 4.0 U/L, p=0.031). One patient in Switch Group had clinical hepatitis at 14 weeks and got complete recovery after RPV discontinuation.

Conclusions: Switching PIs to RPV in patients without HIV drug resistance is non-inferior to continuing ritonavir-boosted PI in maintaining virological suppression at 48 weeks, and results in better triglycerides and total cholesterol. Close monitoring of liver function after switching is recommended.

Pharmacokinetics/pharmacodynamics/pharmacogenomics and therapeutic drug monitoring

THPEB059
Antiretroviral adverse drug reactions pharmacovigilance in Harare City, Zimbabwe 2017

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Background: Key to pharmacovigilance is spontaneously reporting all Adverse Drug Reactions (ADR) during post-market surveillance. This facilitates identification and evaluation of previously unreported ADR’s, acknowledging the trade-off between benefits and potential harm of medications. Only 41% ADR’s documented in Harare city clinical records for January to December 2016 were reported to Medicines Control Authority of Zimbabwe (MCAZ). We investigated reasons contributing to underreporting of ADR’s in Harare city.

Methods: A descriptive cross-sectional study and Centers for Disease Control (CDC) guided surveillance evaluation was conducted. Two hospitals were purposively included. Seventeen health facilities, and 52 health workers were randomly selected. Interviewer-administered questionnaires, key informant interviews and WHO pharmacovigilance checklists were used to collect data. Likert scales were applied to draw inferences and Epi info 7 used to generate frequencies and proportions.

Results: Of the 52 participants, 32 (61.5%) distinguished the ADR defining criteria. Twenty-nine (55.8%) knew system’s purpose whilst 28 (53.8%) knew the reporting process. Knowledge scored average on the 5-point Likert scale. Thirty-eight (73.1%) participants identified ADR’s following client complaints and nine (1.3%) enquired patients’ medication response. Forty-six (88.5%) cited non-feedback from MCAZ for underreporting. Inadequate ADR identification skills were cited by 21 (40.4%) participants. Reporting forms were available in five (26.3%) facilities and reports were generated from hospitals only. Forty-two (80.8%) clinicians made therapeutic decisions from ADR’s. Averaged usefulness score was 4.0 on the 5-point Likert scale. All 642 generated signals were committed to Vigiflow by MCAZ, reflecting a case detection rate of 4/100 000. Data quality was 0.75-1.0 (WHO) and all reports were causally assessed.

Conclusions: The pharmacovigilance system was useful, simple, and acceptable despite being unstable. Not representative and not sensitive. It was threatened by suboptimal health worker knowledge, weak detection strategies and referral policy preventing ADR identification by person place and time. Revisiting local policy, advocacy, communication and health worker orientation might improve pharmacovigilance performance in Harare city.

THPEB060
Single-dose fed bioequivalence study of Emtricitabine, Tenofovir Alafenamide and Dolutegravir Tablets (200mg/25mg/50mg) versus DESCOVY® tablets (200mg/25mg; Gilead Sciences) and TIVICAY® tablets (50mg; ViIV Healthcare) in healthy adult volunteers

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Background: The combination of Dolutegravir (DTG) with the fixed dose combination (FDC) of emtricitabine (FTC) and tenofovir alafenamide (TAF) is one of the most frequently used recommended combinations for the treatment of HIV in high-income countries. WHO and several national guidelines recommend DTG as an alternative first- and third-line therapy. The use of TAF is currently not recommended by WHO, also due to open label, randomized, two-period, two-treatment, cross-over, single dose evaluation, the relative oral bioequivalence was tested in 33 healthy adult human subjects under fed conditions. In each period, each subject received a single, oral dose of either Mylan’s FTC/TAF/DTG tablets (T) with the reference combination (R) of DESCOVY® (200/25/50 mg) and TIVICAY® (50 mg) tablets.

Methods: In this open label, randomized, two-period, two-treatment, cross-over, single dose evaluation, the relative oral bioequivalence was tested in 33 healthy adult human subjects under fed conditions. In each period, each subject received a single, oral dose of either Mylan’s FTC/TAF/DTG tablets or T. Serial blood samples were collected pre-dose and at 21 timepoints until 72 hours post dose. Subjects were monitored for safety and tolerability. Single-dose pharmacokinetic parameters for FTC/TAF/DTG were calculated using non-compartmental techniques.

Results: Statistical analyses of these data reveal that the 90% confidence intervals are within the acceptable bioequivalence range of 80.00% and 125.00% for the natural log transformed parameters. LNAUCLF, LNAUCINF and LNCPEAK for emtricitabine, tenofovir (data not shown), tenofovir alafenamide, and dolutegravir (Table 1).
The AEs were mild in severity. Overall, both R and T were well tolerated when administered as a single, oral dose under fed conditions.

Conclusions: This study demonstrates that Mylan’s FTC/TAF/DTG tablets are bioequivalent to a combination of DESCOVY® (200/25 mg) and TIVICAY® (50 mg) as separate tablets following administration of a single, oral dose administered under fed conditions.

### THPEBo61

**Point-of-care drug level testing for adherence assessment of first and second line antiretroviral treatment in resource-limited settings**


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**Background:** In low and middle-income countries, yearly viral load testing is recommended by the WHO for monitoring of antiretroviral treatment (ART). A detectable viral load implies treatment failure and may be caused by drug resistance or insufficient exposure. Point-of-care drug level testing can be useful to objectively assess recent drug intake and prevent unnecessary treatment switching. Our aim was to validate and implement a simple point-of-care drug level test for this purpose in a rural South African clinic.

**Methods:** We implemented immunoassays (ARK Diagnostics, Fremont, USA) for quantification of efavirenz and lopinavir on a benchtop chemistry system (Thermo-Scientific, Waltham, USA) at the Ndlovu Medical Centre (Elandsdoorn, South Africa). Internal validation was performed with the provided calibrators and controls. External agreement of the assay with a liquid chromatography assay with ultraviolet or mass-spectrometry detection in a reference laboratory was performed by Bland-Altman analysis, as well as calculation of the root mean square prediction error (RMSEP) and percentage mean prediction error (MPE%) in samples of patients treated with efavirenz and lopinavir. Laboratory turnaround time in routine practice was recorded to investigate feasibility.

**Results:** The immunoassays were accurate and precise. During replicate analysis of spiked control samples in n = 60 for both analytes, >95% of results remained within 20% CV of the reference value. Repeated analysis revealed no time-dependent variation of results. External validation revealed complete agreement between the immunoassay and reference method in classification of efavirenz and lopinavir of detectable versus undetectable levels. External validation showed that RMSE were 0.26 mg/L for efavirenz and 0.91 mg/L for lopinavir. The MPE were -2.6% and -6.7%, respectively. Bland-Altman analysis showed agreement between assays within 20% in 100% of cases for efavirenz and 94.4% for lopinavir. Notably, 8.3% of patients on efavirenz and 57.4% of patients on lopinavir had undetectable drug levels, indicating non-adherence. During out-patient clinic visits, patient test results could be generated within 30 minutes.

**Conclusions:** We showed that objective monitoring of adherence to ART in a rural setting is feasible. We are currently prospectively testing the added value of drug level testing in a randomized clinical trial and are validating this assay for dolutegravir.
Drug interactions

THPEB063
Prevalence and management of drug–drug interactions in a rural Tanzanian HIV cohort

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Background: With widespread access to antiretroviral therapy (ART) and prolongation of life, comorbidities and use of co-medications among people living with HIV (PLWH) are increasing, necessitating a sound understanding of drug–drug interactions (DDI). We aimed to assess the prevalence and management of DDIs with ART in a rural Tanzanian setting.

Methods: We included consenting PLWH who initiated ART in the KIombero and Ulanga Antiretroviral Cohort (KIULARCO) between January 2013 and December 2016. Medications, clinical and laboratory data are recorded prospectively in an electronic database. DDIs were classified using www.hiv-druginteractions.org as red (contra-indicated), amber (interaction of potential clinical relevance requiring dosage adjustment/ monitoring), yellow (interaction of weak clinical significance unlikely to require further management or green (no interaction expected). Management of amber DDIs was assessed by determining frequency of creatinine and blood pressure measurements and by evaluating correct dosing.

Results: Among 2289 participants, 2174 (95%) were prescribed ≥1 co-medication during a median follow-up of 2.6 years. 750 (33%) patients had ≥1 potential DDI with the highest grade being red in 27 (1%) patients, amber in 435 (19%) and yellow in 287 (13%). On a prescription level, of 28,930 co-medication prescriptions, 29 (<1%) were classified red, 545 amber and 472 yellow (Figure). Red DDIs included rifampicin or isoniazid (n=120, 53%), zidovudine or lamivudine or nevirapine (n=89, 39%) and isoniazid or ethambutol or rifampicin (n=63, 28%). The most common requirements for management of amber DDIs were: (a) dose adjustment in 305 in 268 patients, mainly ethambutol or rifampicin requiring an ethambutol dose of 600mg which was appropriately given in ≥96% of patients), (b) creatinine monitoring (n=101 in 85 patients, mainly analgesics (n=57) appropriate creatinine monitoring was performed in 15 (18%) of the patients, and (c) blood pressure monitoring (n=48 in 35 patients, among whom 57% had appropriate blood pressure monitoring.

Conclusions: Co-medication use is high and 15% of patients had amber DDIs requiring further management. Timely monitoring beyond routine care remains a challenge in rural Africa. Reasons might be distance to the clinics and associated costs for patients and health care systems.

THPEB064
The effect of multivitamins and polyvalent cations on virologic suppression with integrase strand transfer inhibitors

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Background: Integrase strand transfer inhibitors (INSTI) are now widely accepted and utilized as preferred options for antiretroviral therapy (ART) in people living with HIV. Since 2014, clinicians have been increasingly advised of drug interactions with INSTI and polyvalent cations (PVC), such as calcium, iron and zinc. PVC are also included in many multivitamins (MVI) and metal-based antacid preparations. However, the clinical significance of these interactions with INSTI has not been documented in the literature. The objective of our study was to evaluate the impact of PVC on virologic suppression with INSTI-based ART.

Methods: We conducted a retrospective chart review from July 2012 to September 2017 to identify all patients prescribed an INSTI for at least six months. Medication lists were then queried for concomitant administration of MVI and/or PVC. We evaluated our electronic medical record for any episodes of virologic failure (HIV RNA > 200 copies/ml). Patients with nonadherence, as documented by refill history, were excluded.

Results: Three hundred sixty patients received an INSTI for at least six months during the study period. Of 352 patients who reported taking a PVC (42% of cohort), 99 (28%) reported an MVI and 73 (20%) reported another source. Forty-six patients (12.8%) experienced virologic failure (VF) during follow-up (Figure 1). Patients receiving MVI/PVC had on average 2.4 times the risk of VF (95% CI: 1.4, 5.6; p<0.01) compared to patients not reporting a PVC, controlling for age, race, and gender. This association was unchanged when accounting for the source of PVC or type of INSTI (dolutegravir, elvitegravir, or raltegravir).

Conclusions: The effect of co-administration of PVC and INSTI-based ART was significant, with more than double the rate of virologic failure in a real world setting. Although recommendations for appropriate separation were evolving over our study period, our data reinforce the importance of ongoing medication reconciliation and patient education. While a larger, prospective trial may be indicated, our study demonstrates that these interactions extend beyond theoretical concerns and have a clinically significant impact on virologic suppression.

<table>
<thead>
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<th>Polyvalent Cation (n=132)</th>
<th>No Polyvalent Cation (n=208)</th>
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<tr>
<td>Gender</td>
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<tr>
<td>Male 91 (60%) Female 61 (40%)</td>
<td>Male 153 (73.6%) Female 55 (26.4%)</td>
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<tr>
<td>Ethnicity</td>
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<td>Caucasian 144 (69.2%) Caucasian 43 (20.7%) Hispanic 20 (9.6%)</td>
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<td>Mean Age</td>
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<td>52 years</td>
<td>47 years</td>
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</table>

[Incidence of Virologic Failure on INSTI]

(Figure Drug-drug interactions (DDIs) in a cohort of people living with HIV in rural Tanzania)
**Antiretroviral drug resistance**

**THPEB065**

Predicted efficacy of raltegravir, elvitegravir and dolutegravir in patients harboring mutations associated with integrase inhibitor resistance in Argentina: First interim survey

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**Background:** Integrase strand transfer inhibitors (INSTI)-based antiretroviral regimens are highly efficacious at suppression of HIV replication and are recommended for initiation of HIV therapy, as for subsequent regimens. However HIV can become resistant against INSTIs through the emergence of mutations within the integrase coding region. No data on the predicted efficacy of INSTIs in Argentina are available as access to these drugs (particularly, elvitegravir and dolutegravir) and to integrate genotypic resistance test remains limited. We aimed to evaluate the predicted efficacy of raltegravir, elvitegravir and dolutegravir in patients harboring INSTI-associated mutations.

**Methods:** Retrospective multicentric study (period January 2011–November 2017) in Buenos Aires city, Argentina. Samples were processed through a validated in house RT-PCR and sequencing assay for detection of HIV-1 INSTI mutations (IRMs). Considering the genotype interpretation system (GIS) of Stanford HIVdb program (version B.4), the predicted efficacy of each drug was classified within five categories: from susceptible to high-level resistance. The GIS categories “susceptible” and “potential low level resistance” were grouped together as “S” (susceptible), whereas “low level resistance” and “intermediate resistance” were grouped as “I” (intermediate) and the remaining as “R” (resistant).

**Results:** Sixty seven patients were included: 64.2% were male. The median (IQR) of age, viral load, and CD4 T-cell count were: 43 (29–52) years, 4465 copies/ml (899–27812) and 306 (193–499), respectively. Patients had a median of 5 (4–7) prior treatments. All patients had IN- 3- containing regimens: median exposure of 22.5 (10–52) months; 94% were under raltegravir therapy. Eighty-two percent had concomitant or developed new opportunistic infection.

**Discussion:** The emergence of mutations within the integrase coding region. No data on the predicted efficacy of INSTIs in Argentina are available as access to these drugs (particularly, elvitegravir and dolutegravir) and to integrate genotypic resistance test remains limited. We aimed to evaluate the predicted efficacy of raltegravir, elvitegravir and dolutegravir in patients harboring INSTI-associated mutations.

**Conclusions:** In a cohort of heavily pretreated, raltegravir-exposed patients in Argentina, extremely low and identical activity of elvitegravir and raltegravir is described, showing extensive cross-resistance. Dolutegravir remains either partially or fully active 97% of patients, constituting an extremely important therapeutic option for future regimens. In this context, access to dolutegravir should be warranted.

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**THPEB066**

Long-term virological and immunological outcomes between HIV-infected patients with and without primary HIV drug resistance

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**Background:** Primary HIV drug resistance (PHDR) has emerged after scaling-up of antiretroviral therapy (ART). Prior studies in Thailand have demonstrated the rate of PHDR at 4.9%–7.1%. There is an association between PHDR and risk of treatment failure and this may affect the survival. This study aimed to compare long-term virological and immunological outcomes between HIV-infected patients with and without PHDR.

**Methods:** An observational cohort study was conducted in HIV-infected patients who had genotypic resistance test performed prior to ART initiation. Patients were categorized into two groups: PHDR group (patients with PHDR and control group (patients without PHDR) and followed up for 48 months after ART initiation. HIV RNA and CD4 cell count were evaluated every 6 months after ART initiation. Undetectable HIV RNA was defined as HIV RNA < 50 copies/ml.

**Results:** Of 112 patients, 13 were in PHDR group and 99 in control group. Mean age was 38 (±10.1) years and 54% were males. Baseline median (IQR) CD4 cell count was 179 (78–337) cells/mm³. Demographics, risk of HIV acquisition, HBV or HCV co-infection, VDRL serostatus and ART regimens were similar between two groups (p > 0.05). Of 13 patients in PHDR group, 38.5% had NRTI, 42.2% and 15.4% had NRTI and PI resistance mutations, respectively. At 6 months after ART initiation, 40% of patients in PHDR group and 79.3% in control group had undetectable HIV RNA (p < 0.049). ART regimen was adjusted according to the results of genotypic resistance test and HIV RNA level. The proportions of patients with undetectable HIV RNA at 12, 24, 36, 48 months (PHDR vs control group) were 66.7% vs 94.8%, 100% vs 98.1%, 77.8% vs 100%, and 90% vs 98.7%, respectively (all p > 0.05). Mean CD4 change at the corresponding periods (PHDR vs control group) were +109 vs +210, +125 vs +255, +241 vs +230, +92 vs +233 cells/mm³, respectively (all p > 0.05). No patient died or developed new opportunistic infection.

**Conclusions:** HIV-infected patients with PHDR have less early virological response than those without PHDR. Genotypic resistance test prior to ART initiation has contributed to the long-term virological and immunological success that similar to patients without PHDR.

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**THPEB067**

High levels of HIV drug resistance in Nicaragua: Results from the first nationally representative survey, 2016–2017

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**Background:** Acquired drug resistance among persons living with HIV on ART might compromise efforts to achieve 90-90-90 targets by 2020. We conducted the first nationally representative survey to estimate the prevalence of pretreatment drug resistance (PDR) and acquired drug resistance among persons living with HIV on ART for 1213 months (ADRT12) and ≥8 months (ADRT8) following WHO guidelines.

**Methods:** The survey design was based on a probability proportional to proxy size sample considering 19 out of 45 ART clinics to participate in the survey (excluding ART clinics that represented > 10% of the national cohort of PLHIV on ART). We recruited eligible participants consecutively for 8 months in 2016. All patients provided written informed consent to participate in the survey. HIV Viral Load (VL) was measured using a
Late Breaker Abstracts

Thursday 26 July

THPEB068

Understanding the resistance profile of the HIV-1 NNRTI doravirine in combination with the novel NRTTI MK-8591

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Background: Doravirine (DOR) is a novel non-nucleoside reverse transcriptase inhibitor (NNRTI) with improved potency against common NNRTI-associated resistant mutants as compared to the other approved NNRTIs. MK-8591 is a novel and potent non-nucleoside reverse transcriptase translocation inhibitor (NRTTI). The combination of DOR and MK-8591 is currently being studied in Phase 2. It has previously been reported that the NNRTI-associated substitution Y181C confers hypersusceptibility to MK-8591. This study aimed to characterize the effect of DOR-selected NNRTI resistant mutants from Phase 3 trials on MK-8591 as well as evaluate the resistance profile of DOR in combination with MK-8591 in vitro.

Methods: HIV-1 mutant viruses were generated via a site-directed mutagenesis (SDM) method with gene synthesis and subcloning into plasmid RT112 (RB). These mutants were tested for susceptibility to MK-8591 and 3TC in MT4-GFP cells. In vitro resistance selection studies were performed with MT4-GFP cells in a 96-well plate format. The following combinations were evaluated: DOR/MK8591, DOR/3TC and DTG/3TC. For every passage, the plates were scanned to monitor viral replication by analyzing the intensity of green fluorescence. When evidence of viral breakthrough was observed, the supernatant was removed and the virus subjected to genotyping analysis of the HIV-1 RT region.

Results: In Phase 3 trials of DOR, seven of 74 (9.5%) patient developed NNRTI mutations, predominately F227c with additional substitutions. SDM viruses were generated with RT Y181L, A98G/F227C, V106I/F227C, V106I/H222Y/F227C, A98G/V106I/H222Y/F227C, V106A/F227H/V182F, and V106I/F227C. Most of these mutants exhibited a fold change (FC) >100 (mutant_ec50 versus WT_ec50) to DOR. In contrast, viruses with F227C alone or in combination (A98G/F227C, V106I/F227C, V106M/F227C, and V106I/H222Y/F227C) were ≤2 or greater more susceptible to MK-8591 whereas no change in susceptibility to 3TC. The combination of DOR/MK-8591 was less susceptible to breakthrough compared to either DOR/3TC or DTG/3TC. Mutations identified in DOR/MK-8591 combination were mostly DOR-associated mutations whereas M184V/I were identified in the DTG/3TC.

Conclusions: DOR-associated clinical mutants containing F227C, alone or in combination, are hypersusceptible to the NRTTI MK-8591. This hypersensitivity may, in part, explain the observation that the combination of DOR with MK-8591 has a higher barrier to resistance development than the combination of DOR/3TC or DTG/3TC in vivo.

THPEB070

Comprehensive analysis of the antiviral activity of cabotegravir against HIV-2 isolates and INI-resistant HIV-2 mutants

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2University of Washington Medicine/ AID. Seattle, United States, 3SMIT, CHNU-FANN, UCAD. Dakar, Senegal

Background: Cabotegravir (IS/GSK1265744; Shinogi/GlaxoSmithKline) is a second-generation integrase inhibitor (INI) in development for the prevention and treatment of HIV-1 infection. To evaluate the potential use of cabotegravir for HIV-2 treatment, or as a component of pre-exposure prophylaxis (PrEP) in HIV-2 endemic settings, we determined the antiviral activity of the drug against HIV-2 in both single-cycle and spreading infection assays. We also measured the activity of cabotegravir against a comprehensive panel of clinically-relevant, INI-resistant HIV-2 variants.

Results: In n=512 Ugandans infected with subtype A1 and D HIV-1, we detected no HIV-1 polymorphisms associated with high levels of doolutegravir resistance. However, we detected five cases of E138K/T, which when occur alone, do not confer DTG resistance, but in combination with Q128 mutations, is known about the prevalence of natural resistance to DTG in circulating non-subtype B HIV-1 in the region. This study retrospectively examined HIV-1 integrase sequences from an integrase-inhibitor (INSTI) naïve cohort in Uganda to estimate the prevalence of baseline polymorphisms associated with DTG-resistance in HIV-1 subtypes A1 and D.

Methods: Samples were drawn from the Uganda AIDS Rural Treatment Outcomes (UARTO) cohort and included 81 pilot subjects enrolled from Kampala during 2002-2004 and 500 subjects enrolled from Mbarara during 2005-2010. Samples were collected just prior to initiation of NNRTI-based antiretroviral therapy. HIV-1 integrase was amplified using nested-PCR and Sanger-sequenced (HXB2 4230-5093). Stanford HIV Drug Resistance Database HIVDB 8.4 was used to infer clinically significant INSTI-associated mutations.
Methods: We tested a total of 14 HIV-2 isolates (8 group A and 6 group B) from treatment-naïve individuals and ≥50 site-directed HIV-2<sub>CO2</sub> integrase mutants (group A) for susceptibility to cabotegravir in the MAGIC-5A assay. A subset was further tested in six-day spreading infections of an immortalized T cell line (ICEM10). In both assay formats, HIV-1 isolates and site-directed HIV-1 integrase mutants were included in the analysis as control/comparator strains.

Results: Cabotegravir inhibited HIV-1 and HIV-2 isolates with comparable potency; 50% effective concentrations (EC<sub>50</sub>) ranged from 1.3-2.2 nM for HIV-1 and 0.9-4.1 nM for HIV-2 in the single-cycle assay (p<0.19, Welch's f test). In spreading infections, EC<sub>50</sub> values for four HIV-2 isolates were comparable to that of HIV-1 Lai (1.4±0.630 pM versus 1.5±1.30 pM, respectively). HIV-2<sub>CO2</sub> variants with mutations in the Y143/C/G/H/R pathway were nearly completely resistant to cabotegravir. The G148K change alone, or the combination of G49S with Q48H, K or R, resulted in high-level resistance to the drug (≥100-fold increase in EC<sub>50</sub> relative to the parental HIV-2<sub>CO2</sub> clone). Resistance levels for N155H-pathway mutants of HIV-2 ROD9 varied from 2-60-fold depending on the number and combination of secondary changes in the integrase protein.

Conclusions: Cabotegravir effectively replicates the infection of HIV-2 isolates from treatment-naïve patients with EC<sub>50</sub> values in the low-nanomolar to picomolar range. Cabotegravir also inhibits Y43 mutants of HIV-2 integrase: genotypes G140A/S+Q148H/K/R and E92A/Q155H; additional secondary changes confer moderate to high-level resistance to the drug. Cabotegravir is the second example (along with MK-8591 / EFdA) of a drug with potent antiviral activity against HIV-2 and resistance through week 48 in the daWNING study.

Background: In DAWNING most subjects in each arm had Baseline MbsA/V alone or with additional major RT mutations (82% across study). Despite this, three times fewer DTG subjects met CVW criteria than LPV/r subjects, and treatment emergent INSTI resistance was rare. The two patients with treatment emergent INSTI resistance substitutions showed increases in FC to DTG and substantial decreases in INSTI replication capacity.

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THPEB073
Antiretroviral drug resistance in cell-associated HIV-1 DNA during suppressive protease inhibitor (PI) - based second-line antiretroviral therapy (ART)

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Background: Emergence of resistance is common after failure of first-line ART with 2NRTIs + NRTI and is typically characterised by mutations affecting both drug classes. However, in sub-Saharan African populations, detection of NRTI resistance-associated mutations (RAMs), and specifically thymidine analogue mutations (TAMs) and the 3TC/FTC mutation M41V has not been found to reduce the likelihood of virological suppression on second-line therapy with 2NRTIs + PI/TV. To gain further insight into the significance of NRTI resistance, this study characterised the resistance profiles of patients established on second-line PI-based ART in Yaoundé and showing a stably suppressed plasma viral load (pVL) using HIV-1 DNA from peripheral blood mononuclear cells (PBMC).

Methods: HIV-1 DNA was quantified in PBMC by real-time PCR. RAMs in reverse transcriptase and protease were detected by Sanger sequencing of HIV-1 DNA. The genotypic susceptibility score (GSS) of the PI-based regimen was determined using the Stanford HIV drug resistance algorithm.

Results: Participants (n=94) had received PI-based ART for a median of 3.1 years (IQR 1.3–5.4) and were predominantly receiving TDF/FTC (87/94, 93%). Table 1: pVL suppression (≤ 60 copies/ml) was documented by two measurements taken at a median of 7 weeks apart (IQR 5–12). No previous pVL measurements were available. HIV-1 DNA was measured and sequenced in all subjects. Overall, 53/94 (56%) patients had 1 or more NRTI RAM (Table 2). The GSS score of the PI-based regimen was median 2 (IQR 2, 3). Among subjects on TDF/FTC, prevalence of predicted intermediate- or high-level TDF resistance was 8/87 (9%) and 4/87 (5%), respectively: ignoring co-occurrence of M41V (and its beneficial effect on TDF susceptibility) increased the prevalence of intermediate to high-level TDF resistance to 14/87 (16%). HIV-1 subtypes were CRF02_AG in 51/94 (56%) patients and highly diverse in the remaining population.

Conclusions: In this NRTI-experienced cohort receiving suppressive PI-based therapy most subjects retained predicted susceptibility to TDF, reflecting the predominance of mutational profiles that are known to have limited phenotypic effects on tenofovir.

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<td>NRTI RAMs category</td>
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<td>TAM profile 1</td>
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<td>TAM mixed % profile</td>
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Table 2: Resistance associated mutations (RAMs)

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THPEB074
Global registry of HIV-1 patients experiencing virological failure on dolutegravir containing antiviral regimens

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Background: The genetic barrier to resistance for dolutegravir is reported to be higher than for first-generation integrase inhibitors (INI). In clinical trials of dolutegravir cART in therapy-naive individuals, selection of resistance in integrase was not observed. In trials in patients with prior failure of INSTI, a decreased virological response was observed in the presence of multiple integrase resistance mutations at baseline. In clinical practice, virological failure, although rare, is being observed for both naïve and INSTI pretreated patients often without selection of obvious resistance mutations. Recent data suggest that resistance may emerge outside the integrase encoding gene in the 3′-polyuridine tract (3′-PPT) region. For a better understanding of dolutegravir resistance systematic analysis of otherwise scattered information on individual patient cases of dolutegravir therapy failure is urgently needed.

Description: The European Society for Translational Antiviral Research (ESAR) has opened a global registry to which anonymised clinical cases of failure on dolutegravir containing regimens can be submitted. Submission forms can be retrieved via www.esar-society.eu. If samples are available genotypic sequencing of integrase and 3′-PPT is performed. In selected cases phenotypic integrase susceptibility analysis is performed (fold change (FC) in IC50 compared to HxB2). Participants receive full reports of results. Currently, 27 cases of dolutegravir failure in patients infected with various HIV-1 subtypes have been collected.

Conclusions/next steps: Selection of resistance to dolutegravir is not impossible. Considering the envisioned global uptake of dolutegravir comprehensive information on resistance is essential. ESAR invites clinicians to submit cases of dolutegravir failure to this continuous and comprehensive global registry to assist guidelines and interpretation algorithms to ensure appropriate future application of the integrase drug class.
Background: A strategy for inferring the in vitro resistance phenotype was developed for HIV protease and integrase inhibitors based solely upon the population prevalence of mutations from previously treated and non-treated individuals.

Methods: The Stanford HIV database was used to retrieve subtype B HIV protease (n=57,138) and integrase (n=6,738) sequences along with their corresponding treatment information. Prevalence ratios were calculated for each position from treated (~16.453 -1.077) and non-treated (~4.2177 - 5.235) individuals. The logged sum of these ratios was used as a ‘resistance score’ for each individual and, for each drug available, was compared with Phenosense and AntiVirogram.

The ability of the resistance score to predict drug susceptibility was measured with receiver operating characteristic (ROC) and precision-recall (PR) curves using manufacturer-specific Phenosense IC₅₀ thresholds for decreased activity.

The capacity of the resistance score to function as a genotypic algorithm was then assessed using an independent dataset composed of protease (33,600) and integrase (3,298) sequences from HIV infected individuals in British Columbia. Using the prevalence ratios generated from the phenotypic dataset, the resistance scores were compared with two genotypic resistance algorithms (Virco for protease and the Stanford HIVdb algorithm for integrase).

Results: For each drug, the correlation coefficients between the Phenosense/AntiVirogram IC₅₀ values and the resistance score ranged from -0.47-0.84 (Phenosense average: 0.66, AntiVirogram average: 0.69). Separating the data into a training (75%) and validation (25%) dataset, a threshold generated from ROC curves (area under the curve 0.94) yielded a sensitivity of 0.95 and a specificity of 0.85 for classification. For the genotypic algorithm, a strong correlation was also observed where sensitivities of 0.95 and specificities of 0.85 for classification. For the genotypic algorithm, a strong correlation was also observed where sensitivities of 0.95 and specificities of 0.85 for classification.

Conclusions: These results suggest that mutation prevalence ratios from prior treatment data can be used to predict phenotypes without any other phenotypic data.

In 2016, 89.4% of E/C/F/TAF + DRV patients were previously on 3+ pill regimens, with 64.3% taking ≥ 4 pills. In 2017, 66.2% of E/C/F/TAF + DRV patients were previously on 3+ pill regimens, with 82.4% taking ≥ 4 pills. Top reasons for switching to E/C/F/TAF + DRV include simplification and virologic failure. The top reason for prescribing is potency in reducing viral load.

Conclusions: E/C/F/TAF + DRV use increases as 3+ pill regimen prevalence decreases among 2+DCR patients. The greater usage suggests that a STR +DRV regimen is a viable option for 2+DCR patients seeking lower pill burdens.

Methods: Participants from five Phase 3 B/F/TAF studies—GS-US-380-1878, GS-US-380-1961 (switch; n=1610)—were included.

Background: Globally, most people living with HIV are infected with non-B subtype HIV-1. Bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) is a potent, once-daily, single tablet regimen for treatment of HIV-1 infection, with in vitro activity against all B and non-B subtypes. Here, we present an expanded analysis of B/F/TAF efficacy by HIV-1 subtype and pre-existing resistance mutations in treatment-naïve and virologically-suppressed switch study participants.

Results: In the naïve studies, HIV-1 subtype B was predominant (31% of 1274 [89%] B vs. 136/1274 [11%] non-B). Efficacy of B/F/TAF at Week 48 (HIV-1 RNA < 50 copies/mL) was similar for individuals with HIV-1 subtype B or non-B (91% vs. 87%) (Table 1). Similar efficacy by subtype was seen for the comparator groups (ABC/DTG/JT and DTG+TAF). There was no emergent drug resistance in any participant regardless of subtype, pre-existing resistance, or treatment group. In the switch studies, non-B subtype was well represented (639/1610 [40%] B, 354/1610 [22%] non-B, 587/1610 [36%] unknown subtype [testing not performed]). The proportion of B/F/TAF or comparator group participants with HIV-1 RNA < 50 copies/mL at Week 48 was similar for those with subtype B or non-B (94% vs. 92% for B/F/TAF). There was no emergent drug resistance in any participant treated with a BIC- or DTG-based regimen, regardless of subtype or pre-existing resistance, but 2 participants (both subtype B) had emergent NRTI resistance in other comparator arms. The proportion of subtype B vs. non-B participants with pre-existing resistance was similar, and pre-existing resistance did not contribute to virologic failure or additional resistance development.

Conclusions: HIV-1 subtype B or non-B had no effect on the efficacy of B/F/TAF in treatment-naïve or switch studies. No participant developed resistance to B/F/TAF regardless of HIV-1 subtype or pre-existing resistance.
THPBE078
Unrecognized protease inhibitor drug resistance mutations in HIV-1 subtype A

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Background: Protease inhibitor (PI) based antiretroviral therapy is the most common 2nd-line therapy in developing countries. Failure of PI therapy despite good adherence without known PI-associated drug resistance mutations (DRMs) is poorly understood and suggests unknown mutations or alternative resistance mechanisms.

Methods: We investigated HIV-1 subtype A single genome clones obtained from patients at the Academic Model Providing Access to Health (AMPATH) in Eldoret, Kenya. *Universidade Federal do Rio de Janeiro, Departamento de Virologia, Rio de Janeiro, Brazil. *Brown University, Division of Infectious Diseases, Providence, United States, *the Academic Model Providing Access to Health (AMPATH), Eldoret, Kenya, *Universidade Federal do Rio de Janeiro, Departamento de Genética, Rio de Janeiro, Brazil

Results: Fourteen recombinant viruses were generated from six different patients. Seven recombinant viruses derived from six patients had higher lopinavir sensitivity (EC50 average of 1.05–1.63µM) when compared to subtype B (EC50 of 3.02µM) for 3.02µM); while five recombinant viruses derived from E177A showed lower drug sensitivity (EC50 2-fold higher for darunavir when compared to the subtype B control. With VL monitoring, clients are deemed stable if VL < 1000 copies/mL. Our study assessed clinical and CD4 cell eligibility criteria reliably determined stability for CARG formation.

Methods: Clients screened for inclusion to a cluster randomized trial to assess the effectiveness of 3 and 6 monthly dispensing ART in CARGs received VL tests, having recently joined CARGS based on clinical and CD4 cell eligibility criteria. VL tests were taken from August - December 2017 at 18 clinics (4 urban, 14 rural). In 5 USAID-priority districts. Positive predictive value (PPV) for stability were calculated comparing clinical and CD4 eligibility to VL result.

Results: 2609 clients joined CARGS, 70% (1814) females, 30% males (795). 3/180 were aged 18-25, 54% (1411) 25-45 years, and >45-years 1118 (43%). 81% from a rural setting. PPV was 86% (95% CI 85%-87%). 364 un-suppressed clients were removed from CARGS with 88% (326) received Enhanced adherence counselling. 18-25 year olds had a lower PPV 71% (95% CI 60-81%) compared to 25-45 years 86% (95% CI 84%-88%) and 45 years olds 87% (95% CI 85% - 89%). < 1% of urban facilities had a PPV of 83% (95% CI 79-87%) compared to 87% (95% CI 85%-88%) at rural facilities (p < 0.04). PPV did not differ by gender or facility number on ART.

Conclusions: PPVs < 90% were found in the study and were lower in young people. Client joining CARGS receive six monthly facility monitoring, increasing risk of treatment failure for unstable patients. VL testing should be scaled up to improve eligibility inclusion in differentiated models of Care. Further studies on theeligibility criteria should be carried out to determine eligibility in the low income settings.

THPBE080
Predictors of ART Adherence in depressed pregnant women living with HIV in Tanzania. A cross-sectional study.


Background: Adherence to antiretroviral therapy (ART) is crucial to preventing mother-to-child transmission of human immunodeficiency virus (HIV) and ensuring the long-term effectiveness of ART. However, retention in HIV care for PMTCT-pluses clients remains a challenge. This study

Adherence
explores predictors of self-reported ART Adherence in depressed pregnant women living with HIV in Tanzania. 

Methods: We enrolled 742 HIV-positive pregnant women from 16 government facilities allocated in three urban districts. The PHS-9 locally validated cut point defined probable depression at recruitment. Respondents completed a structured survey at baseline from April 2016 to May 2016. Using baseline data from a larger randomized control trial, we assessed the prevalence and predictors of missing ART in the past four days, using generalized estimating equations with standard errors clustered at the facility level to estimate risk ratios.

Results: The 742 women were on average 29.6 years old (range 18-43). Approximately 70.8% of the population had a primary level of education or lower and 33.2% reported problems with food security in the past six months. Most women (83.1%) reported never missing their ART medication doses in the month prior to interview. About 14.1% reported missing all of their ART drugs on at least one of the last four days. Women were less likely to report missing their drugs if they were older (RR: 0.96, 95% CI: 0.94, 0.99) or scored higher on a four-level hope scale (RR: 0.66, 95% CI: 0.45, 0.96). They were more likely to report missing their ART drugs if they had any food insecurity in the past six months (RR: 1.32, 95% CI: 1.04, 1.68). There was no association between missing ART and education, marital status, and reported general self-efficacy.

Conclusions: While self-reported missed ART doses were low at 14.1%, interventions for improving ART adherence with components that target improving hope may improve adherence. Studies to better understand the interplay between food insecurity and adherence are needed in PMTCT-plus clients.

**THPEB081**

Engagement in bidirectional mobile messaging to support antiretroviral therapy (ART) adherence among peripartum women in Kenya


University of Washington, Seattle, United States, Kenyatta National Hospital, Nairobi, Kenya

Background: mHealth interventions show promise in improving ART adherence. However, mechanisms for their effect are poorly understood. We assessed participant engagement, and content of participant messages in an ongoing trial of an interactive SMS to support ART adherence among peripartum women.

Methods: Within the ongoing randomized trial of 2-way SMS vs. 1-way SMS vs. control (Mobile WAChX, NCT02400671), participants were recruited from public maternal child health (MCH) clinics in Nairobi and Nyandarua region and were age ≥14, HIV-infected, pregnant, and had daily access to a phone. Women received automated weekly SMS in pregnancy to 2 years postpartum. Messages addressed ART adherence and MCH care (ratio 2:1 adherence:1 MCH). Among women in the 2-way SMS arm, predictors of the number of SMS sent by participants per week were evaluated using univariate generalized estimating equation (GEE) with Poisson link clustered by participant. SMS adherence conversations were analyzed by content analysis.

Results: Between November 2015 and January 2018, 275 participants in the 2-way SMS arm received 356,424 automated SMS. Median time in the study was 62 weeks (IQR 48-89). Median age was 27 (20-32) and 196 (71%) were female. The majority (82%) of women sent ≥1 SMS; participants sent a median of 0.41 SMS/week (IQR 0.10-0.68). Participants sent more messages during pregnancy than postpartum (0.74 SMS/week vs. 0.36 SMS/week, p < 0.001). Engagement did not differ by phone ownership (0.30 SMS/week among phone-owners vs. 0.37 SMS/week among phone-sharers, p = 0.29). Of 7718 participant messages, 1629 (21.5%) were about antenatal care, 1308 (17.0%) were about ART adherence, 1283 (16.6%) about infant health and 888 (11.4%) about antenatal concerns. Of 1308 adherence messages, 471 (35.0%) sought advice about adherence challenges while 759 (58.0%) reported no current challenges. Adherence challenges included medication side effects (114 SMS, 24.2%), running out of medication (91, 19.3%), and infant medication administration and transmission concerns (79, 16.8%), current illness (34.7%), clinic stock-outs (30.6%) and viral load and infant HIV testing (27.5%).

Conclusions: Engagement by SMS among HIV-infected peripartum women was high, particularly during pregnancy, and not dependent on phone ownership. Participants utilized SMS to gain advice about medication side effects and strategies for improving ART adherence for themselves and their infants.

**THPEB082**

Characterising mobile gamification-based adherence strategies to support adherence to antiretroviral prevention and treatment strategies among young men in South Africa


Desmond Tutu HIV Center, Medicine, Cape Town, South Africa, Uppsala University, Department of Medical Sciences, Stockholm, Sweden, Johns Hopkins University School of Public Health, Baltimore, United States, University of North Carolina at Chapel Hill, Chapel Hill, United States, Emory University Rollins School of Public Health, Department of Epidemiology, Atlanta, United States, Johns Hopkins University School of Public Health, Department of Epidemiology, Baltimore, United States

Background: In 2018, ART-based prevention and treatment are known to be efficacious. However, suboptimal HIV prevention and treatment outcomes among young men including young men who have sex with men in South Africa suggests implementation challenges including adoption and adherence. Concurrently, the world has moved online and interventions should integrate with emerging technologies to better serve youth. A limited-scale 4-week, implementation study, using mixed-methods was conducted to inform development of a mobile gamification app (MGAP) designed to improve ART/PrEP adherence among young men living with HIV or eligible for PrEP in peri-urban Cape Town, South Africa.

Methods: Stratified convenience sampling was used to recruit young men, 18-25, from the Desmond Tutu HIV Foundation clinic sites. The MGAP called AllyQuest was available for Android and iOS and included lifestyle modification, prevention and treatment strategies among young men, and adherence. Concurrently, the world has moved online and interventions should integrate with emerging technologies to better serve youth. A limited-scale 4-week, implementation study, using mixed-methods was conducted to inform development of a mobile gamification app (MGAP) designed to improve ART/PrEP adherence among young men living with HIV or eligible for PrEP in peri-urban Cape Town, South Africa.

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Conclusions: Engagement by SMS among HIV-infected peripartum women was high, particularly during pregnancy, and not dependent on phone ownership. Participants utilized SMS to gain advice about medication side effects and strategies for improving ART adherence for themselves and their infants.

Levels reached in AllyQuest among young men in peri-urban Cape Town, 2017
THPEB083
Exploring pathways from violence and HIV disclosure without consent to depression, social support and HIV medication agency among women living with HIV

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Background: Increasing research suggests that HIV disclosure without consent and violence can increase HIV stigma and undermine HIV care among women living with HIV (WLWH). Our objective was to test a conceptual model using path analysis to investigate complex relationships between violence and HIV disclosure without consent to depression, social support and HIV medication agency among WLWH on antiretroviral therapy (ART) in Vancouver, Canada.

Methods: Data were drawn from two years of follow-up surveys from a longitudinal community-based open cohort of 318 cis or trans WLWH who lived and/or accessed care in Metro Vancouver, Canada (2014-present). Sexual Health and HIV/AIDS. Women's Longitudinal Needs Assessment (“SHA/WWA”). Participants completed semi-annual interviewer-administered questionnaires by trained peer researchers/community interviewers and clinical questions by sexual health research nurses. We conducted path analysis using a weighted least-squares approach, with mean/variance adjustment to evaluate the hypothesized model. We tested direct relationships between HIV disclosure without consent and physical/verbal violence associated with participant’s HIV-positive status, and three outcomes: depression, lacking social support and not feeling able to take ART (as prescribed). We tested indirect relationships via four HIV-related stigma dimensions (personalized, internalized, social/public attitudes and disclosure concerns). All variables were measured in the last six months.

Results: Overall, 394 women responded to ≥1 follow-up survey with 484 total observations. Final model fit indices suggest the model well to the data (χ2=2-286; P = 0.240; CFI = 0.997; RMSEA = 0.030). In the final model, the direct paths from HIV disclosure without consent and physical/verbal violence associated with participant’s HIV-positive status to the three outcomes were not significant. Internalized stigma fully mediated the relationship between physical/verbal violence associated with participant’s HIV-positive status and not feeling able to take ART. Personalized stigma fully mediated the relationship between HIV disclosure without consent and depression. In the final model, internalized stigma (β = 0.052 p = 0.000) had a significant direct effect on not feeling able to take ART. The direct path from personalized stigma to depression was significant (β = 0.162; p = 0.037).

Conclusions: Results suggest that strategies to improve sub-optimal adherence outcomes and improve mental health among WLWH should address structural drivers of HIV, including disclosure without consent, violence and stigma.

THPEB084
Patient adherence to long-acting CAB and RPV injections through 96 weeks of maintenance therapy in LATTE-2

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Background: Cabotegravir (CAB) and rilpivirine (RPV) are under development as long-acting (LA) injectable suspensions and may provide novel treatment option for PLWH. The adherence and injection experience of patients receiving LA therapy was examined in 230 LATTE-2 patients.

Methods: LATTE-2 is a Phase 2b, multicenter, open-label study in ART-naïve HIV infected adults. Participants completing the 20-week Induction Period were randomized 2:2:1 on Day 1 to IM CAB LA + RPV LA every 8 weeks (Q8W), every 4 weeks (Q4W) or oral CAB + ABC/3TC in the Maintenance Period. The target injection visit date for LA therapy dosing was projected from the Day 1 visit date. Adherence to LA therapy was calculated as the number of injection visits occurring within protocol-defined +/- 7-day dosing window for projected visit divided by number of expected dosing visits up to Week 96 or early withdrawal. Individual CAB and RPV injections administered at the same visit were counted once. Additional unscheduled injections were excluded. Patient-reported medication adherence was assessed by HIV Medication Questionnaire (HV MQ).

Results: LATTE-2 is a Phase 2b, multicenter, open-label study in ART-naïve HIV infected adults. Participants completing the 20-week Induction Period were randomized 2:2:1 on Day 1 to IM CAB LA + RPV LA every 8 weeks (Q8W), every 4 weeks (Q4W) or oral CAB + ABC/3TC in the Maintenance Period. The target injection visit date for LA therapy dosing was projected from the Day 1 visit date. Adherence to LA therapy was calculated as the number of injection visits occurring within protocol-defined +/- 7-day dosing window for projected visit divided by number of expected dosing visits up to Week 96 or early withdrawal. Individual CAB and RPV injections administered at the same visit were counted once. Additional unscheduled injections were excluded. Patient-reported medication adherence was assessed by HIV Medication Questionnaire (HV MQ).

Conclusions: In the LATTE-2 study, patients demonstrated high rates of adherence to injection visits and corresponding high rates of virologic response through 96 weeks of LA CAB + RPV maintenance therapy. These results suggest LA injectable therapy is feasible and well-accepted by study patients, enabling continued development of this HIV treatment modality.
THPEB085

Does food insecurity affect adherence to antiretroviral therapy among caregivers of orphaned and vulnerable children in Tanzania?

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Background: Adherence to Antiretroviral Therapy (ART) is key to viral suppression for better health outcomes among HIV-infected individuals. While predictors of adherence to ART have been notably studied among the general population, little is said about the effect of food insecurity especially for key and vulnerable populations, possibly due to lack of appropriate data. This analysis hypothesizes that food insecurity negatively affects adherence to ART among HIV-positive caregivers of orphaned and vulnerable children (OVC) in Tanzania.

Methods: Data come from a community-based, USAID-funded Kizazi Kipya project that aims at increasing uptake of HIV/AIDS services by orphaned and vulnerable children (OVC) and their caregivers in Tanzania. HIV-positive caregivers who were served by the project during January-July 2017, and reported that they are on ART were included. Using Stata, random-effects logistic regression model was fitted, with adherence to ART being the dependent variable and food security the main independent variable. ART adherence was considered as not having missed any ART dose in the past 30 days.

Results: The analysis included 12,217 HIV-positive caregivers who were on ART. 72.1% were females and 27.9% were males. 20.5% of the caregivers were in food insecure households. Overall 91.1% of the caregivers reported being adherent to ART. Adherence to ART declined to 85.7% among food insecure caregivers, while so was as high as 92.4% among food secure caregivers (Figure 1), and the difference was statistically significant (p<0.001). Multivariate analysis in Table 1 showed that the odds of being adherent to ART was significantly 35% lower among food insecure caregivers, while so was as high as 92.4% among food secure caregivers compared to their food secure counterparts (OR = 0.65, 95% CI 0.53-0.79, p<0.001).

This observation was adjusted for caregiver sex, marital status, education, family size, place of residence, health insurance ownership, and clustering at ward level.

Conclusions: Food insecurity is a significant barrier to ART adherence among caregivers of OVC in Tanzania. This suggests that, to improve adherence to ART among caregivers of OVC, nutrition and/or food security interventions are necessary among others.

THPEB086

South African mothers living with HIV (MLH) do not sustain HIV Care over 5 years post-birth, especially when problematic alcohol use occurs

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Background: While sub-Saharan countries have introduced life-long access to antiretroviral therapies (ART), it is unclear whether mothers living with HIV (MLH) will sustain uptake over time. Existing data is typically based on clinic samples, with substantial loss-to-follow-up. This study examines a population of MLH recruited in pregnancy and followed for the next five years. Comorbid conditions that are likely to affect HIV care and ART adherence (problematic alcohol use, depression, and intimate partner violence) were examined as predictors of HIV-related behaviors over time.

Methods: Almost all (98%) of pregnant women in 12 neighborhoods in Cape Town, South Africa (IN=594) were recruited in pregnancy and reassessed five times over five years with high retention (83%-92%), 205 were MLH. MLH’s uptake and adherence to HIV care over time and the impact of comorbid problematic alcohol use (AUDIT scores > 3), depression assessed by the Edinburgh Perinatal Depression Inventory, score > 13), and self-reported intimate partner violence were examined using mixed effects linear regressions.

Results: Only 22.6% of MLH were consistently linked to HIV care from six months to five years post-birth. At five years, 86.7% self-reported linkage to HIV care. 76.9% were receiving ART and 87% reported ART adherence. Problematic alcohol abuse, but not depression or partner violence, was significantly related to reduced uptake of HIV care and adherence to ART over time.

Conclusions: Broad uptake and adherence to lifelong ART by MLH will require a combination of structural and behaviorally-focused interventions. Alcohol abuse is not typically addressed in low and middle income countries, but will be critical to support MLH and is likely to also impact their children’s outcomes, as well as those of the MLH.

THPEB087

Quantifying the relationship between HIV patient and treatment characteristics. ART adherence and viral suppression using contemporary data

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Background: Anti-retroviral therapy (ART) adherence is a significant driver of viral suppression (VS) and directly impacts treatment failure rates, drug resistance and treatment costs. Many patients still experience significant challenges in adhering to ART. The objective of this study was to quantify the relationship between patient and treatment characteristics, ART adherence and VS, using contemporary published data.

Methods: A literature review was undertaken to identify evidence quantifying this relationship. Data was extracted and analysed from both randomised control trials and real-world studies published after 01 January 2012. Available characteristics included country, age, sex, alcohol consumption, drug use, dosing frequency, pill burden, ART experience and ART class. Cohort level summary statistics (mean, min, max) were reported, and univariate and multivariable linear regression, utilising step-wise variable elimination based on the Akaike information criterion, used to explore the relationship between patient and treatment characteristics, adherence and VS.

(Figure 1. Relationship between adherence and viral suppression across study populations (unadjusted))

Results: Significant heterogeneity in population, ART experience, and definitions of adherence and VS was observed across the 70 identified studies. Across studies, mean age was 39.9 (IQR: 49.0, 67.6); 6.0%,
THPEB088

Data-to-care program improves viral load suppression

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Background: Optimizing HIV treatment has benefits for both the health of the infected individual and the community. Treatment that results in sustained viral load suppression can lower transmission and reduce new cases of HIV infection. A broad community taskforce was assembled to create a blueprint to End the Epidemic (EIE) in New York State with the goal to lower the incidence of new HIV infections. A pilot program was created matching HIV surveillance data with Medicaid managed care rosters. MetroPlus Health Plan implemented their own target intervention using a two-pronged approach: Street Outreach and Peer Care Connection Interventions.

Methods: Members were separated into two groups: those with no viral load test result during the prior year (not engaged) and those with detectable viral loads. Collected data included demographics, program contact type and frequency, ARV usage (refill pattern), and HIV viral load values and ranges. Retrospective statistical analysis was conducted utilizing a one-sided t-test. A sub-analysis was also conducted to exclude members who were virally suppressed at baseline.

Results: MetroPlus received a roster totaling 1741 members. 1429 (82%) members were still enrolled in the plan, and 901 had two or more viral load values. Results from the Street Outreach Intervention will be presented in a separate abstract. Results for the January 2016 roster (cohort 1) were analyzed in this abstract. 10% of the members were utilizing supportive services, such as mental and behavioral care. In the first year of activity, Peer Care Connection Counselors made 1,750 contact attempts, completed 760 of them, including 358 in person contacts with EIE members. Overall viral load suppression for the first cohort was 45% after 21 months. Most patients enrolled in the EIE Program demonstrated a reduced current viral load (VL) where N = 901, P = 0.1. In the sub-analysis, members moved from higher VLs (Vl ≥ 200 to < 1000) to lower VLs (Vl < 200) where N = 316, P = 0.01.

Conclusions: The EIE program is an example of a successfully implemented Data-to-Care concept, and energized care coordination efforts within MetroPlus Health Plan. People with unsuppressed HIV viral load can achieve viral load suppression through intensified care coordination and support.

THPEB089

A social network platform helps maintain HIV viral load suppression

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Background: Rango is a web-based social network platform designed to support HIV patient adherence for NYC area government insurance beneficiaries.

Methods: Rango features include peer to peer sharing, discussion boards, virtual support groups, virtual health coaches, text message reminders for adherence and an active online community. All participants signed an informed consent and reported their insurance carrier. Participants received a monthly incentive for the first 12 months. All online activity was time-date recorded. HIV viral load values (VLs) were retrospectively collected from medical records by MetroPlus and were not known to the Rango team. Initiation VL was within 90 days before and after platform enrollment, and the last observation VL anytime before or within 90 days of program graduation. The impact of average-monthly factors (i.e., number of sign-ins, number of friend requests, number of text message reminders, and number of Q&A messages) were evaluated against viral load levels at last observation using least-squares ANOVA regression models. We also visualized viral load movements from program initiation and program graduation using an independent 2-tailed T-Test.

Results: 640 active members were identified: 77 had missing VLs. 439 (78%) were virally suppressed (< 200 copies/mL) 287 participants had values for program enrollment and termination graduation dates, and viral load values and dates. Of those participants, 91 had only one usable VL, and 166 had more than one VL (including last observation VL). This analysis focused on the 196 participants with valid records. Of those, 94% of participants who had suppressed VL (< 200 copies) at initiation, remained in the same VL range at last observation (P = 0.01), suggesting the program was effective at maintaining viral load suppression. The least squares ANOVA regression demonstrated multifactorial statistical significance with friend requests (P = 0.01), sign-ins (P = 0.01), and medication reminders (P < 0.01) having high impact on maintaining suppressed viral loads at program graduation.

Conclusions: Rango is an effective social network platform to maintain HIV VL suppression. High platform utilization helped maintain VL suppression. In particular, creating a virtual community of like-minded HIV patients appeared to be the most effective feature of the platform, as evidenced by friend requests.

THPEB090

Incomplete ART adherence is associated with higher interleukin-6 in individuals with HIV who achieved virologic suppression in the immediate arm of the Strategic Timing of Antiretroviral Treatment (START) study


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Background: Heightened inflammation is predictive of serious non-AIDS events in treated HIV infection. Recently, incomplete ART adherence has been associated with chronic residual inflammation, even in the setting of viral suppression.

Methods: The INSIGHT START Study Group presented a reduced current viral load (VL) for all participants and stratified a dichotomous outcome defining viral suppression at any time point after the initiation of ART for all individuals. This analysis included a subset of 11,556 participants from the INSIGHT START trial, with data available on interleukin-6 (IL-6) levels and ART adherence. Participants were divided into two groups: those with complete adherence (≥ 80%) and those with incomplete adherence (< 80%). IL-6 levels were measured at baseline and at the end of 48 weeks of treatment. The relationship between IL-6 levels and ART adherence was assessed using linear regression analysis.
Herein, we evaluated whether this association is also observed in individuals who started ART with higher CD4+ T-cell counts (>500 cells/mm³) and achieved virologic suppression in the immediate arm of the START study.

Methods: Plasma levels of interleukin-6 (IL-6), D-dimer and C-reactive protein (CRP) were analyzed both at baseline and 8 months after ART initiation in treatment-naïve individuals with HIV enrolled in the immediate arm of START. Adherence was assessed by self-report and was determined to be incomplete if a participant reported not taking “all of my pills” in the preceding 7-days for any ART medication. Multivariable linear regression models were utilized to analyze the association between ART adherence and each biomarker at the 8-month visit (n=1 in scale) in participants who achieved virologic suppression (< 50 copies/mL). Data are presented as fold differences in concentrations in individuals who reported incomplete vs. 100% adherence at the 8-month visit.

Results: Of the 2,325 participants in the immediate ART arm, a total of 1,627 participants (422 female, 718 White, 479 Black, 215 Hispanic, 149 Asian) who had virologic suppression (< 50 copies/mL) adherence data and biomarker concentrations on the same day at the 8-month visit were included in the analysis. The median age was 36 (IQR 29-44) years. Median CD4+ T-cell count and HIV viral load before ART initiation were 651 (IQR 493, 969) cells/mm³ and 23,123 (IQR 3,931, 42,369) copies/mL, respectively. Incomplete adherence was reported in 109 (7%) participants. Higher plasma concentrations of IL-6 were observed in participants who reported incomplete adherence in comparison with those who reported 100% adherence (Table).

<table>
<thead>
<tr>
<th>Biomarker</th>
<th>Number of participants</th>
<th>Fold higher level vs. 100% adherence</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL-6 (pg/mL)</td>
<td>1,627</td>
<td>1.14</td>
<td>(1.01 - 1.28)</td>
<td>0.03</td>
</tr>
<tr>
<td>D-dimer (mg/L)</td>
<td>1,627</td>
<td>1.92</td>
<td>(0.88 - 1.01)</td>
<td>0.55</td>
</tr>
<tr>
<td>CRP (mg/L)</td>
<td>1,627</td>
<td>1.25</td>
<td>(1.09 - 1.39)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Model was adjusted for age, race, level of education, region, HIV risk group, hepatitis B or C coinfection and baseline levels of biomarkers. *100% adherence was defined as reporting taking "all of my pills" for all ART medications in the preceding 7-day period.

(Table)

Conclusions: Incomplete self-reported ART adherence was associated with higher concentrations of IL-6 in individuals with CD4+ T-cell >500 cells/mm³ who achieved virologic suppression by conventional assays early after initiation of therapy. These findings are similar to previous observations and emphasize the need to aim for the highest possible level of adherence to maximize the biological benefit of ART.

THPEB091
Randomized trial of a 2-way cellphone intervention (CPI) to promote 3rd line antiretroviral (ART) adherence

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Background: ART non-adherence causes treatment failure. Prior behavior may predict future behavior: individuals failing second-line ART may have subsequent non-adherence. 2-way CPI improved adherence in ART-naives, but effects in ART-experienced individuals are unknown.

adjusted fold difference in plasma concentrations of biomarkers of inflammation and co-morbidity as a predictor on adherence levels among adults on ART in 2017, in Brazil.

Methods: We did a 1:1 randomized trial of 2-way CPI + standard of care (SOC) adherence support compared with SOC alone nested in a 3rd line ART strategy study in low & middle income countries (LMIC). The 4 cohorts in the main study had regimens assigned based on prior ART and real-time genotypic: Cohort A (without lopinavir resistance and susceptible to NRTI) stayed on their 2nd line regimen. The other cohorts received regimens with >2 active drugs (see Table).

Results: Of the overall 545 participants, 521 (96%) enrolled in the CPI trial at 17 sites in 9 LMIC in Africa, Asia and the Americas: 52% males, median HIV RNA 4.4 log copies/µL (IQR 3.5, 5.2). Week 48 HIV RNA ≤200 copies/µL occurred in 169/257 (66%) CPI+SOC and 164/264 (62%) SOC participants, estimated difference 3% (95% CI: -4.6% to 11.9%) and the odds ratio for CPI+SOC vs. SOC adjusted for cohort 1.23 (95% CI: 0.82, 1.84; p=0.216). VF occurred in 66 (26%) CPI+SOC and 89 (34%) SOC participants during median 72 weeks follow-up (adjusted p=0.027). Observed differences in VF favored CPI+SOC in all cohorts (Table). Challenges implementing CPI were volume of contacts needed from sites, network downtime, travel out of cellphone range, power outages, and inoperable phones.

Conclusions: A 2-way CPI with problem solving did not significantly improve week 48 suppression, but modestly impacted the secondary endpoint of VF. Adherence barriers in ART-experienced persons appear less amenable to primarily phone based contact. More effective, less work-intensive strategies are needed.

THPEB092
Factors associated with adherence to antiretroviral therapy in Brazil, in 2017

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Background: Adherence to ART is an important predictor of virological and clinical outcomes. We aimed to assess factors associated with adherence levels among adults on ART in 2017, in Brazil.

Methods: Programmatic data from two information systems from the Brazilian Ministry of Health were used. They gather data on every ART dispensation in the country and on viral load/CD4 counts performed within the country’s public health system. ARV dispensations are typically made for 30 days, but can be extended for up to 90 days. Inclusion criteria was age≥15 y.o. and having at least two ARV pick-ups in a 180-day window, with the last one in 2017. Adherence was calculated retrospectively based on pharmacy pick-up data during the 180-day window, and dichotomized into ≥90% vs < 90% and ≥95% vs < 95% Unconditional
logistic regression models were performed, and all variables with a p-value < 0.20 in the univariable analyses were taken to the multivariable analysis.

Results: Among 499,976 individuals included in the study, 48.8% and 35.6% achieved adherence >90% and >95%, respectively, with median(IRQ) adherence at 89.6%(77.6%-99.5%). Among the factors with the highest aOR(95%CI) for adherence >90% were age (gradient from 20-24y.o. 1.20(1.12-1.28) to >80y.o. 2.78(2.60-2.98), compared to 15-19y.o.); time on treatment (gradient from 1-5yrs 1.04(1.02-1.06) to < 5yrs 1.21(1.12-1.29)), compared to >5yrs. Sex (transmission group (highest in males-parenteral 1.91(1.86-1.94) and MSM 1.41(1.32-1.50)), lowest in females-IDU 0.80(0.77-0.83), compared to heterosexual females; educational level (12+ years of schooling in 1.31(1.28-1.34) to 8-11 1.11(1.05-1.17), compared to 0-7), race/colour (highest in white 1.32(1.29-1.34), lowest in indigenous 0.85(0.79-0.90), compared to brown) and drug class (highest in 2NRTI+1NNRTI 1.92(1.82-2.03), compared to 2NRTI+1PI/r) for the 95% cut-off were similar (not shown).

Conclusions: We identified several factors that affect patients’ levels of adherence to ART and should be addressed to maximize treatment success. Recently-implemented in first-line in Brazil, 2NRTI+1II regimens predicted better adherence than the previously recommended 2NRTI+1NNRTI. Consistent with other studies, younger age is strongly associated with poorer adherence, and social indicators such as race and educational level also play an important role, reinforcing the need of focus adherence interventions on specific populations.

Ethical issues in clinical trials and treatment strategies

THPEB093

Does burden associated with HIV explain preferences for several HIV Cure strategies? A French DCE survey among patients and physicians (ANRS-APSEC)

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Background: Recent developments in HIV research have opened the way for HIV Cure-related clinical trials (HCRCT). However, the risks and uncertainty involved for patients living with HIV (PLWH) who have ‘normal’ lives raises ethical issues. Consequently, research has explored and provided insights on motivations and barriers regarding PLWH and healthcare providers’ participation in HCRCT. However, information is lacking about how stakeholders weigh up the attributes of different HCRCT, and whether their individual characteristics impact such trade-offs.

Methods: Between October 2016 and March 2017, a discrete choice experiment was conducted among 195 controlled PLWH and 160 physicians from 24 French HIV services. PLWH and physician profiles, based on personal characteristics, were elicited using hierarchical clustering. Trade-offs between five HCRCT attributes (trial duration, consultation frequency, moderate and severe side-effects, HCRCT outcomes) and values associated with four specific HCRCT strategies were estimated using a mixed logit model (accounting for heterogeneity and correlation in unobserved factors).

Results: Three profiles were elicited for both the PLWH and physicians, associated with different degrees of perception of HIV- and ART-associated burden (highest burdens for physicians-1 and PLWH-3). A general effect among physicians (physicians-2 and physicians-3) being the youngest and the oldest, respectively and a gradient of both financial and psychological vulnerabilities among physicians (highest vulnerability for PLWH-3, comprising mainly women).

For all six profiles, the level of severe side-effects was the most important attribute (3.90 to 14.52, p< 0.000), and physicians-3 (4.74, p< 0.000), and by HCRCT outcomes for PLWH-1 (3.29, p< .000), PLWH-2 (2.47, p< 0.000), PLWH-3 (2.38, p< 0.000), and by HCRCT-1 (2.45, p< 0.000) followed by consultation frequency, moderate and severe side-effects, HCRCT outcomes) and values associated with four specific HCRCT strategies were estimated using a mixed logit model (accounting for heterogeneity and correlation in unobserved factors).

Conclusions: Results show that the level of side-effects was the most important attribute than outcomes when deciding whether to participate in HCRCT, even for physicians. Moreover, individual characteristics and perceived experience of life with HIV and ART impacted trade-offs, without necessarily resulting in a change in the values associated with each of the four HCRCT strategies.
**THPEB094**

Influence of experience with HIV and psychosocial factors on willingness to participate in HIV cure-related clinical trials - results from the ANRS APSEC acceptability study

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**Background:** In high-income countries, HIV has become a chronic manageable infection. Enrolling patients with a sustained undetectable viral load into HIV Cure research clinical trials (HCRCT) is challenging, given the lack of direct individual benefit and the risks related to antiretroviral therapy (ART) interruption. Few data are currently available about the individual factors that might influence acceptability of HCRCT. The objective of the present study was to investigate the effect of personal experience with HIV and psychosocial characteristics on willingness to participate (WTP) in HCRCT.

**Methods:** The study enrolled 195 people living with HIV (PLWH). ART-treated and virologically suppressed, who were followed up in 19 French HIV services. Participants were presented different HCRCT scenarios with ART interruption and asked if they would participate in a HCRCT based on their preferred scenario. WTP was defined as answering “Yes, definitely” vs. “Not at all”, “Not really” or “Yes perhaps?”. Correlates were assessed through logistic modelling.

**Results:** WTP in HCRCT (43% of participants) was positively associated with self-reported confidence about being HIV positive (OR 1.28 [1.11;1.48]), feeling very challenged by having to use condoms during sex, and those self-reporting poorer health since HIV infection, all expressed lower WTP (OR 0.28 [0.09;0.83]; OR 0.39 [0.16;0.98]; OR 0.43 [0.22;0.85]; 0.37 [0.16;0.98], respectively).

**Conclusions:** PLWH challenged by condom use and those with self-perceived poorer health due to HIV, might be reluctant to interrupt their ART because of the risks of HIV transmission and viral load rebound. In contrast, PLWH challenged by having to take daily medication may consider HCRCT an opportunity to avoid this necessity. These results must be compared with future “real-life” data on patient enrollment in HCRCT. Understanding factors that underlie participation in HIV Cure research, especially personal experience with the disease, may help to better target patients.

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**THPEB095**

Enhancement of adenosine signaling using dipyridamole to decrease inflammation in HIV


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**Background:** Adenosine is a potent immunoregulatory nucleoside produced during inflammatory states to limit tissue damage. T-cell expression of ectoenzymes responsible for extracellular adenosine production is decreased during HIV infection. We hypothesized that dipyridamole, which inhibits cellular adenosine uptake, could raise extracellular adenosine concentration and dampen chronic HIV-associated inflammation.

**Methods:** In this double-blind pilot clinical trial, ART-treated participants with viiremia suppression for at least 48 weeks and CD4+ count > 550 cells/mm³ were randomized 1:1 to dipyridamole 100 mg po qx/day or placebo for 12 weeks. All participants took open-label dipyridamole during weeks 12-24. We compared changes from baseline to week 12 for levels of monocyte (sCD14), macrophage (sCD163), and T-cell (HLA-DR+CD38+) activation, systemic inflammation (IL-6), T-cell cycling (Ki-67), and brachial artery reactivity (FMD). Plasma levels of dipyridamole and inosine (initial adenosine metabolite) were measured by mass spectrometry. Linear regression models on log-transformed outcomes were used for the primary 12 week analysis; linear mixed models were used for analysis out to 24 weeks.

**Results:** Forty participants were randomized. Compared to placebo, dipyridamole participants had more neurologic AEs (headache, dizziness: p = 0.03) but all ≥ grade 2 AEs were similar between arms (p = 0.19). Participants with data for baseline and week 12 were included in the primary analysis (17 dipyridamole. 18 placebo). There was a trend towards a difference in sCD163 from baseline to week 12 in dipyridamole vs placebo (median change -6.19 vs 5.42 ng/mL; p = 0.087). No significant differences in sCD14 (p = 0.82) or IL-6 (p = 0.50) (Fig 1). There were small but nonsignificant decreases in CDB- T-cell activation from baseline to week 12 in DP vs PL (-0.62 vs 0.15%; p = 0.21) and from week 12 to 24 in placebo during dipyridamole dosing (± 0.30%). In post-hoc analysis, median plasma
inosine levels were higher at visits with detectable plasma dipyridamole, compared with each participant’s baseline (p=0.03). No between-arm differences were observed for T-cell cycling, plasma viremia by single-copy assay, or FMD.

**Conclusions:** In this placebo-controlled trial, dipyridamole did not significantly decrease markers of systemic inflammation, monocyte activation, or T-cell cycling, but modest decreases in macrophage and CD8+ T-cell activation were evident. Future studies to enhance adenosine signaling should be considered.

**Cure interventions**

**THPEBo07**

Two cases of hematopoietic malignancies complicated by HIV infection treated with allogeneic hematopoietic stem cell transplantation in combination with a CCR5 inhibitor

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**Background:** Although hematopoietic stem cell transplantation has been performed for patients with HIV infection worldwide, previous studies have shown that radical treatment for HIV infection cannot be achieved using this procedure alone. In 2009, a case in which HIV was eradicated after transplantation of stem cells from a CCR5Δ32-deficient donor was reported. Theoretically, hematopoietic stem cell transplantation along with the use of the CCR5 inhibitor maraviroc (MVC) is as effective as transplantation of stem cells from a CCR5Δ32-deficient donor. Herein we report two cases of hematopoietic malignancies complicated by HIV infection treated with hematopoietic stem cell transplantation in combination with MVC.

**Methods:** MVC was added one month before transplantation. Monitoring of HIV after transplantation was carried out with HIV-RNA levels and Provirral DNA analysis.

**Results:** Case 1: A man in his 50s developed treatment-related myelodysplastic syndrome, and underwent hematopoietic stem cell transplantation from a HLA-matched sibling donor. MVC was added to antiretroviral therapy (ART) containing raltegravir/etravirine before transplantation. After transplantation, the patient was unable to ingest drugs orally. ART was discontinued on day 11. Engraftment was achieved on day 26. However, the patient developed heart failure and renal impairment leading to multiple organ failure and died on day 48. On examination on day 40, HIV-RNA was not detected.

Case 2: A man in his 30s developed Philadelphia chromosome-positive acute lymphoblastic leukemia (Ph+ ALL) during the treatment of HIV infection. Remission was achieved with dasatinib combination chemotherapy. The patient underwent hematopoietic stem cell transplantation from a HLA-matched sibling donor. MVC was added to ART containing dolutegravir/truvada before transplantation. After transplantation, the absence of HIV was also confirmed by Provirral DNA analysis. ART was discontinued on day 65. On examination on day 86, HIV-RNA was not detected. However, a significant increase in HIV-RNA was observed on day 120, and ART was restarted. Subsequently, HIV-RNA decreased rapidly. His Ph+ ALL remained in molecular remission during treatment.

**Conclusions:** Further investigation, with accumulation of more cases, is needed to ascertain whether permanent disappearance of HIV can be achieved employing combination therapy with CCR5 inhibitors. If long-term treatment with CCR5 inhibitors becomes available, eradication of HIV may be possible.

**THPEBo08**

Two case reports on safety and impact of 47 integrin monoclonal antibody in treated primary HIV infection on HIV reservoirs

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**Conclusions:** Further investigation, with accumulation of more cases, is needed to ascertain whether permanent disappearance of HIV can be achieved employing combination therapy with CCR5 inhibitors. If long-term treatment with CCR5 inhibitors becomes available, eradication of HIV may be possible.
Methods: VDZ was administered as licensed for IBD - at 0.2-6 every 8 weeks. Informed consent for blood sampling & gut biopsy was obtained. Routine clinical monitoring data was captured (CD4, CD8 & HIV VL). Paired blood and gut biopsy samples from the terminal ileum (TI) & rectum were collected at a single time-point from participant A. Comparisons with blood & GALT samples from the HEATHER cohort (ART-treated PHI individual) were made for 7 expression & total HIV DNA measured by flow cytometry & qPCR, respectively.

Results: Clinical characteristics are shown in Table 1. No adverse events were reported, and both patients had clinical IBD response. For Participant A, 7 expression on blood CD4+ cells increased over the 3 study visits (12.7%, 13.7% & 22.1%, respectively); 7 expression on GALT CD4+ cells was lower for participant A compared to HEATHER participants & healthy controls. Participant A’s (a biopsy) was comparable to the mean HEATHER HIV DNA (3.4 vs. 3.1 Log/106 CD4). Despite only 8 months of ART since PHI, total HIV DNA in GALT for participant A (TI 3.7, rectum 3.5 Log/106 CD4) was below the mean of HEATHER participants (TI 3.6, rectum 3.5 Log/106 CD4) whose median (range) time on ART was longer at 34 (15-96) months.

Conclusions: We report the first 2 cases of HIV+ individuals receiving Vedolizumab for IBD. It was shown to be safe, well-tolerated & associated with good IBD response. These preliminary data support further exploration of 47 integrin antibodies as a strategy to limit GALT HIV reservoir. It remains to be shown if longer treatment period may further impact on reservoirs.

**Table 1. Clinical Characteristics**

<table>
<thead>
<tr>
<th>Participant A</th>
<th>Participant B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years (sex)</td>
<td>31 (M)</td>
</tr>
<tr>
<td>IBD diagnosis</td>
<td>Crohn’s</td>
</tr>
<tr>
<td>Year HIV diagnosis</td>
<td>2016</td>
</tr>
<tr>
<td>Days from PHI to ART</td>
<td>28</td>
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<tr>
<td>Months from PHI to Vedolizumab</td>
<td>3.5</td>
</tr>
<tr>
<td>Months on ART at time of gut biopsy</td>
<td>8</td>
</tr>
<tr>
<td>Current CD4 count (cells/mm³)</td>
<td>419</td>
</tr>
<tr>
<td>Current VL (CPM)</td>
<td>&lt;20</td>
</tr>
<tr>
<td>m, male; f, female; PHI, primary HIV infection; UC, ulcerative colitis; NA, not applicable; VL, viral load; CPM, copies per million</td>
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</tbody>
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**THPEB099**

Antiretroviral treatment interruptions in HIV clinical trials: A systematic review

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Background: Structured treatment interruptions (STIs) were previously used to determine effects of intermittent antiretroviral therapy (ART) in people living with HIV (PLHIV), but studies found this to be associated with worse outcomes. Recently, analytical treatment interruptions (ATI) have tested interventions aiming to achieve virological control without ART. We reviewed the practice of ATI and STI.

Methods: A systematic review was performed of clinical studies from 2000-2017 identified via Ovid MEDLINE, EMBASE and recent HIV conference abstracts. ATI studies assessed interventions aimed at achieving virological control without ART. STI studies investigated whether adverse effects of ART could be minimised. Extracted data included: demographics, frequency of CD4 and HIV viral load (VL) monitoring, criteria to restart ART. TI duration, and adverse outcomes. A descriptive analysis of TI parameters was performed stratifying ATI studies pre- and post-2014 when ART was universally recommended.

Results: The search identified 705 studies, with data extracted from 109 studies. 686220 STI and 414380 ATI, where therapy was interrupted in 8453 individuals. Most common monitoring strategies for VL and CD4 were: monthly for 18 STI studies and weekly or more frequently for 20 ATI studies (Table). The commonest threshold to restart ART in STI studies was CD4 < 350 cells/mm³; with 42 STI studies reporting no VL threshold to restart ART. In ATI studies, the commonest threshold was a VL >1000 copies/mL and/or CD4 < 350 cells/mm³ in 7 studies conducted after 2014, and a VL >50,000 copies/mL in 6 pre-2014 ATI studies. Reported median TI duration ranged from 7 days to 22 months in STI and from 14 to 106 days in ATI. TI-related adverse events pre-2014 were related to immunological decline. In 21 ATI studies post-2014 one adverse event of myocardial infarct was reported.

Conclusions: Marked heterogeneity was noted in study methodology and TI duration. ATI studies had more frequent monitoring and shorter TI duration, compared to STI studies. ATI studies were more likely to initiate ART based on VL monitoring and the VL threshold for this has decreased over time. Summary data will assist the design of future trials involving ATI and potentially in standardising an approach to this intervention.

**THPEB100**

Statin use during effective ART is not associated with lower biomarkers of HIV persistence or immune activation/inflammation


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Background: Statins exert pleiotropic anti-inflammatory and immune-modulatory effects. They also have in vitro anti viral effects, and we have shown that statin use is associated with a reduced risk of virologic rebound in people on suppressive antiretroviral therapy (ART). This may reflect a statin-induced decreased HIV-reservoir size. We evaluated whether current statin exposure is associated with lower levels of markers of HIV persistence and immune activation/inflammation.

Methods: We analyzed samples from HIV-infected participants of ACTG A5321 who started ART during chronic infection and maintained virologic suppression (HIV-1 RNA levels ≤50 copies/mL) for 13 years. We measured: 1) three markers of HIV-1 persistence (cell-associated HIV RNA [CA-RNA], CA-DNA, and single copy assay [SCA] plasma HIV RNA) and 2) soluble markers of immune activation/inflammation: IL-6, IP-10, ne-
Nutrition

THPEB101
A qualitative analysis of the barriers and facilitators to adopting the Mediterranean diet with Portfolio cholesterol-lowering foods in those with HIV dyslipidaemia - interviews within a randomized trial

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Background: Our Best Foods For your heart (BFF) trial found that LDL-cholesterol was 10% lower after 6 months on the Mediterranean Portfolio diet compared to a low saturated fat diet in adults with HIV dyslipidaemia (ISRCTN20000091). Assuming full adherence, complex average causal effect analysis suggested the LDL-cholesterol reduction might be as large as -0.87mmol/l (95%CI -1.79 to -0.05mmol/l). However, individual dietary adherence varied between 11 and 100%. Therefore, this study aimed to explore factors affecting adoption of the Mediterranean Portfolio diet in adults participating in the BFF RCT.

Methods: Sixteen of 29 participants randomized to the Mediterranean Portfolio arm (Mediterranean-style diet incorporating cholesterol-lowering foods: nuts, oats, soya, plant stanols and beans) were purposively sampled to reflect the diversity of the trial population. Semi-structured interviews were conducted and analysed iteratively using a thematic framework.

Results: Proportionally more women were enrolled in the RCT (52%) and 50% of participants were black African. Dietary adherence was high: Portfolio foods (99±12%); Mediterranean Diet Score (68±15%) with 24% improvement in diet quality over 6 months. Participants with high adherence (≥70%) were keen to experiment with new tastes, valued the provision of unfamiliar foods and personalized support from a trusted professional. Barriers of cost/time/effort to access foods emerged repeatedly from participants reporting low adherence (< 60%). Participants also identified barriers potentially unique to this population: lack of autonomy in food selection, and fear of disclosure of HIV status when explaining reasons for food choices to friends and family (peer support in Figure). Adaption of dietary components was approached differently. Plant stanol drinks were viewed as "medication", to compensate for high fat intake. Portfolio foods were generally added as snacks, allowing minimal disturbance tousual eating patterns. The concept of snacking was less acceptable to Africans because of cultural norms of proper meals. African participants embraced the transition towards a Mediterranean style diet by reversing acculturation and returning to their traditional foods.

Conclusions: The Mediterranean Portfolio diet was achievable in a multi-ethnic group. Dietary interventions need to identify and engage personal motivators, address cross-cultural issues, and accommodate social and educational needs. Matching diet style to the individual is important.
Disclosure of maternal HIV status was associated with survival of mother-to-child transmission. With mortality of HIV-exposed children conclusions: independently associated with reduced HIV-free survival. 95% CI: 1.2 - 12.6) were independently associated with increased HIV-free survival. 18.2) and initiation of cotrimoxazole prophylaxis in the child (aOR = 3.9, 95% CI: 1.6-4.2] and 1.4% [95% CI: 0.9-2.3] among HIV-exposed and HIV-unexposed children respectively. HFS was 91.8% [95% CI: 89.2 - 93.8] among HEI. Disclosure of mother’s HIV status (aOR = 4.9, 95% CI: 1.3 - 18.2) and initiation of cotrimoxazole prophylaxis in the child (aOR = 3.9, 95% CI: 1.2 - 12.6) were independently associated with increased HIV-free survival while child growth problems (aOR = 0.2, 95% CI: 0.09 - 0.5) was independently associated with reduced HIV-free survival.

Conclusions: Even with Option B+, Lesotho has not reached elimination of mother-to-child transmission. With mortality of HIV-exposed children twice that of HIV-unexposed children, HIV-free survival was only 91.8%. Disclosure of maternal HIV status was associated with survival.

THPEB103
We have left the children behind in the 90-90-90 agenda. A case of Churches Health Association of Zambia

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Background: There have been efforts to strengthen the elimination of Mother to Child Transmission (eMTCT) of HIV in church health institutions (CHIs) through strengthening of the Early Infant Diagnosis (EID) program. With Global Fund ATM support, the Churches Health Association of Zambia (CHAZ) has been a key implementing partner of the eMTCT program in Zambia since 2004. In 2016 alone, 54.8% infants were tested for HIV using the Nucleic Acid Test (NAT) at 6 weeks.

Methods: This was a cross sectional study which involved the review of data, from purposely selected nineteen (19) CHIs extracted from Safe Motherhood register. DBS tracking register and DBS laboratory requisition forms, for the period of January to December 2017.

Results: Review of the EID data showed that, in 2016, there were 1,238 HIV positive women who delivered live babies. 88% of these had a poor economic status and were mainly peasant farmers. Out of this number, only 82% infants had the DBS sent to PCR laboratories at 6 weeks. Only 81% results were received back at facilities and out of the results received, 29% were HIV positive and out of which only 60% were commenced on ART. Challenges to ART initiation includes infant death prior to ART initiation, and mothers not returning for the results. The average turnaround time for receipt of results by the health facilities in this study was 78 days.

Conclusions: Loss to follow up (LTFUP) at all stages of the EID testing and treatment cascade was identified as the major problem in EID resulting in failure to test and treat all HIV positive infants within two months of age. The other identified factor is the long turnaround time for the results. There is need to enhance the role of treatment supporters to avert the high LTFUP at all stages of the DBS testing and treatment cascade. DBS testing should also be decentralized to district and health facility level. Mother baby pairs should be followed up and no baby should be missed.

THPEB104
Western-blot negative for HIV as a marker of a low reservoir in vertically HIV-infected children


Background: Early and continued treatment against HIV reduces the size of the reservoir in children with vertical transmission. HIV enzymoimmunoeassay (EIA) can be negative in children who initiate antiretroviral treatment (ART) early. The negativization of EIA has been proposed as an indirect marker of a reduced reservoir.

The objective of this study is to investigate if negative Western-Blot (WB) is related to a smaller size of the reservoir in children with vertical infection treated during the first year of life.

Methods: The humoral response to HIV and the reservoir size were analyzed in 23 children treated in the first year of life and with suppression (< 200 copies / ml) for at least one year. The size of the reservoir was determined by measuring total DNA copies of HIV-1 per million CD4⁺ cells, using digital droplet (dd) PCR. WB was performed on the same samples. The distribution of DNA in negative-WB patients was compared to DNA < 10 copies / million by the chi2 and Fisher tests.

Results: The reservoir and the humoral response were measured after a median of 4.5 years of suppression (interquartile range [RIC]: 3.3-6.9), with a median age of 8 years [RIC: 5.1-10]. Four patients (17%) presented...
negative WB, and another 4 (17%) were indeterminate. The size of the reservoir was lower in WB-negative patients (12 copies / million CD4+ [RIC: 6-72]), Log10 = -1.07 (-0.7-1.70) than in the group of patients with positive or indeterminate WB (111 copies/million CD4+ [RIC: 0.56-255], Log10 = -2.04 (-1.7-2.4). Figure 1. p = 0.009, KS, p = 0.02). DNA < 10 copies / million CD4+ was significantly associated with negative WB (OR, 0.14 [95% CI: 0.04-0.4], p = 0.04).

Conclusions: In this study with patients treated in the first year of life and well controlled, 17% of patients had negative WB. Negative WB was significantly associated with a smaller reservoir size. In this type of patient, negative WB could be considered an indirect data of small reservoir size.

**THPEB105**

Malnutrition, orphan hood, and TB diagnosis are strong predictors of HIV positivity among children less than 15 years in Uganda


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**Background:** Despite strides in improving pediatric HIV service coverage in Uganda, it is estimated that 32% of children living with HIV have not been identified. Identifying children with higher risk of HIV infection can improve efficiency of HIV testing among this population sub-group. We describe correlates for HIV positivity among children less than 15 years attending health facilities in Uganda.

**Methods:** HIV testing was offered to 3245 children in 8 health facilities from February 2017 to June 2017. Probability proportional to size methods: Probability proportional to size was used to distribute the number of children recruited in each of the study sites and entry points. Consecutively sampled children who entered through out-patient department (OPD), in-patient department (IPD), malnutrition and special (HIV, sickle cell, young child clinic (YCC), and eye clinics, whether patients themselves or accompanying patients, were reviewed for HIV status and offered a test if their status was unknown. Characteristics of children who tested positive were described and their correlates were analysed using a binomial generalised linear model factoring in level of facility.

**Results:** The HIV test uptake was 96% (3119/3245) with an overall yield of 1.4% (45/3119). Females accounted for 49.5% of the children and 49.5% were under 5 years. Children 10-15 years had significantly higher yield (2.5%) than children 18 months-4 years (1.2%, p=0.0185) or 5-9 years (1.1%, p=0.0185).

Conclusions: The finding of higher yield in older children reflects the greater success of EMTC efforts in Uganda. Malnutrition, orphanhood and TB diagnosis should be prioritized in the screening and identification of HIV in children. Furthermore, the significant HIV positive yield observed among children escorting their sick relatives provides an untapped opportunity to increase HIV identification amongst children.

**THPEB106**

High HIV testing yield found in children attending or accompanying those attending TB, malnutrition and HIV clinics in Uganda, 2017


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**Background:** Optimizing identification of undiagnosed HIV among children is critical in reducing the global burden of pediatric HIV/AIDS. Understanding the HIV testing yield among children at different facility-based entry points can inform more efficient pediatric HIV testing strategies. We assessed entry point HIV testing yield among children 18 months to 15 years in 4 regions of Uganda.

**Methods:** HIV testing was offered to 3245 children at 8 health facilities (4 regional referral and 4 district hospitals) from February 2017 to June 2017. All children who entered through outpatient department (OPD), in-patient department (IPD), malnutrition, TB and special HIV, sickle cell, young child clinic(YCC), and eye clinics, whether patients themselves or accompanying patients, were reviewed for HIV status and offered a test if their status was unknown. A retest for verification was provided for every child that tested HIV positive. HIV testing yield was defined as the proportion of HIV positive children among those tested. Proportions, percentages, chi-square and Fisher exact tests were used in the analysis of results.

**Results:** Uptake for HIV testing was 96% (3119/3245) with an overall yield of 1.4% (45/3119). Among entry points: TB, nutrition and special clinics had the highest HIV testing yield at 5.6% (4/706), 2.2% (2/92) and 2.4% (37/1560) respectively (p=0.000). Among special clinics, HIV clinic had the highest yield at 5.2% (9/17). In spite of their low HIV testing yield, OPD 1.1% (12/1126) and IPD 1.0% (10/1046) accounted for the highest number of children testing HIV positive. YCC clinic had low testing volumes and no yield.

**Conclusions:** TB, nutrition and HIV clinic entry points had the highest HIV test yield while, OPD and IPD accounted for the largest number of HIV positive children identified. This finding further emphasizes the need for HIV testing for all children with TB, malnutrition, and those who have family members living with HIV. In OPD and IPD settings, however, introduction of a screening tool could maximize HIV testing yield while more efficiently utilizing limited testing resources.

(Figure 1: HIV positive yield at the various HTS entry points)
**THPBE107**

Early infant diagnosis (EID) positivity and time of test, USAID Boresha Afya Southern Zone Tanzania experience

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**Background:** Life Long ART for Pregnant and Lactating women (LLAP-LA) reduces the risk of HIV transmission from mother to child. This depends on mothers' ARV medication adherence. Early Infant Diagnosis (EID) is critical in determining the success of the PMTCT interventions. However, EID for HIV Exposed infants (HEIs) has been a major challenge in Tanzania because of the difficulty in reaching the HEIs. In this study, USAID Boresha Afya Southern Zone Program assessed EID performance in the project supported facilities.

**Methods:** Pregnant positive women identified at ANC are followed up till delivery and thereafter as mother-infant pair till 'final outcome' is determined. HEIs are offered DNA-PCR test for EID at 1-2 months of age. Mother-infant pair that missed the test are then tracked and brought back. EID annual program data (October 2016 - September 2017) from 599 supported facilities in five supported southern regions was extracted from DHIS2 and analyzed using Excel and MedCalc software. Risk of HIV acquisition among HEIs was compared to the time of the DNA-PCR test. The positivity for the two groups was compared and risk assessed using Odds Ratio (OR).

**Results:** Out of 599 facilities data reviewed, 343 reported on EID. 489 (94%) out of 5,559 HEIs registered were tested and 137 were found HIV positive with the positivity rate 2%. 84% of HEIs were tested within 2 months of age while 16% tested at age 2-12 months. Among the tested HEI, those between 2 and 12 months of age had significantly higher positivity rate (7%) compared to HEIs age less than 2 month of age (2%). The Odds Ratio (OR) for HIV acquisition among the group that tested at age less than 2 months was 0.24 (CI 0.17-0.33), p-value of <0.0001.

**Conclusions:** The risk of HIV acquisition was lower among those tested early compared to those tested late (tracked and brought back). The mothers' poor adherence to EID appointment is a sign of poor ART adherence, thus explains the high acquisition rate among HEIs that tested late. Emphasis on medication adherence which should be evidenced by adherence, thus explains the high acquisition rate among HEIs that tested within 2 months of age while 16% tested at age 2-12 months.

**THPBE108**

Screening tools to identify children and adolescents living with HIV: Increasing case finding in high HIV prevalence settings

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**Background:** South Africa has an HIV prevalence of 2.7% in children aged 5-14 years. While there are existing guidelines for testing children for HIV testing, these are poorly implemented. This screening tool, comprised of ten questions derived from the guidelines and integrated management of childhood illnesses manual, aimed at assisting healthcare workers to identify high risk children for being HIV-infected when they presented to health facilities in Johannesburg, South Africa.

**Methods:** The screening tool was implemented between April and September 2017 by child and adolescent HIV counsellors at eight health facilities. Screening was performed on children 0-19 years at health facilities, with children 5-14 years being targeted. Excluded on pre-screening were those known to be HIV-infected and those who had tested HIV-negative in the last six months. An unknown HIV status led to screening using the ten questions with a single positive answer being considered a positive test. They were then counselled, counselled and tested for HIV.

**Results:** Of the 604 children pre-screened, 22 (3.6%) were known to be HIV-positive. 79 (13.1%) were HIV-negative in the last six months and 503 (83.3%) had unknown HIV status. Of those with an unknown HIV status, 388 (77.1%) had a positive screening question. Of those, 253 (57.8%) were tested for HIV and 17 were positive (testing yield 6%). The number screened to find one positive child was 30 (screening yield 3%). Of the children testing HIV-positive, 8/156 (yield-5%) were 5-9 years, followed by 6/57 10-19 months (yield-10%), 1/24 testing positive 10-14 years (yield-4%), 1/2 between 15-19 years (yield-25%) and one patient of unknown age. Of the 12/5 (25%) who did not test despite a positive screening question, 35 (28%) had the caregiver refuse, 21 (18.8%) the primary caregiver was not present and 69 (55.2%) “other” or “none stated”.

**Conclusions:** Screening tools are useful in high HIV-prevalence settings to identify children requiring HIV testing. The highest yields were seen in children 18m to 9 years and in older adolescents, however the number tested was small (n=4). This screening tool allows HIV testing resources to be focussed on high-risk children.

<table>
<thead>
<tr>
<th>Age</th>
<th>Total</th>
<th>0-18m</th>
<th>19-59m</th>
<th>5-9y</th>
<th>10-14y</th>
<th>15-19y</th>
<th>Not stated</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Known positive</td>
<td>22</td>
<td>0</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>B. Negative in last 6 months</td>
<td>79</td>
<td>0</td>
<td>19</td>
<td>42</td>
<td>14</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>C. Unknown status</td>
<td>503</td>
<td>20</td>
<td>140</td>
<td>277</td>
<td>54</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>C.1 Screening could not be completed</td>
<td>28</td>
<td>0</td>
<td>8</td>
<td>13</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C.2 Number with no positive screening question</td>
<td>87</td>
<td>1</td>
<td>7</td>
<td>68</td>
<td>7</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>C.3 Number with positive screening question</td>
<td>388</td>
<td>19</td>
<td>125</td>
<td>196</td>
<td>40</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>D. Number tested</td>
<td>287</td>
<td>11</td>
<td>67</td>
<td>156</td>
<td>24</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>D.1 Positive tests</td>
<td>17</td>
<td>0</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

(Table 1: Age disaggregated data for children and adolescents who underwent screening for HIV at primary health care facilities in Johannesburg)
**THPEB109**

Finding children and adolescents living with HIV in Johannesburg: Optimising HIV testing strategies

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**Background:** In high-HIV-prevalence settings such as Johannesburg, South Africa, a substantial number of HIV-positive children may remain undiagnosed until clinical deterioration results in HIV diagnosis. Reasons for delayed diagnosis of older children include missed diagnostic opportunities with the previously suboptimal prevention of mother-to-child transmission (PMTCT) guidelines, poor uptake of paediatric HIV testing services and children that were known to be HIV-positive but dropped out of care. Additionally high HIV incidence rates in adolescent girls and young women are well described. The Paediatric and Adolescent Scale-up Project (PASP) sought to upscale testing of children and adolescents within primary healthcare (PHC) facilities using different approaches per age group.

**Description:** Between March 2016 and December 2017, HIV case finding interventions were implemented across 41 PHC facilities in Johannesburg. Children and adolescents were screened and tested when they accessed various service points by facility or PASP staff or were requested to come back for testing through index case finding by using an HIV-positive adult or sibling index patient. This data was then analysed to determine which age groups and entry points showed the highest yield.

**Results:** In total 12331 children and adolescents were tested, 375 were HIV-positive (yield 3.1%). Strategies with the highest yield included HIV-testing of adolescents in primary care, (9%, n=110) particularly adolescent girls (15-19 years) accessing contraception services (5%, n=66). Index testing also had a high yield with 112/1885 (6%) HIV-positive siblings or children of HIV-infected patients, however testing uptake was lower. Lower yields were seen in those < 5 years old and 5-14 years, including in acute care settings such as Integrated Management of childhood illness (IMCI) with the lowest yield in children of 18 months accessing immunisation clinics (0.1%, n=119).

**Conclusions/Next steps:** Current PMTCT implementation and immunisation clinic-based early infant diagnosis testing is effective in reducing MTCT and identifying HIV-positive children. Targeted HIV-testing can improve identification of older HIV-positive children and adolescents who should particularly be offered PICT at contraception service points. Improved index case finding and testing is effective in identifying HIV-positive children and adolescents however innovative approaches for index testing are required to increase testing uptake in this high-risk group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Tested</th>
<th>Tested Positive</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Index Patient</td>
<td>1885</td>
<td>112</td>
<td>6%</td>
</tr>
<tr>
<td>2. Entry Point</td>
<td>12446</td>
<td>264</td>
<td>2%</td>
</tr>
<tr>
<td>2.1. 15-19 years (General Clinic and Contraception Clinic)</td>
<td>1235</td>
<td>110</td>
<td>9%</td>
</tr>
<tr>
<td>2.1.1. Contraception Clinic</td>
<td>439</td>
<td>66</td>
<td>15%</td>
</tr>
<tr>
<td>2.1.2. General Clinic</td>
<td>796</td>
<td>44</td>
<td>6%</td>
</tr>
<tr>
<td>2.2. 5-14 years (General Clinic)</td>
<td>2948</td>
<td>68</td>
<td>2%</td>
</tr>
<tr>
<td>2.3. &lt;5 years - Child Health (Immunisation clinic and IMCI)</td>
<td>8262</td>
<td>86</td>
<td>1%</td>
</tr>
<tr>
<td>2.3.1. Immunisation Clinic</td>
<td>2956</td>
<td>19</td>
<td>1%</td>
</tr>
<tr>
<td>2.3.2. IMCI</td>
<td>5306</td>
<td>67</td>
<td>1%</td>
</tr>
</tbody>
</table>

*(Table 1: HIV testing outcomes of children and adolescents of different ages and entry points at the primary healthcare facility in Johannesburg)*

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**THPEB110**

The impact of the family-centered approach on pediatric HIV in DRC

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**Background:** Identifying HIV-positive children remains a challenge to fast-track pediatric ART in sub-Saharan Africa. In DRC, 70% of children living with HIV are not receiving ART (UNAIDS 2017); most of them have not yet been identified. While the family centered approach has been widely researched in relation to PMTCT, it has less been documented regarding outcomes for children.

**Methods:** Facility-based study in Kalembelemba and Healf Africa hospitals in Kinshasa and Goma, that employed two methodological designs: a cross-sectional review of the medical records of 748 children and 309 adults without active family HIV testing between 2008 and 2015, and longitudinal follow-up of 266 individuals with family screening using different approaches between August 2016 and February 2017.

**Results:** Out of 748 child index cases, 367 had 967 family members screened; 408 were found HIV-positive (42.2%) - of which 55.8% were biological mothers; 17% fathers, 16.4% siblings and 9.6% other relatives. In 60.9%, 30.3% and 8.8% of cases, one, two and three family members were respectively found to be HIV-positive.

Among 309 adult index cases, 631 children were identified, 376 screened (59.4%) and 161 found HIV-positive (42.2%). 159 were put on treatment. 77% were found via their mother, 13.7% their father, 1.2% siblings and 1.2% other relatives.

Of 266 patients (182 children), 717 family members were identified, 309 screened, and 115 identified HIV-positive (38.2%); 91.5% accepted family testing (22% said they would do it later); the majority refused home testing (accepted by 9.3%). Biological mothers were identified in 63.7% and fathers in 18.7% of cases.

At enrolment, without active family screening, 64.2% of children were at WHO clinical stage III against 32% with active family screening.

**Conclusions:** Family testing improves early identification of children living with HIV, whether through adult or child index cases. Testing needs to be scaled up at health facility level as stigma still impacts on acceptance for home-based testing. While a higher proportion of children are diagnosed through adult index cases, many adults are found through children index cases, particularly biological mothers and fathers. This could have a boomerang effect on PMTCT (future pregnancies) and on children’s treatment follow-up (prevention of orphanhood).
Pharmacokinetics/pharmacodynamics/pharmacogenomics and therapeutic drug monitoring in paediatric and adolescent populations

THPEB111
Pharmacokinetics of intracellular stavudine-triphosphate in children after reduced-dose: Can we improve stavudine’s safety profile?

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Background: Stavudine is being phased out as a first-line ART option due to mitochondrial toxicity, but remains an important replacement option for HIV+ children in sub-Saharan Africa. At the recommended dose, it causes stigmatizing lipodystrophy. A lower adult dose of 20mg twice-daily maintains efficacy but with less mitochondrial toxicity. Although the adult dose was formally reduced in 2007, the children’s dose was not correspondingly lowered due to concerns about efficacy. We therefore compared intracellular stavudine-triphosphate levels in children receiving a reduced dose to adults receiving 20 or 30mg twice-daily.

Methods: 24 HIV+ children and 24 HIV+ adults from South Africa received stavudine at 0.5 mg/kg and 20mg twice-daily for 7 days, respectively. Stavudine suspension was used for children and capsules for adults. Blood samples were taken pre-dose and either at 1,2,6 or 24 hours post-dose. Intracellular stavudine-triphosphate in peripheral blood mononuclear cells was assessed using Liquid Chromatography Tandem Mass Spectrometry. A population pharmacokinetic model was developed to describe the data together with simulations to explore the effect of dose reduction in HIV+ children.

Results: Median (interquartile range) age and weight were 8(7,9) years and 21(16-25) kg in children and 35(30,40) years and 83(70,98) kg for adults. A bi-phasic disposition model with first-order appearance and disappearance described the pharmacokinetics of stavudine-triphosphate. Accounting for the effect of body size using allometric scaling improved the model fit. No significant differences other than those accounted for with allometric scaling were detected in any pharmacokinetic parameter between adults and children, although a non-significant trend towards children having lower bioavailability was observed. Using a large unrelated adult dataset, simulations of 30mg twice-daily predicted similar median stavudine-triphosphate Cmin and lower Cmax values compared to stavudine-triphosphate stratified by children vs. adults, using 1000 simulations.

Conclusions: Pharmacokinetic parameters of stavudine-triphosphate in children receiving the reduced stavudine dose of 0.5 mg/kg twice daily were similar to adults receiving 20mg twice-daily. The trend observed for a lower bioavailability in children may be due to different formula-

Drug formulations for infants and children

THPEB112
Implementing lopinavir/ritonavir pellets in Mbabane Swaziland: A better solution to the bitter solution?

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Background: Adherence to Lopinavir/ritonavir (LPV/r) solution in young children living with HIV is challenging due to poor palatability. LPV/r pellets were developed as a hopeful alternative formulation. Tolerability and efficacy of pellets has not been widely documented. Here we describe a pilot of LPV/r pellet implementation within our clinic of children living with HIV in Mbabane, Swaziland.

Methods: 21 children cared for at the Baylor Centre of Excellence in Mbabane, Swaziland were transitioned from LPV/r solution to LPV/r pellets between November 2015 – December 2017 due to intolerance, detectable viral load (DVL) or caregiver request. Caregivers were shown a video of pellet administration and were given specific instructions from the medical team. If appropriate, viral load was taken prior to and after the switch. Follow-up evaluations occurred 2-4 weeks post-initiation whereby adherence and tolerability were assessed by pill count and caregiver report.

Results: 21 children were initiated on pellets; 17/21 (81%) of caregivers requested return to solution or transition to tablet. Average age of all children was 2.1 years. Mean days prior to discontinuation was 62 but 10/17 (59%) stopped within 15 days. Of those returning to solution, the average age and dosage was 2.1 years, with a dose of 3.7 pellets twice daily. The reason given for 17/17 (100%) was spitting of the pellets. Adherence data for 6 children seen 3 months before and after initiation was unchanged. 6 children had VL before and after pellet initiation, mean VL log on solution was 3.6 vs. 4.3 on pellets. No children with DVL on solution suppressed or had a > 1 log decline in VL. One child became detectable after pellet initiation and resuppressed back on solution. 4 children were switched to nevirapine solution after intolerability of both formulations.

Conclusions: Among patients transitioned to pellets 81% of caregivers preferred LPV/r solution over pellets. No children with a DVL on LPV/r solution became undetectable or had a significant decline in VL on pel-
Clinical trials in paediatric and adolescent populations

THPEB114

Emergence of resistance in HIV-1 Integrase (IN) following dual-boosting (DTG) treatment in 6 to 18 year old participants enrolled in the P1093 study

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2Columbia Technologies and Services Inc, Rockville, United States.
3Columbus Technologies and Services Inc, Rockville, United States.
4Dartmouth-Hitchcock Medical Center, Division of Infectious Diseases and International Health, Lebanon, United States.
5ViiV Healthcare, Research Triangle Park, United States.
6Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHID), Pediatric, Adolescent and Maternal AIDS Branch, Bethesda, United States.
7Division of AIDS NIAID/NIH, Maternal Adolescent Pediatric Branch, Rockville, United States.
8C. Vavro1, T. Ruel2, A. Wiznia3, C. Alvero4, S. Popson5, T. Fenton6, R. Mazzi2, E. T. Watanaye7, A. Buchanani, P. Palumbo5, S. Popson5
1ViiV Healthcare, Research Triangle Park, United States.
2Columbia Technologies and Services Inc, Rockville, United States.
3Columbus Technologies and Services Inc, Rockville, United States.
4Dartmouth-Hitchcock Medical Center, Division of Infectious Diseases and International Health, Lebanon, United States.
5ViiV Healthcare, Research Triangle Park, United States.
6Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHID), Pediatric, Adolescent and Maternal AIDS Branch, Bethesda, United States.
7Division of AIDS NIAID/NIH, Maternal Adolescent Pediatric Branch, Rockville, United States.

Background: P1093 is a phase IIb multicenter, open-label pharmacokinetics (PK), safety, dose-finding study of DTG plus optimized background regimen in adolescents and children. Cohorts I and II (12< 18 and 6< 12 years old) have completed recruitment. Herein is provided an interim review of virologic failure (VF) for Cohorts I and II and the emergence of integrase strand transfer inhibitor resistance (INSTI) while receiving a dualboosting containing regimen.

Methods: VF for P1093 is defined as confirmed decrease in HIV-1 RNA (VL) of < 1 log10, at/after week 12 (unless < 400c/mL), or confirmed >400c/mL, at/after week 24, or confirmed >400c/mL, after initial confirmed <400c/mL or confirmed >1 log increase above VL nadir (nadir >400c/mL) At confirmed VF, population and clonal integrase (IN) genotypes and phenotypes and IN replication capacity (IRC) were investigated. Adherence was assessed by 3-day recall per visit, and communication with site PI.

Results: P1093 recruited 23 participants each in Cohort I (tablet1s), and Cohort IA (tablet1s and 15 participants in Cohort IB (dissolvable granules). VF rates were 12/23, 6/23 and 1/15, respectively. One participant (Cohort II acquired R263K/R and remained on study for an additional >2 years with subsequent accumulation of additional linked IN substitutions and a modest increase in DTG susceptibility. Two participants acquired G148R mutations, one with L74M and G148R (Cohort I) and one with G148R and E138K/E138K (Cohort II). For each of these latter two participants, DTG susceptibility was decreased by 36- and 12-fold, respectively. A clonal analysis for each participant provides additional linkage information for the INSTI resistance detected (Table). Median IN IRC are provided, however, they were performed on HIV-1 only and may not provide complete characterization of viral fitness.

<table>
<thead>
<tr>
<th>Patients/Cohort</th>
<th>Timepoint</th>
<th>HIV-1 RNA (c/mL)</th>
<th>Clones</th>
<th>IN Linked Substitutions/ A clones</th>
<th>Clonal DTG Median IRC</th>
<th>Clonal Median IRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Cohort 1</td>
<td>Pretreatment</td>
<td>7739</td>
<td>8</td>
<td>L74V / 4 clones; L74I / 1 clone;</td>
<td>0.97</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Week 36</td>
<td>9587</td>
<td>8</td>
<td>R263K / 4 clones; V201I / 3 clones;</td>
<td>1.26</td>
<td>97</td>
</tr>
</tbody>
</table>

| 2nd Cohort 1    | Pretreatment | 17996 | 8 | WT / 8 clones | 0.98 | 88 |
|                 | Week 192 | 1758 | 8 | L74M, G118K / 8 clones | 36 | 8 |
| 3rd Cohort IB   | Pretreatment | 96369 | 8 | V151F / 8 clones | 0.84 | 147 |
|                 | Week 52 | 3133 | 8 | V151L, G118K / 8 clones | 12 | 26 |

*Results previously presented IAS 2015, FC = Fold Change; RC = Replicative Capacity

(Table 1)
Conclusions: Among 6-18 year old participants receiving DTG containing regimen, INSTI resistance developed in 3 of the 19 who experienced VF. INSTI resistance in these children followed either of two mutational pathways, R26K and G118R, the latter having a greater impact on reduced DTG susceptibility.

THPEB115
Association of maternal viral load and CD4 count with perinatal HIV-1 transmission risk during breastfeeding in the PROMISE postpartum component


Background: The PROMISE postpartum component of the PrOmiSe trial randomized 2,431 mother-infant pairs to either mART or iNVP. Baseline maternal viral loads (MVL) were obtained at entry, and CD4 cell counts were measured. Location-specific ART thresholds were higher in the iNVP arm. The objective was to assess MVL and CD4 cell counts at entry and their associations with infant HIV-1 infection.

Methods: A total of 2,431 mother-infant dyads were randomized to receive ART during pregnancy. Baseline MVL and CD4 were measured at entry and every 4 weeks until week 26, then every 12 weeks. Infant infection was defined as a positive HIV-1 NAT at any two post-entry timepoints. The associations of baseline MVL (<1000 vs. ≥1000 copies/mL) and CD4 (≥500 vs. <500 cells/mm3) with infant HIV-1 infection were assessed using a logistic regression model with adjustment for mART regimen. Time-varying MVL were not significantly associated with infant HIV-1 transmission.

Conclusions: With iNVP, MVL was not significantly associated with HIV-1 transmission during breastfeeding. However, among women receiving mART, increased MVL during breastfeeding was associated with increased risk of infant HIV-1 infection. These data emphasize the important role of adherence to mART in controlling MVL and preventing infant infection and suggest that iNVP should be considered in situations with documented poor maternal ART adherence.

Baseline Maternal Viral Load

<table>
<thead>
<tr>
<th>Baseline CD4 count</th>
<th>mART n=1,220</th>
<th>iNVP n=1,211</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 500 cells/mm3</td>
<td>162 (13%)</td>
<td>170 (14%)</td>
</tr>
<tr>
<td>≥ 500 cells/mm3</td>
<td>1,058 (87%)</td>
<td>1,041 (86%)</td>
</tr>
</tbody>
</table>

Baseline Maternal Load

| <400 copies/mL | 672 (53%) | 604 (50%) |
| 400 - 1,000 copies/mL | 239 (20%) | 210 (17%) |
| ≥ 1,000 copies/mL | 309 (23%) | 297 (23%) |

THPEB116
Developmentally tailored adolescent HIV research: Perspectives from the National Institute of Mental Health

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Background: Adolescents and young adults (AYA) are some of the most vulnerable around the world for acquiring HIV and, among those who are living with HIV, AYA experience some of the worst outcomes along the HIV care continuum. As such, AYA are a high priority for HIV prevention and treatment research at the Division of AIDS Research at the National Institute of Mental Health (NIMH/NIH). The purpose of this presentation is to review recent advances in adolescent development that have implications for AYA HIV research.

Description: The past two decades have seen an increase in developmentally appropriate HIV prevention and care interventions for AYA, with greater attention to AYA’s cognitive abilities and social context. However, disparities in HIV acquisition and HIV health outcomes continue to exist for AYA. Our understanding of adolescence continues to grow and there have been a number of recent findings in adolescent development that have implications for AYA HIV research. For example, research has suggested that some adolescent risk behavior may be due, in part, to the more gradual maturation of cognitive control networks coupled with heightened sensitivity in neural reward systems. Future AYA HIV intervention research should capitalize on these recent findings from adolescent development research to design novel, developmentally-appropriate interventions.

Lessons learned: This presentation will review recent advances in adolescent development that have implications for AYA HIV research, review key developmental constructs from the individual to the structural that could benefit from increased attention in AYA HIV research, and discuss developmentally-appropriate research approaches.

Conclusions/Next steps: Through greater attention to the unique developmental context of AYA, HIV prevention and care research will have a greater impact on the health of AYA who are vulnerable to acquiring HIV and those living with HIV.

ABSTRACT BOOK • WWW.AIDS2018.ORG
THPEB117

Immune activation in ART-naive youth (ages 12-24) with acute or established HIV and high-risk seronegative populations from LA and New Orleans ATN cares: Preliminary results

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Background: Recent adult studies indicate early potent ART during acute HIV infection may reduce viral reservoir size, disrupt residual replication, mitigate chronic immune activation/dysregulation and facilitate better long-term HIV control. There is limited data on the large population of HIV infected and high-risk youth. In the ATN CARES study we assess the effect of early potent ART in acutely-infected (AI) youths (ages 12-24) vs established infection (EI) on enhanced immune normalization, viral suppression and reservoir size. Youths treated during AI may have an enhanced immune response presumably due to elevated thymic function and a more naïve immune profile.

Methods: Point-of-care assays screen/detect high-risk youth who are newly diagnosed with acute HIV and ARV naïve (Fiebig 1-6) or established infection > 6 months. In AI, ART is initiated and biomarkers are assessed serially. Three populations of high-risk youth included: ARV-naïve > 6 months. In AI, ART is initiated and biomarkers are assessed serially. Three populations of high-risk youth included: ARV-naïve AI, EI and SN controls. Biomarkers assessed from peripheral blood: cell-surface markers of T cell activation/dysregulation, plasma markers of immune activation, pro-viral HIV-DNA, and TCR stability and repertoire perturbation.

Results: To date we have assessed cell surface markers of immune activation/dysregulation by flow cytometry on 31 high-risk youth with AI (n=3), EI (n=5) and high-risk SN controls (n=23). At baseline, AI and EI youth have elevated T cell markers of activation/dysfunction compared to high-risk SN controls (Table 1). Additionally, AI youths have a higher degree of immune activation/dysregulation than EI youths (Table 1). Preliminary follow-up of AI youth (1-3 months following infection) have shown reductions in immune dysregulation/activation and HIV viral RNA. Interestingly, the high-risk SN population had significantly lower CD4:CD8 ratio and higher markers of CD8 T cell activation than an older HIV negative adult population (ages 24-67) (Table 1).

Conclusions: This study demonstrates elevated levels of immune activation in AI and EI youth, which is mitigated by ART, and may help assess long term effects of early ART intervention in AI vs EI. In addition, the increase in immune activation in the high-risk SN group suggests that this population may be at higher risk of acquiring HIV due to young age, behavioral risk factors (STD, drugs) or both.

<table>
<thead>
<tr>
<th>Marker</th>
<th>AI (n=3)</th>
<th>EI (n=5)</th>
<th>SN (n=23)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4</td>
<td>803</td>
<td>996</td>
<td>829</td>
</tr>
<tr>
<td>% CD4</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>CD8</td>
<td>456</td>
<td>456</td>
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<tr>
<td>% CD8</td>
<td>45</td>
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<tr>
<td>CD4/CD8</td>
<td>1.8</td>
<td>2.2</td>
<td>1.8</td>
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<td>CD4 vs CD8</td>
<td>1.8</td>
<td>2.2</td>
<td>1.8</td>
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(Table 1: Cell-surface biomarkers of baseline peripheral blood T-cell dysregulation in high-risk youth.)

THPEB118

Culturally-relevant and personalized disclosure intervention improves pediatric HIV status disclosure in Ghana: The Sankofa randomised controlled trial

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Background: Perinatally HIV-infected children now have access to life-saving antiretroviral therapy (ART) globally and are expected to live into adulthood. Changes in other inter-related elements of pediatric care such as disclosing their HIV status are also needed. We hypothesized that a theory-guided, structured, culturally-relevant, and personalized disclosure intervention would lead to an increase in HIV status disclosure at 48 weeks.

Methods: We randomly assigned two sites in Ghana, one to (Komfo Anokye Teaching Hospital, Kumasi) to receive the Sankofa Pediatric Disclosure intervention and the other (Korle-Bu Teaching Hospital, Accra) to receive enhanced usual care. HIV-infected children aged 7 to 18 years and their caregivers were enrolled. The intervention contained two key elements to target well-documented, modifiable barriers to promote disclosure: (a) adherence and disclosure specialist (ADDS); and, (b) disclosure as a process.

We followed the caregiver-child dyads and assessed the primary outcome (disclosure of HIV to children). All analyses were carried out using a modified intention-to-treat approach. This trial is registered with ClinicalTrials.gov, number NCT01701635.

Results: Enrollment was from January 23, 2013, to June 30, 2016, and we completed follow up on June 30, 2017. We enrolled 446 child-caregiver dyads at intervention site and 206 at control site: 52% of the children were male, mean age 9.78 (±2.71) years. Compared to the control group, the intervention group had a statistically significant increase in HIV status disclosure at all study time points (12, 24, 36, and 48 weeks) (all p<0.001). Disclosure at 48 weeks was significantly higher in the intervention group compared to the control group (52% vs 16.24%; p<0.001). Children to whom their HIV status was disclosed by week 48 were more...
than 5 times likely to have been in the intervention group than the control group (OR=5.45, 95% CI, 3.43, 8.62). After adjusting for study site (p<0.001), age <11 years (p<0.001), HIV-infected caregiver (p<0.001), and caregiver’s education (p=0.01), the measure of association remained at the same magnitude and statistical significance (adjusted OR=5.11, 95% CI, 3.03, 8.62).

Conclusions: We demonstrate that barriers to disclosure by caregivers can be mitigated by structured, culturally-relevant, and personalized disclosure intervention.

**ARV management strategies in paediatric and adolescent populations**

**THPEB119**

**Time to Switch? Outcomes of children and adolescents failing NNRTI regimens**

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**Background:** Many children and adolescents failing ART do not access second line therapy in a timely manner. Delays in returning to clinic for confirmatory viral load testing and adherence support prior to treatment switch as required under current guidelines may contribute to delayed switching. Among those who resuppress on first-line regimens the durability of resuppression is uncertain. Since 2013, Médecins Sans Frontieres has run an enhanced adherence intervention program to address treatment failure in patients 0-19 years in Khayelitsha, South Africa. We describe the outcomes of participants who entered the program failing an NNRTI regimen.

**Methods:** Participants were enrolled from 2013-2016. Failure was defined as VL>1000 copies/mL once, or >400 on two consecutive occasions. The intervention included clinical care, genotype, and adherence support via individual and group counseling. ART regimen change was indicated under current guidelines. After switching, patients were followed for a median of 13.5 months (IQR: 6-25).

**Results:** Of 192 participants, 70 enrolled on an NNRTI (5-19 yrs; 53% male; median age 6 years 8 months). Median baseline CD4 was 524 cells/μL (IQR: 293-797), median time on ART was 4.3 years (IQR: 2-7.6). Of the 70 on an NNRTI, 44 switched to a PI (see Figure 1).

**Figure 1: Cumulative Survival of Pediatric Patients Initiating ART 2003-2005**

Median time to death was 2 years (IQR: 1.5-3.3 months). Median age at death was 15 (IQR: 11-18) after the majority of teens transitioned from the pediatric clinic. 85 patients (65% of 130 10-year survivors) completed a 10-year survey. Among this subgroup, median age was 16 (IQR: 14-19). 54% were female, and median CD4 count was 606 cells/μL (IQR: 398-853). Half remained on first-line therapy. 61% were virally suppressed, and 33% had stunting (< -2 SD height-for-age by sex). CD4 count ≥200 cells/μL at ART initiation was the only significant predictor of death (p<0.05).

**THPEB120**

**Who are the 10-year pediatric AIDS survivors on antiretroviral therapy in Haiti?**

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**Background:** Access to antiretroviral therapy (ART) has significantly expanded in resource-poor settings, but long-term pediatric outcomes have not been reported. We describe the 10-year outcomes of the first cohort of children initiating ART in Haiti.

**Methods:** Children 0-15 years who initiated ART from 2003-2005 at Gheskio were included. Retention was defined as in care 10 years from ART initiation; death and transfers were ascertained from medical records. Viral suppression was defined as HIV-1 RNA <1,000 copies/mL Kaplan-Meier methods estimated survival. Risk factors were assessed using Cox modeling. Patients retained in care were interviewed on socioeconomic characteristics and assessed for viral load.

**Results:** Among 259 children, 54% were female, and median age 6 years (IQR: 3-10). Median CD4% for patients < 2 years was 21% (IQR: 27-26%), median CD4 count for children 21 years was 490 cells/μL (IQR: 104-705), and 73% of all children had advanced WHO Staging (III/IV). 99% reported vertical transmission. Ten years after ART initiation, 130 (50%) were retained, 63 (24%) were LTF, 64 (25%) had died, and 1% transferred care for an estimated 10-year survival of 72.4% (95% CI 64.7%-77.2%) (Fig 1).
**THPEB121**

Impact of anti-retroviral therapy on the immune status of HIV-infected children


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**Background:** In a previous cross-sectional study of HIV-infected children, we reported that HIV infection caused a rapid decrease in regulatory T-cell (Treg) and early activation of CD8+ cells, and antiretroviral therapy (ART) induced rapid Th1 recovery and early CD4+ cell activation normalization. This study aimed to investigate the impact of ART on the immune status of HIV-infected children prospectively.

**Methods:** We have conducted a prospective study at the National Hospital of Pediatrics in Hanoi, Vietnam since 2014. Forty-four HIV-infected children who newly started ART have been recruited, but 12 dropped out (11 died and 1 stopped ART) by 6 months after ART initiation. The immune status of the remaining 22 children (median age: 3.9 years, range 0.1-12.5 years; female/male 17/25) was analyzed every 6 months. Forty-nine HIV-uninfected children were recruited as healthy control (median age: 4.4 years, range 0.1-12.1 years; female/male 24/25). The CD4+ cell subsets were identified using cell-surface markers: T helper type 1 (Th1, CXCR3+CCR6+CCR4+CD4+), Th2 (CXCR3-CCR6-CCR4+CD4+), Th17 (CXCR3-CCR6-CCR4+CD4+), and Treg (CD25+CD127+CD4+). The activated CD8+ cell populations were identified using cell-surface markers: T helper type 1 (Th1, CXCR3+CCR6-CCR4-CD8+), Th2 (CXCR3-CCR6-CCR4+CD8+), Th17 (CXCR3+CCR6-CCR4+CD8+), and Treg (CD25+CD127+CD8+). The activated CD8+ cell subsets were defined as CD3+CD8+HLA-DR+CD8+. Wilcoxon signed-ranks test and Mann-Whitney test were used for statistical analysis with SPSS v23.

**Results:** Before and after 6 (n=22), 12 (n=22), 18 (n=20), 24 (n=13) months of ART (ART0/ART6/ART12/ART18/ART24), the CD4+ cell counts were 304 (84/1039/934/886/866) cells/µL (control: 1379 cells/µL). Th1, Th2, Th17, Treg (CD3-CD4-CD8+) counts were 57 (27/23/73/67/77), 97 (32/13/273/51/74), 77 (47/18/399/41/113), and 113 (77/1/399/41/113), respectively. The activated CD8+ cell proportion was 47.6%/19.7%/10.0%/11.4% (8.2%). Before ART, the CD4+ cell proportion was significantly higher than that at ART6/12 was associated positively with CD4+ cell counts, but negatively with control level at ART6, while the activated CD8+ cell proportion decreased significantly and reached control level at ART18. The increased number of CD4+ cells at ART6/12 was associated positively with CD4+ cell counts, but negatively with the age of children at ART0.

**Conclusions:** Our results indicate that ART induced rapid Th1 recovery and early normalization of CD8+ cell activation in HIV-infected children, and that ART should be initiated as soon as possible after HIV diagnosis in children, as WHO guideline 2016 recommends.
Cure strategies in paediatric and adolescent populations

THPEB123
Utilization of weekly short message service (SMS) surveys to identify vulnerable youth with acute HIV Infection: ATN CARES project

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Background: The Centers for Disease Control and Prevention (CDC) estimates that 22% of new HIV infections diagnosed in 2015 were among youth 13 to 24 years of age. Early treatment of HIV infection in this vulnerable group may reduce the severity of acute disease, lower the viral set point, reduce the size of the viral reservoir, delay disease progression, and decrease the rate of viral mutation. However, because most are unaware of their HIV status, identifying acute/recent infections among youth is extremely challenging. This study highlights ATN CARES' utilization of weekly short message service (SMS) to identify youth 12-24 years of age with acute HIV-infection.

Methods: Youth 12-24 years of age are being recruited through community-based organizations serving the homeless, incarcerated, and LGBT youth in Los Angeles and New Orleans. For youth enrolled in the HIV-negative study, we administered a weekly SMS 7-item survey as part of an HIV biobehavioral intervention. HIV-like symptoms were asked as part of the 7-item SMS survey.

Results: To date, ATN CARES enrolled 506 HIV-negative youth and 489 had so far received at least one SMS survey. During the 7-month enrollment period, 262 participants responded to a weekly SMS survey at least once (66%). Among the 262 SMS responders, 157 participants reported potential HIV-like symptoms at least once via the weekly SMS survey (60%).

Once the HIV-like symptoms are reported, the field staff contacted participants for follow-up HIV test. A significantly higher proportion of youth with HIV-like symptoms concurrently reported no condom use (80%), compared to those who did not report symptoms (33%) (p>0.01).

Conclusions: To date, ATN CARES successfully recruited 11 youth with acute/treatment naïve recent HIV-infections. Despite the high false positive rates of HIV, the weekly SMS survey strategy holds promise to identify and monitor vulnerable HIV-negative youth over time. This strategy optimizes timely identification of youth and enhances our efforts to achieve early treatment.

THPEB124
High level of circulating HIV-1 reservoirs in perinatally HIV-1 infected children with early effective antiretroviral therapy and sustained virological suppression

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Background: Early effective antiretroviral therapy (ART) limits circulating HIV-1 reservoirs, which is a goal for remission strategies. Our aim was to investigate the impact of early virological suppression (VS) on HIV-1 reservoir size in perinatally HIV-1-infected children with early ART initiation and more than six years of VS.

Methods: This study included 5 perinatally HIV-1 infected children ART-treated and followed up during sustained VS. Cell-associated HIV-1 DNA (CA-HIV-DNA) and two LTR (2-LTR) circles level were analyzed longitudinally: previous to ART initiation, at VS and throughout VS. Cell-associated unspliced HIV-1 RNA (CA-HIV-RNA) level was measured at last visit (after 6 years of VS). All these markers were quantified by semi-nested real time PCR. Antibody level was measured longitudinally around 24 months of life. at VS and at last visit using a commercial ELISA. All data were expressed as median (range).

Results: All infants received AZT as prophylaxis for 6 weeks, started ART and achieved VS at 4 (2-7) and 10 (8-11) months of life, respectively. Reservoir size, plasma viral load (pVL) and antibody measurements were illustrated per patient in Figure 1. CA-HIV-DNA showed a little decrease from ART initiation to last visit (time of VS: 6 (6-16) yrs, 4 (2.5-6) and 3 (0-3.6) log10 copies per million of peripheral blood mononuclear cells (cpm), respectively. The 2-LTR circles were detected in all, except one patient at ART initiation (2.11 (0-2.4)), but it was undetectable in most cases throughout VS. Surprisingly, CA-HIV-RNA was detectable at last visit in all patients with a median of 36 (1.5-376) log10 copies per microgram of RNA. Finally, only one patient had absence of antibodies against HIV throughout the study, considered as a pediatric seroreversion case.

Conclusions: The size of circulating HIV reservoir in perinatally HIV-1 infected with more than 6 years of VS was still high for remission strategies. The high level of CA-HIV-RNA indicates viral activity despite sustained undetectable pVL. This work support the need for a very fast ART initiation, may be during the first hours of life, in order to limit significantly the reservoir size and HIV-1 potential replication.
Adherence in paediatric and adolescent populations

THPEB125
Characterizing adherence and drug level effects on viral outcomes in HIV-infected Kenyan children

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Background: In resource-limited settings, associations between pediatric antiretroviral therapy (ART) adherence and viral outcomes are not well-characterized, yet are important to inform interventions. We investigated such associations in peri-infected children in Kenya with extensive adherence monitoring.

Methods: Children ≥15 years on or starting NNRTI-based 1st-line ART were enrolled at the Academic Model Providing Access to Healthcare in Kenya. Adherence monitoring included MEMS® electronic monitors, drug levels and validated caregiver questionnaires. Nevirapine (NVP) or efavirenz (EFV) were placed in monthly-monitored MEMS® that electronically captured dose timing data. Blood samples were drawn after 1-3 months (timepoint 1: TP1) for NVP/EFV levels, CD4%, viral load (VL), and resistance, and after 6 months (TP2) for VL. MEMS® adherence was characterized by:
1. > or < 90% of doses taken (bottle openings divided by doses prescribed); and
2. Treatment interruptions (TI ≥48 hours without opening).

Associations between adherence measures and viral outcomes, adjusting for confounders and other enrollment characteristics, were done using logistic regression models.

Results: Among 207 children, 54% female, median age 8.4 years (range 1.8-15.4), 56% CDC class B/C, median CD4±26 (range 1-53); on ART mean 2.1 years (range 0.04-8.4). 80% were on NVP/EFV-based ART, and 20% EFV. At TP1, 33% (n=68) had treatment failure (VL>1000 copies/mL; 45% had MEMS adherence < 90%, 31% had TI, 21% missed ART doses in past 30 days by caregiver report, and 14%/38%/48% had sub-therapeutic/therapeutic supra-therapeutic drug levels. Treatment failure was significantly associated with < 90% MEMS adherence, younger age, less time on ART, lower CD4%, T and low NVP level. Of the 32/68 with ART failure who had genotyping, 81% had intermediate-high resistance to 1 drug. All had high resistance to current ART, and 75% to potential 2nd line ART including 12% tenofovir, 19% efavirenz, 56% ddIvirapine. Among 126 children with VL at TP2, 15% had VL>10,000, significantly associated with < 90% MEMS adherence, viral failure at TP1 and TI.

Conclusions: Treatment failure among HIV-infected Kenyan children was associated with less than 90% adherence and TI with high drug resistance among those failing. Interventions improving pediatric adherence could sustain ART.

THPEB126
Video directly observed therapy to improve adherence of human immunodeficiency infected children and adolescents to combination antiretroviral therapy: A pilot study

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Background: Poor adherence to antiretroviral therapy (ART) is a major problem for adolescents living with HIV. We conducted a pilot study evaluating the feasibility and acceptability of using video directly observed therapy (VDOT) as a method of improving medication adherence in poorly adherent adolescents.

Methods: HIV infected adolescents with a history of poor adherence to ART were eligible for inclusion. The study consisted of four phases: VDOT daily (4 months), daily texting (2 months), weekly texting (3 months) and no intervention (3 months). Monthly clinic assessments were scheduled. Study is ongoing.

Results: Five of 8 eligible subjects consented to participate (median age 17 years [16-19]; 3 male, 2 female). All were perinatally infected and had dual (n=4) or triple class (n=1) resistance. Four were on drug holidays for 5-9 months pre-enrolment. Median baseline viral load and CD4 count were 6,342 copies/mL (82-34,657) and 218 cells/µL (72-265), respectively. Four participants achieved viral suppression in the VDOT phase and one came close (40 copies/mL). Three participants maintained viral suppression during the daily and weekly texting phases. Thus far, the two participants in the no intervention phase have maintained viral suppression. Two participants were withdrawn from the study due to protocol non-compliance during the daily texting phase. During the VDOT phase, the proportion of doses observed taken per-participant ranged from 42% to 98% (n=5). For the daily texting phase, text responses indicating medication taken were received for 96.7%, 85.2% and 44.4% of doses (n=3). For the weekly texting phase, text responses indicating medication taken were received for 91%, 91% and 83% of doses (n=3). Two subjects fully complied with monthly pill count requirements - this showed 100% and 93% of pills taken (first three phases combined). Participants expressed general satisfaction with the intervention. Healthcare providers felt the intervention was at times burdensome.

Conclusions: VDOT is feasible and acceptable as an intervention to both adolescents living with HIV and care providers to improve adherence in select populations. Barriers to success include variable compliance and time burden for service providers.

THPEB127
Barriers and facilitators to retention in care for adolescents living with HIV in Western Kenya

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Background: Young people with HIV are less likely to continue care compared to their adult counterparts. The reasons for this have not been fully investigated.

Methods: This qualitative study was performed at Moi Teaching and Referral Hospital in Eldoret, Kenya, and the associated HIV treatment clinic, AMPATH MTHR Centre. Participants interviewed were aged 10-19 years and were referred to or attending the clinic.

Results: Eighty-two young people were interviewed. The main barriers which were identified were: (a) poverty, (b) psychosocial issues, (c) lack of knowledge, (d) no support for medication adherence, (e) lack of trust in health care system, and (f) lack of transportation. The main facilitators were (a) support from family and friends, (b) the clinician’s attitude, (c) social support, (d) perceived stigma, and (e) lack of trust in the health care system.

Conclusions: The study highlights the importance of psychosocial support and family involvement in the care of young people living with HIV. The treatment provider’s attitude is also very important in keeping young people in care. This study therefore suggests that there is a need to address the psychosocial needs and family support needs of young people living with HIV in Western Kenya.
gaged in outpatient care. A trained facilitator conducted semi-structured key informant interviews and focus group discussions (FGDs) in Kiswa-
hi. These were recorded, and transcripts were coded by 2 study team
members and analyzed through thematic analysis.

Results: We conducted interviews with 6 hospitalized ALHIV, 16 care-
givers of hospitalized ALHIV, and 11 non-disclosed engaged ALHIV, 8
FGDs with 55 disclosed engaged ALHIV, and 4 FGDs with 28 caregivers of
engaged ALHIV. Among 16 ALHIV and caregivers of ALHIV, barriers
to retention included the following complex and frequently concomi-
tant issues: poverty; maternal illness or death resulting in other relatives
taking on the adolescent’s care; non-disclosure to the adolescent or
to close family members; family conflict; social isolation and stigma; and
mental health challenges. Younger ALHIV were particularly vulnerable
to these challenges experienced at the family level. Transportation costs
were a frequently reported barrier. Relationships to clinic staff were influ-
ential to retention or disengagement from care. Facilitators to retention
included motivation to be healthy, HIV education, peer groups, disclo-
sure to the adolescent and to family, and the support that this enables.
Participants desired more counseling and education about HIV, access
to peer groups and disclosure support, and nutrition and financial sup-
port.

Conclusions: Retention and disengagement of ALHIV are influenced
by complex, interwoven barriers at the levels of the adolescent, family,
clinic, and society. Interventions are needed to mitigate these barriers
for those ALHIV at high risk of disengagement.

THPEB128
Targeting the third “90”: Are children and adolescents slipping through the net?

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Background: Achieving virological suppression is critical to ensure op-
timal outcomes and prevent onward transmission among people living
with HIV (PLHIV). We investigated viral suppression among children and
adolescents aged 6–19 years who were receiving antiretroviral therapy
(ART) treatment for at least six months in public sector HIV clinics in Ha-
rate, Zimbabwe.

Methods: Participants were recruited at Harare Central hospital, from
June 2015–December 2017. Socio-demographic and HIV history were
recorded and CD4 count and viral load were measured. Risk factors for
virological failure (viral load >400 copies/ml) were analysed using mul-
tivariable logistic regression to estimate adjusted odds ratios (aOR) and
95% confidence intervals (CI).

Results: All 155 participants recruited were perinatally infected. Just un-
der half (n=69, 45%) were female, and the median age was 15 (IQR 12–17)
years. The median duration on ART was 6 (IQR 4–8) years, with 68 (43%) taking second-
line ART. The median CD4 count was 580 (IQR 366–801) cells/mm3. Half the participants (n=81, 52%) were virally non-suppressed. The median
viral load of those non-suppressed was 4,310 (IQR 1,360–43,100) copies
/mL. Adolescents 12 years and older were more likely to have virological
non-suppression than those under 12 years old (aOR 2.85; 95% CI 1.24–
6.56). Being on second line ART was also associated with virological
non-suppression (aOR 2.21; 95%CI 1.11–4.38). Sex and duration on ART
were not associated with viral non-suppression.

Conclusions: Adolescents are a high-risk group for virological non-
suppression despite being established on treatment and on second line
ART therapy. Interventions to support adolescents to adhere and
manage their HIV infection are urgently required to ensure an AIDS free
 generation but also to prevent onward HIV transmission.

THPEB129
The paediatric continuum of HIV care in the Netherlands: From diagnosis in childhood to viral
suppression in adulthood

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Background: In the Netherlands, a substantial proportion of children
diagnosed with HIV have survived into adulthood. We analysed the
outcomes of children with an HIV diagnosis < 18 years of age along the
continuum of HIV care (CoC).

Methods: We constructed the CoC for HIV-1-positive individuals who
were ever registered < 18 years of age within the ATHENA cohort
between 1998 and 2016. Key steps were being:
1) linked to care,
2) retained in care (clinical visit in 2016),
3) on cART,
4) viral suppression (most recent HIV RNA < 100 copies/ml).

Results: As of 31 December 2016, 525 individuals had been diagnosed
with HIV in childhood, were linked to care, still alive and not reported as
having moved abroad. Of these, 204 were < 18 years of age (median 10
years; IQR 7–15) of whom 193 (95%) acquired HIV through MTCT, 154 (75%)
were of non-Dutch origin and 109 (63%) were adopted by Dutch parents.
Given the low number of 11 children aged < 18 years who non-vertically
acquired HIV, these were excluded from the analysis. Among the 321
individuals who were ≥18 years of age (median 29 years; IQR 23–33), 312
(97%) had acquired HIV through MTCT, and 209 (65%) through other
means (sexual transmission (n=158), blood-blood contact/drug use
(n=36), unknown transmission route but diagnosed when aged ≥5 years
(n=15), with 6% of the total being of non-Dutch origin. Figure 1 illustrates
the CoC for the subgroups. Overall viral suppression rates were 93% in
those aged < 18 years, and in those aged ≥18 years, 73% and 65% for
those who had acquired HIV vertically and non-vertically, respectively.

Conclusions: The provision of HIV care for children aged less than 18
years has resulted in a high viral suppression rate. However, targeted
attention is needed for those currently ≥18 years, particularly those with
non-vertically acquired HIV, given much lower viral suppression rates.
This illustrates challenges for long-term treatment adherence, which
may be of a different nature in those who vertically or behaviourally
acquired HIV.
THPEB130
An iPhone app improves medication adherence and viral load among youth living with HIV who are newly starting antiretroviral therapy

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Background: In 2015, youth, ages 13-24, accounted for over 8,000 new HIV infections in the United States. Despite promising outcomes of antiretroviral therapy (ART) medications, improving adherence to ART among youth living with HIV (YLWH) has been challenging. This study examines the moderators of intervention impact of an iPhone game/app on ART adherence and biological outcomes among YLWH in Jackson, MS.

Methods: A RCT with 61 YLWH tested the impact of Battle Viro, an ART-related iPhone game, over six months. Participants, ages 13-26, were recruited from HIV clinics and randomly assigned to receive Battle Viro or a non-HIV related mobile game. All participants received a medication monitoring device. These analyses explore the impact of moderating variables (newly starting ART, age, gender, and gaming frequency) on ART knowledge and attitudes, adherence and viral load. Chi-square and t-test analyses examined baseline differences between conditions. Continuous outcomes were examined using analyses of covariance (ANCOVAs) controlling for baseline scores. Cohen’s d effect sizes were calculated.

Results: The sample was 75% male, 75% Black, and 74% non-heterosexual, with a mean age of 22 years. Those newly starting ART (≤ 3 months on ART) represented 36% of the sample. Only time on ART showed interaction effects at the 6-month follow-up. Those newly starting ART in the Battle Viro condition experienced a 0.96 log greater decrease in viral load (F=4.33, p=0.04), showed better adherence at the 6-month post-test (71% vs. 48%; d=1.18, F=3.20, p=0.05; see figure below). In ANCOVAs restricted to participants newly starting ART, those in the intervention demonstrated improved HIV knowledge (d=0.90; F=3.23, p=0.04) and ART knowledge (d=0.73; F=4.59, p=0.02) compared to those in the control condition.

Conclusions: The Battle Viro intervention showed improved adherence and viral load outcomes at the 6-month follow-up among those newly starting ART. These results support the need for a larger trial to further explore the impact of Battle Viro, particularly among YLWH newly starting ART.

(Figure 1: WiseSpill Adherence by Intervention Condition by Newly Starting ART)

THPEB131
Challenges to achieving and maintaining sustained viral suppression among HIV infected Canadian children

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Background: One of the keys to post-treatment control (viral remission) is thought to be sustained viral suppression (SVS) after early initiation of combination antiretroviral therapy (cART). The objective of this study was to identify predictors of SVS among children in the Early Pediatric Initiation of CART (EPIC4) Canadian Child Cure Cohort (EPIC4).

Methods: The EPIC4 cohort prospectively enrolled Canadian children living with perinatal HIV from 7 centers beginning in 2014, with the primary objective of quantifying the HIV reservoir in these children. Using data collected retrospectively at enrolment, the proportion of children who had achieved and maintained viral suppression (SVS) were compared, and predictors of SVS determined. Non-SVS was defined as ≥ 1 viral load rebound after ≥ 2 consecutive undetectable viral load (VL) measures at any time after CART initiation.

Results: 211 children were enrolled; mean age was 11.7 years (range 2.2-23 years). Nineteen children were treatment naive: among those on treatment, 44% were on NNRTI, 30% on protease inhibitor, and 26% on integrase inhibitor-based regimens. Only 18.8% were on their initial cART regimen, 21.6% were on their second, and 59.6% had had three or more regimens. Mean age at cART initiation was 4.0 years (SD=4.2) and mean proportion of life on effective cART was 46% (SD 0.31). Fifty-six percent of children who initiated cART prior to enrolment had achieved SVS, while 33% reported at least one period of previous poor adherence. Children with SVS were more likely to be foreign born than Canadian born (85% vs. 67%, p=0.03) and less likely to have received social assistance (19% vs. 29%, p=0.01) or to have child protection services involvement (60% vs. 85%, p=0.01). There was no significant difference in SVS according to gender or baseline viral load. There was a higher proportion of SVS among those with any protective HLA allele (from among HLA-B57, HLA-B81, HLA-B27 vs. none, 90 vs. 73%) though not statistically significant (p=0.12).

Conclusions: Only 56% of children enrolled in the EPIC4 cohort achieved SVS. While adherence remains the overwhelming barrier to SVS, broad social determinants including income level and family disruption were identified important potential contributing factors.

THPEB132
Patterns of detectable viral load in a cohort of HIV-positive adolescents on HAART in Cape Town, South Africa

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Background: Despite improved treatment and access to care, adolescent AIDS deaths are decreasing more slowly than in any other age group. There is lack of longitudinal data around adolescent adherence and the dynamics of viroemia over time. We aimed to describe patterns of detectable viral load (DVL) in a cohort of adolescents attending an ARV clinic in Cape Town, South Africa.

Methods: We conducted a retrospective cohort study of all patients on HAART aged 10-19 years. Participants were included if they underwent at least two viral load (VL) measurements and attended the Groote Schuur Hospital HIV Clinic for at least 24 months between 2002 and
2016. The primary outcome was two consecutive HIV viral VL >100 copies/mL, in line with the lower limit of detection of assays in use over the follow-up period.

**Results:** Of 482 screened subjects, 327 met inclusion criteria. Most subjects were vertically infected (n=314; 64.7%) and 170 (52.3%) were male. Overall, 263 episodes of confirmed DVL involving 159 (48%) (95% CI 43%-54%) subjects were experienced during the follow-up period. A total of 111 (53%) subjects never experienced DVL, while 16 (6%) never suppressed throughout the follow-up period. Median age at first DVL was 14 (IQR 11-16) years. Of the 159 subjects who experienced DVL, 102 (64%) re-suppressed, of which 38 (37%) had a subsequent DVL. Six subjects had genotyped resistance to protease inhibitors. Four of these never suppressed, while two suppressed on salvage regimens.

**Conclusions:** DVL was seen in nearly half of adolescents, with the rate increasing with age. Further study is warranted to correlate these findings with risks and clinical outcomes.

**HIV complications and comorbidities in paediatric and adolescent populations**

**THPEB134 DTI-based tractographic alterations within functional networks in HIV infected children at age 7 years**

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**Background:** The definition of health literacy (HL) includes one’s ability to acquire information and make health-related decisions. Studies of adults living with HIV have shown a robust relationship between HL and health literacy, as a predictor of biological markers of immune functioning in youth with HIV

**Methods:** Participants included 102 YLWH aged 13 to 25 recruited from an HIV specialty clinic. Participants completed the Brief Estimate of Health Knowledge and Action-HIV Version (BEHKHA-HIV) comprised of Knowledge and Action subsets. Biological markers of immune functioning were extracted from the medical record. Data were analyzed using descriptive statistics and multiple linear and logistic regression.

**Results:** Participants were evenly distributed among genders (male, 52%) and mode of transmission (perinatal, 54.9%) with a mean age of 20. Most participants were heterosexual (60.3%) and African American (67.9%). On the BEHKA-HIV Action subtest, 76.5% of participants indicated they take their medications under all conditions. Participants endorsed not taking their medication when the medications made them feel bad (33%), because their taste bad (48%), when they were feeling down or low (8%), because they were too tired (8%), and when they feel good (13%). On the Knowledge subtest, 44.1% gave the correct definition of CD4 count, 64.7% correctly defined viral load. 67.6% correctly named their medications, and 75.5% and 82.4% knew whether CD4 count and viral load, respectively, should go up or down as a result of treatment. HL (Knowledge and Action) was significantly associated with CD4 count and viral load. Decreasing Action scores were statistically associated with an increased likelihood of having a detectable viral load.

**Conclusions:** In the current study there were deficits in HL among YLWH. Findings point to the need for better patient education and support of the importance of HL in determining health outcomes. It is important to measure HL beyond that of a patient’s ability to read health related words. Interventions need to be designed to improve HL and, ultimately, health outcomes, particularly for YLWH.

**Health literacy as a predictor of biological markers of immune functioning in youth with HIV**

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**Background:** Research has shown a robust relationship between HL and health literacy, as...
Prevalence and associated factors of proximal renal tubular dysfunction among perinatally HIV-infected Thai adolescents

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Background: The information regarding renal tubular disorders among HIV-infected youth is limited. This study aimed to identify the prevalence of proximal renal tubular dysfunction (PRTD) among our perinatally HIV-infected adolescents.

Methods: This was a sub-study of a multicenter, prospective cohort study evaluating kidney disease among HIV-infected Thai adolescents. Participants with (1) perinatally acquired HIV infection, (2) aged 10-25 years, and (3) were on combination antiretroviral treatment (cART) for ≥12 months, together with their age- and sex-matched healthy controls were enrolled (ratio 1:2). HIV-infected participants were categorized as tenofovir disoproxil fumarate (TDF) users versus non-TDF users, according to their current cART regimens. At enrollment, proximal renal tubular function parameters, including urine 2-microglobulin to creatinine ratio (U2M/UCr), fractional excretion of uric acid (FEUA), and fasting urine glucose levels were measured and calculated. PRTD was defined as the presence of ≥1 abnormalities in the following criteria:

1. U2M/UCr showing significant differences in mean FA and MD between control and HIV+ children

Conclusions: As hypothesized, we found higher MD and lower FA values in HIV-infected children compared with controls. The reduced structural connectivity in the somatosensory, auditory, and basal ganglia networks was unexpected, and may relate to previous studies showing decreased white matter integrity is involved in reduced functional connectivity. The reduced structural connectivity in the somatosensory, auditory, and basal ganglia networks was unexpected, and may relate to previous studies.
Methods: Retrospective chart review was performed to identify HIV-infected children with SAM at enrolment at the Baylor clinic in Mwanza, Tanzania from August 2011 to December 2016. Baseline nutritional status, TB risk factors, dates of ART and ATT initiation, and 6-month nutritional status and clinical outcomes were collected.

Results: One-hundred forty-seven children with HIV and SAM were identified. Eight were excluded from analysis for early transfer of care (n=2) or loss to follow-up (LTFU) (4) or death (2) prior to starting any ART or ATT. Seventy-five percent (104/139) were < 5 years old and 48% (67) were females. Nine percent (13) had a documented TB contact and 76% (102) had at least one symptom of TB (cough, fever, weight loss, or localizing symptoms for extra-pulmonary TB). Fifty-nine percent (82) of children started treatment for TB prior to ART, and 71% (98) received inpatient care at enrolment. After six months, 9% (12) were LTFU and 17% (23) had died, with no difference in these outcomes between those starting ART or ATT first. Children starting ATT before ART had mean weight gain of 3.8kg and those starting ART first had mean weight gain of 4.2kg in the first 6 months (p=0.17).

Conclusions: Confirming the findings of other studies, we found that children with HIV and SAM have a high risk of early mortality after enrolment in care. Diagnosis of TB in the setting of HIV/SAM co-morbidity remains challenging. Additional study is needed to define the relationship between timing of ART and ATT treatment, nutritional outcomes, and mortality among HIV-infected children with SAM.

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**ThPeB137**

Antiretroviral prophylaxis for infants of drug-resistant perinatally HIV-infected (PHIV) women

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Background: Due to a lifetime of antiretroviral (ART) exposure and of ten difficulties with adherence, PHIV women may be multidrug-resistant one-child-bearing age. However, there are no guidelines for the ART prophylaxis of infants born to drug-resistant mothers. The objective of this study was to describe the ART resistance profiles of PHIV women, and specifically to the drugs recommended for prophylaxis for HIV-exposed newborns.

Methods: Clinic records from the Centre Maternel et Infantile sur le SIDA mother-child cohort in Montreal, Canada, were reviewed to identify all pregnancies among PHIV women previously followed as children at two tertiary care centers in Montreal, Quebec. Drug resistance was identified using cumulative HIV-1 mutations (extracted for all available on record) by Virco Type HIV-1 Virtual phenotype, and classified according to the Coding Causes of Death in HIV (CoDe) protocol (Version 2.3).

Results: Of the 139 PHIV women in our cohort, 80% were resistant to the standard drugs given for neonatal prophylaxis. These results suggest that for infants of PHIV women with detectable viral load prior to delivery, alternatives to the currently recommended regimens for newborns may be necessary.

Conclusions: The majority (80%) of PHIV women in our cohort were resistant to the standard drugs given for neonatal prophylaxis. These results suggest that for infants of PHIV women with detectable viral load prior to delivery, alternatives to the currently recommended regimens for newborns may be necessary.

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**ThPeB138**

HIV-infected patients in Shenzhen, China: Trends in mortality and cause of death from 2005 to 2017

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Background: The AIDS epidemic has reached its peak with an over 20% raise per year since 2010 in Shenzhen, China. Trends in mortality and cause of death in HIV-infected patients in this region have not been reported.

Methods: To study the mortality trend, causes of death and associated risk factors, a 13-year retrospective analysis among HIV-infected patients in Shenzhen, China. HIV-infected patients were followed up from January 2005 until December 2017. All deaths that occurred in Shenzhen were classified according to the Coding Causes of Death in HIV (CoDe) protocol (Version 2.3).

Results: During the past 13 years, a total of 18007 persons were tested HIV-positive in Shenzhen. 358 deaths were reported, with the crude mortality rate of 19.66%. Shenzhen has achieved the first “90%” since 2012 with the number of reported HIV infections nearly equal to the epidemic estimates in the past five years. The rate of the antiretroviral treatment coverage increased from 4.0% in 2005 to 57.2% in 2017 with viral inhibition rate more than 96%. In the mean time, the annual death rate decreased from 10.7 in 2005 to 1.7 per 1000 person-year in 2017. The death rate was 2.28 times higher in treated persons than non-treated persons. Of the 358 patients who died, 63.4% were aware of their HIV status (within 6 months before death) and only 35.8% had received HAART with viral inhibition rate at 34.4%. The median CD4 cell count at the time of death was 19 cells /mm3. The most frequent cause of death was AIDS-related (269 deaths, 75.1%). Viral hepatitis (123 deaths, 34.2%) was the main cause of non-AIDS-related death. Cardiovascular disease (CVD) was the second most common cause of death for HAART-treated patients.

Conclusions: The mortality rate among HIV-infected individuals significantly decreased since 2005. AIDS-related causes remained the strongest factor associated with mortality in the era of HAART because of late diagnosis and treatment even when two “90%” goals have been achieved in Shenzhen. The prevention of HBV/HCV co-infection and HAART-induced cardiovascular disease are important for the control of non-AIDS-related death.
HIV-associated co-infections and malignancies in paediatric and adolescent populations

THPEB139
Catch-up growth after ART initiation for late-diagnosed perinatally-infected children and adolescents

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Background: Perinatal HIV infections inhibits growth through multiple pathways. Children who initiate ART before age 5 subsequently have improved height and weight z-scores but it is not known whether older children can also experience catch-up growth from ART initiation. We investigated the effect of ART initiation on growth outcomes in a cohort of late-diagnosed perinatally-infected children and adolescents in Zimbabwe.

Methods: This prospective cohort study was nested within the ZENITH randomised controlled trial. Trial participants who initiated ART during follow-up and had at least two height and weight measurements including one at ART initiation, were included. Growth measures were height-for-age, weight-for-age and body mass index (BMI), with z-scores calculated using the UK reference population. We used multilevel mixed-effects linear regression with a piecewise four-knot restricted cubic spline for time since ART initiation, and random intercept and slope. Fixed effects were at initiation, sex and CD4 count at initiation as fixed effects, with an interaction between baseline growth measure and time. Baseline growth was categorised as below -3 z-scores; -3 to < -2; -2 to < -1; and -1 and above.

Results: The 282 participants had a mean 6.8 observations each (range 1-14) over a median 498 days follow-up (range 149-940 days). At ART initiation, the mean height-for-age 2-score was -1.6 (SD 1.2) and mean weight-for-age was -1.6 (SD 1.2), both slightly lower for boys than girls. The major predictor of growth outcomes over time was z-score at ART initiation. There was no evidence of change in height-for-age or weight-for-age z-score over time, within any category of baseline growth level. For BMI, children with a baseline 2-score below -2, and especially below -3, gained weight-for-height over time while those with a higher initial BMI 2-score had no change (interaction term p = 0.001).

Conclusions: Children aged 6 to 15 do not recover height or weight for age when initiated on ART. Children with severe wasting gain weight-for-height in the first 12 months. These results support WHO guidelines of immediate ART initiation of perinatally-infected children, as the catch-up growth characteristic of children under 5 does not occur at older ages.

THPEB141
Prevalence and risk factors for TB/HIV co-infection in children with severe malnutrition (SAM) in Uganda

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Background: Tuberculosis and Human Immunodeficiency Virus (TB/HIV) co-infection is very high in Africa with a prevalence of 30% - 50%. The diagnosis of paediatric TB remains very difficult especially in the presence of HIV and severe acute malnutrition (SAM). There is paucity of information on burden of TB/HIV in children with SAM. We aimed to study the prevalence and factors associated with TB/HIV co-infection among SAM children in Mulago Hospital, Kampala-Uganda.

Methods: This was a cross sectional study that consecutively enrolled children aged 1-5 years fulfilling study criteria between November 2016 and March 2017. A questionnaire, appropriate HIV test, Mycobacterium tuberculosis rifampicin (MTB RIF) gene x-pert on early morning gastric aspirates, a tuberculin skin test (TST), anthropometric measurements and chest x-ray were performed on all children. HIV positive children who fulfilled criteria for TB diagnosis were considered to have TB/HIV co-infection.

Results: A total of 173 children were then enrolled with male to female ratio of 1:3. Prevalence of TB/HIV co-infection was 20.2% (35/173) with overall HIV prevalence of 32.6% (57/173) and only 53% (30/57) were on ART at time of enrolment despite 83% (47/57) having been diagnosed prior to enrolment. TB diagnosis was made in 33.5% (58/173) with clinical diagnosis contributing 86% (50/58) and only 12% (7/58) having positive gene x-pert. Only 21% (6/27) of the children with a positive history of contact had been started on Isoniazid prophylaxis therapy (IPT). Of the 35 children diagnosed with TB/HIV co-infection, 32% had consolidation and 28% had hilar lymphadenopathy on chest x-ray.

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Risk factors associated with TB/HIV co-infection included history of positive TB contact AOR 10.7, (95% CI: 3.9-34.9), hypothermia AOR 10.7, (95% CI: 15.1-516), lymphadenopathy AOR 11.3, (95% CI: 21.3-29), hepatomegaly AOR 6.2 (95% CI: 15.1-41.5) and a chest x-ray showing miliary TB AOR 2.81, (95% CI: 3.07-5.60).

Conclusions: Prevalence of TB/HIV co-infection is still very high among SAM children with most delaying to initiate HIV treatment. Clinicians should strengthen implementation of the existing guidelines and have a high index of suspicion for co-infection among malnourished HIV positive children.

Behavioral health outcomes in pediatric and adolescent populations

**THPEB142**

To study the status of HIV disclosure in children and adolescents

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**Background:** Disclosure to HIV-infected children regarding their diagnosis is important as expanding numbers of HIV-infected children attain adolescence and may become sexually active. HIV disclosure is an important step towards long-term disease management and necessary for the transition from paediatric care into adolescent and adult care settings.

**Methods:** This was a cross sectional study carried out in 144 caregivers of Children and adolescents aged between 6 to 16 years of age attending the pediatric ART clinic. The subjects were enrolled consecutively and were interviewed using a structured questionnaire after taking written informed consent. The questionnaire included information on the demographic details, the disclosure status of HIV infection in children and perceptions about disclosure of status to the child.

**Results:** The mean age of children was 11.40 ± 2.86 years. Although 93.8% of caregivers believed children should know their HIV status, the prevalence of disclosure to the child was only 33.3%. Disclosure had been done primarily by caregivers (22.5%). Caregivers reported that (22.5%) children self-disclosed. Majority of caregivers felt 10-12 years as the appropriate age for disclosing the HIV infection status. Most of children 89.6% acquired HIV through vertical transmission. Majority of caregivers 83.3% believed that care givers are most suitable person for disclosure. Furthermore, in our study 66.7 % children were unaware of this HIV status and most common reason (92.7%) for their non disclosure was child does not understand about illness and others to be 82.3% did not disclose as child may tell secret to others and 66.7 % child is too young to understand the disease. There was increase in drug compliance 47.9% and improvement in behaviour 12.5 % noticed in children.

**Conclusions:** In our study prevalence of HIV disclosure was 33.3 % there was increase in drug compliance, improvement in behaviour, school performance and attendance. Most common reason for their non disclosure was child does not understand illness and child may tell secret to others.
perceived behavioral controls. The addition of stigma and clinical ac-
cess variables improved the model’s coefficient of determination from
r²=0.213 to 0.620.

Conclusions: The addition of stigma and clinical access to the TPB mod-
el improved the model fit, indicating the important role these factors
play in shaping adolescent decisions toward IPT. Stigma and community
support were correlated with attitudes about IPT, a major predictor of in-
tention, but attitudes were not modified by IPT knowledge. Interventions
to reduce stigma, improve community support and reduce behavioral
barriers may improve HIV+ adolescent acceptance of IPT more effec-
tively than patient education alone.

THPEB144
It’s like having a case manager in your pocket!
Mobile application with coach, key to addressing barriers to HIV and preventive care

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Background: HIV disproportionately affects young Black and Latino gay
and bisexual men (YBLGBM) and transgender women (YBLTW). Earlier
engagement in the HIV and preventive care cascade are key strategies.
but YBLGBM and YBLTW disproportionately fail out of the treatment
and prevention cascade. Mobile phone applications (apps) can engage
youth in HIV treatment and prevention cascade. We sought to explore
barriers in treatment and prevention and potential bidirectional mobile
app components that could address those barriers.

Methods: 17 YBLGBM and YBLTW service providers and youth aged
18-26 from Baltimore, MD, Philadelphia, PA, and Washington, DC were
recruited to complete a 45-minute key informant interview about barri-
ers to care and mobile app needs to address barriers. Participants were
identified through service agencies as being members who provided
community support or who were key opinion leaders in the community.
Two independent researchers coded the transcribed interviews using
categorical and contextualizing analytic methods until agreement be-
 tween coders (Kappa >0.80). Inductive open coding was used so emer-
gent concepts were connected across interviews to develop major
themes.

Results: Mean age, 22 years (SD=2.56). Most participants (n=10) provided
services to youth or described having received HIV or preventive ser-
dices at sites. Informants identified individual and system-level barriers
preventing youth from engaging in HIV and preventive care. Individual:
Fear of diagnosis/illness, stigma with HIV/preventive services, lack of
knowledge and support with HIV, and other priorities (housing, survival)
superseding desire for care. System: difficulty navigating and lack of ap-
propriate resources for youth with multiple intersecting identities. Key
app components: bilingual resources, pill reminders/medication alarms,
security and ability to make appointments directly on one’s phone. Par-
ticipants described wanting to confidentially video chat with a live per-
son for a coach 3 hours a day via the mobile app. “Because it would
make me feel good that someone’s helping me and keeping me on track,
if I can’t do it by myself, but someone always needs that extra push and
that extra help.”

Conclusions: Barriers to HIV and preventive care continue to impede ac-
cess for YBLGBM and YBLTW. A mobile application with a coach or peer
would effectively address barriers and help youth access care.

Mental health and neuro-cognition in paediatric and adolescent populations

THPEB145
Loss of associations between basal ganglia volumes and neuropsychological scores in HIV-infected children at 5 years

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Background: Neurodevelopmental delay and cognitive impairments are
reported even in HIV-infected (HIV+) children starting early antiretroviral
therapy (ART). Structural magnetic resonance imaging (MRI) is used to
study developing structure of the brain. Neuropsychological assess-
ments measure various aspects of cognitive development in children.
However, studies combining measures of both in the same cohort are
uncommon.

In a recently published paper, we reported increased basal ganglia (nucleus accumbens (NA), putamen (Pu) and globus pallidus (GP))
and decreased corpus callosum (CC) volumes in 5-year-old HIV+ compared
to HIV-uninfected (Ctl) children. To explore the possible cognitive im-
portances of these volumetric abnormalities, we present an analysis of
associations between volumes and neuropsychological performance at 5
years in these children.

Methods: Seventy-one children (39 Female: mean age: 5.4±0.3; 11
Cape Coloured/60 Xhosa; 48 HIV+/25 Ctl) received high-resolution T1
weighted imaging on a 3T Allegra Scanner (Siemens, Erlangen, Germany)
as part of an ongoing longitudinal study being conducted in Cape Town,
South Africa. The HIV+ children were part of the Children with HIV early
antiretroviral therapy (CHER) trial sub-study; the control children were
age and sociodemographically matched from a parallel vaccine study.

Select structures - caudate head, NA, GP, Pu and CC – were manu-
ally traced using MultiTracer software. Children were assessed on the
Griffiths Mental Developmental Scales - Extended Revised version
(GMDS). A linear regression model was used to examine group differ-
ences and the relationship between GMDS scales and volumes; ethnic-
ity, sex, handedness, total intracranial volume (ICV), age at neuropsy-
chological testing and time between scan and neuropsychological testing
were included as confounders in R.

Results: GMDS subtest scores were similar between groups, apart from
Personal-Social.

Larger right NA and left Pu were associated with poorer eye-hand coor-
dination (Table 1; Fig1.) and larger left Pu with lower scores on the Perfor-
mance subtest (~r=0.068(SE=0.003), p = 0.05). Associations with eye-hand
coordination were not evident in the HIV+ group.

Conclusions: Even though no group difference is observed in eye-hand
coordination, larger right NA and left Pu relate to poorer scores in unin-
fected children only. The bilateral NA and Pu increases in HIV+ children
may be responsible for the altered relationship with subtest scores.

Subcortical volumes Groups Eye-Hand Coordination subtest [$$\text{r}$$/testing error], p-value

<table>
<thead>
<tr>
<th>Subcortical Volumes</th>
<th>Groups</th>
<th>Eye-Hand Coordination subtest [$$\text{r}$$/testing error], p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right NA</td>
<td>All</td>
<td>0.020 (0.010), p = 0.050</td>
</tr>
<tr>
<td>Right NA</td>
<td>Ctl</td>
<td>0.008 (0.004), p = 0.007</td>
</tr>
<tr>
<td>Right NA</td>
<td>HIV+</td>
<td>0.008 (0.011), p = 0.500</td>
</tr>
<tr>
<td>Left Pu</td>
<td>All</td>
<td>0.005 (0.002), p = 0.007</td>
</tr>
<tr>
<td>Left Pu</td>
<td>Ctl</td>
<td>0.050 (0.018), p = 0.050</td>
</tr>
<tr>
<td>Left Pu</td>
<td>HIV+</td>
<td>0.004 (0.003), p = 0.200</td>
</tr>
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</table>

(Associations of right NA and left Pu with Eye-Hand Coordination across groups and within each group separately)
Increased risk of executive, working memory, and emotional-behavioral problems among virologically well-controlled perinatally HIV-infected adolescents in Thailand and Cambodia

S.J. Kerr1,2, T. Puthanakit1,3, K. Thongpaibul4, K. Malee5, P.S. Ly6, R. Paul12, J. Ananworanich13,14,15, C.A. Mellins16, The PREDICT Resilience Study Group

Background: Large numbers of perinatally HIV-infected children (PHIV) are aging into adolescence, a time of increased behavioral risk. We examined cognitive and behavioral outcomes in one of few longitudinal cohort studies of Asian adolescents, in whom brain development is not confounded by in-utero drug or alcohol exposure.

Methods: We enrolled 231 PHIV, 125 HIV-exposed, uninfected (HEU), and 138 HIV-unexposed uninfected (HUU) adolescents (aged ≥10 years), matched by age/sex, in Thailand and Cambodia. Executive function was assessed with Children’s Color Trails Test-2 (CCTT-2) and DKEFS Design Fluency test (DFT). Weeks 0 and 48). Generalised estimating equations examined adjusted odds ratios (aOR) of executive impairment (>2 SD below age-adjusted means of HU GU group) and CBCL T-scores in the borderline-clinical range (>60) in PHIV and HEU versus HUU. Linear regression examined adjusted mean differences in FDI and PSI between HIV-exposure groups. Adjustment was made for age, sex, ethnicity, household income, and caregiver characteristics.

Results: Median (IQR) age at enrolment was 14.0 (12.0-16.2); participants were 58% female and 64% Thai, with >86% virological suppression. PHIV were more likely than HUU to have impairment on CCTT-2 (aOR 4.43 (95% CI 18.11-101; p=0.001) and DFT (aOR 3.6 (95% CI 13.11-16; p=0.03). In PHIV versus HUU, the adjusted mean difference in FDI and PSI was -71 (95% CI -12.6 to -1.6; p=0.01) and -6.7 (-13.0 to -0.4); p=0.04, respectively. Results were similar between HEU and HUU groups. Compared to HUU, PHIV (aOR 3.6 (95% CI 1.9-7.0); p<0.001) and HEU (aOR 2.5 (95% CI 1.3-4.9); p=0.009) had higher odds of internalizing problems but PHIV only had higher odds of Externalizing problems (aOR 2.5 (95% CI 12.5); p=0.02). Figure 1 shows prevalence estimates at enrolment.

Conclusions: Asian adolescents with PHIV remain at risk for cognitive and mental health problems despite HIV treatment. HEU youth are also at increased risk for mental health problems that require interventions.

HIV-related stigma associated with high depressive symptom scores among perinatally HIV-infected youths

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Background: HIV-related stigma could undermine quality of life and self-esteem of people living with HIV. In youth, stigma may result in social distancing from friends, teachers, and other family members and may contribute to risk for depression. We determined HIV-related stigma and depressive symptoms among HIV-infected youths in Thailand and Cambodia.
Methods: Perinatally-infected youths living with HIV (YLWH), aged 10-24 years, had long-term follow-up in a clinical trial among 8 sites in Thailand and Cambodia. YLWH and their caregivers responded to dichotomous response questions asking about enacted stigma, defined as lifetime experiences of social abuse and problems with neighbors, schools, and other family members due to their HIV status. Depressive symptoms were assessed using the Child Depression Inventory (CDI) for those <15 years of age and the Center for Epidemiologic Studies Depression Scale (CES-D) for those >15 years; the cut-off scores were >15 (CDI), or ≥22 (CES-D).

Results: Two hundred and thirty-one YLWH (131 Thai /100 Cambodian) were included; 137 (53%) were female. The median age at HIV diagnosis and at this assessment were 5.9 years (interquartile range, IQR 2.4-11.2) and 14.9 years (IQR 12.7-18.7), respectively. Caregivers were biological parent(s), relatives, and orphanage home in 154 (57%), 40 (13%), and 36 (12%), respectively. Eighty-six percent knew their HIV status at the mean age of 10 years (IQR 8-12). Overall prevalence of HIV-related stigma reported by either YLWH or caregivers was 35% (80/229), with good agreement (Kappa 0.88). There was no significant difference in prevalence of stigma among Thai and Cambodian YLWH (25 vs. 35%, P=0.14). Among 95 YLWH with stigma experiences, being treated badly by friends or teachers (26%), problems with neighbors (71%), and school problems due to HIV infection (4%) were reported. The prevalence of high depressive symptom scores among YLWH was 29% (Thai 28%, Cambodia 30%). YLWH aged >15 years who experienced stigma were more likely to report high depressive symptom scores compared to those without (31 vs. 14%, respectively, P=0.04).

Conclusions: One-third of YLWH had HIV-related enacted stigma, which was associated with depressive symptoms in older youth. Internalized stigma should be explored to learn how youth manage such experiences and to inform appropriate prevention/intervention efforts.

THPEB148
The impact of depression in HIV positive mothers on child development in Zimbabwe

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1University College London, London, United Kingdom, 2CeSHHAR, Harare, Zimbabwe, 3London School of Hygiene & Tropical Medicine, London, United Kingdom, 4World Education Inc., Harare, Zimbabwe, 5Liverpool School of Tropical Medicine, Liverpool, United Kingdom

Background: Child cognitive development can be negatively impacted by depressive symptoms in primary caregivers. HIV positive women of childbearing age are at risk of depression, often unrecognized and untreated in low- and middle-income countries. We explored the relationship between maternal depression and child cognitive development to determine how poor maternal mental health influence child development.

Methods: Biological mothers of 0-24 month old infants enrolled in the CHIDO cluster-randomised trial (n=562) were assessed on mental health methods: determine how poor maternal mental health influence child development.

We used linear regression to compare Mullen overall and subscale scores across 4 groups defined by the mental health scale cut-offs, adjusted for infant’s sex, age (0 to < 3m, 3 to < 6m, 6 to < 12m, 12 to < 24m), and HIV status and socio-economic status generated from principal components analysis. We used robust standard errors to account for clustering.

Results: There were 186/562 (33.1%) who were assessed as having depression above the cut off on both scales. Maternal depression was associated with lower overall child development (mean difference -7.5 (95% CI: -10.6, -4.4) and with lower scores on the subscales expressive language (-2.5 (95% CI: -4.1, -1.0), fine motor (-2.6 (95% CI: -6.5, -1.9), receptive language (-3.9 (95% CI: -5.4, -1.6) and visual reception (-3.6 (95% CI: -8.2, -3.1) (Wald p-value < 0.05).

Conclusions: Prevalence of depression assessed using two locally validated screening scales was very high in this population of HIV positive post-partum women in Zimbabwe. Depression in mothers was significantly associated with low cognitive development in infant children. Addressing poor maternal mental health is important for improving child development outcomes.

THPEB149
Validation of an HIV/AIDS stigma measure for children living with HIV and their families

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Background: There are few validated tools to measure HIV-related stigma and its impact for children living with HIV, particularly in sub-Saharan Africa. We assessed the validity of a novel questionnaire to measure HIV stigma among children living with HIV and their families in Kenya.

Methods: This validation study was nested within a larger study following child-caregiver dyads (children ages 10 to 15 years) for two years at eight clinics in western Kenya within the Academic Model Providing Access to Healthcare (AMPATH). Construction of the 13-item stigma questionnaire involved literature review and qualitative inquiry, followed by cognitive interviewing to assess face validity, acceptability, and cross-cultural adaptation of the questionnaire. We administered the instrument to both children and their caregivers at two study evaluations, 6 months apart. The primary endpoint was construct validity assessed by comparison to criterion constructs. Criterion constructs (and measures) were quality of life (GHQ-12), behavioral health (SDQ), depression (PHQ-9), antiretroviral adherence (MEMS® electronic dose monitoring) and clinical characteristics.

Results: Among 240 child-caregiver dyads, child mean age was 12.3 years and 52% were female. The majority of caregivers (54%) were the biological mother. Adherence by MEMSO was 70% of doses taken. The stigma questionnaire had good face validity and acceptability in cognitive interviewing. Using the questionnaire caregivers reported experiencing higher levels of HIV stigma than their children: for example, 10% of caregivers reported being discriminated against in their neighborhood versus 2% of children. A substantial percentage of children (9%) and caregivers (14%) reported that HIV stigma made them feel stressed, anxious, or depressed. Several child and caregiver stigma questionnaire items had good construct validity in terms of associations with outcome variables (emotional and behavioral outcomes on the SDQ and GHQ-12). The stigma items most highly correlated with feelings of anxiety, depression, negative future outlook, and losing social support due to HIV.

Conclusions: These findings suggest that the stigma questionnaire generated valid and useful reports of HIV-related stigma for both children living with HIV and their caregivers, though reliance on child-report only may underestimate stigma experiences. This questionnaire may be suitable as a family stigma screening tool.
**THPEB150**

Initiation of ART after 2 years of age affects CNS white matter microstructure in adolescents living with HIV

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Background: Updated guidelines advise that all children receive ART irrespective of their age, clinical stage or immunological status. However, context-specific differences in treatment guidelines and access to ART over the past two decades have resulted in great variability in exposure to ART among adolescents living with HIV. The corresponding central nervous system (CNS) white matter (WM) microstructure signature and neurocognitive effects of ART initiation after 2 years of age is poorly understood.

Methods: Forty-six adolescents who initiated ART before the age of 2 years (<2yrs), and 79 adolescents who initiated ART after the age of 2 years (>2yrs), with perinatally acquired HIV (mean age 10 years; mean age of initiation of ART 3.41 years; mean CD4 95 cells) were enrolled within the Cape Town Adolescent Antiretroviral Cohort (CTAAC). Adolescents completed a detailed neurocognitive battery testing a number of cognitive domains. Diffusion tensor imaging was done to determine fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD) and radial diffusion (RD) in a region of interest analysis examining the corona radiata, cingulum, cerebral peduncle, internal capsule, external capsule, fronto-occipital fasciculi and corpus callosum.

Results: Neurocognitive performance was similar between adolescents who initiated ART < 2yrs and >2yrs. There was a trend towards attention (p=0.066) and working memory (p=0.053) being poorer in the group who initiated ART >2yrs. FA was reduced in the >2yrs group, in the superior corona radiata (p=0.061), posterior corona radiata (p=0.004) and the external capsule (p=0.003), suggesting an increased risk of WM alterations in this group. MD increased in the >2yrs group in the cerebral peduncle (p=0.003), the internal capsule (p=0.03), the superior corona radiata (p=0.014) and the superior fronto-occipital fasciculi (p=0.007), suggesting an increased inflammation in these structures. Differences in AD and RD were also found between the two groups.

Conclusions: These findings suggest that initiation of ART >2yrs increases the risk of WM alterations in the CNS. The similar performance in neurocognitive domains suggests that initiation of ART within the first 2 years of life, but not at birth is not sufficient to protect adolescents from neurocognitive impairment observed in pediatric neuroAIDS.

**THPEB152**

Effect of caregiver training on the neurocognition of school-age siblings of preschool HIV-exposed uninfected target children: A Ugandan cluster randomized controlled trial


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Background: Early childhood development (ECD) programs typically combine healthy nutrition and cognitive stimulation in an integrated model. We separately delivered these two components in a clinical trial to evaluate their comparative effectiveness. This is the first study to evaluate whether older siblings of preschool target children benefit from training intervention for their HIV-infected mothers.

Methods: 210 school-age siblings (5-12 years old) in ECD intervention households with target children 2-3 years of age were evaluated on neurocognitive outcomes using the Kaufman Assessment Battery for Children (KABC), computerized Tests of Variables of Attention (TOVA), the Behavior Rating Inventory for Executive Function (BRIEF), parent and an ADHD-R-IV questionnaire completed by the mother. Households from 18 geographic clusters in eastern Uganda were cluster-randomized to biweekly individualized sessions of either: 1) Meditational Intervention for Sensitizing Caregivers (MISC) training emphasizing cognitive stimulation/enrichment, or 2) health/nutrition/development (UCOBAC) program. Siblings were evaluated at baseline, six months (mid-intervention), one year (post-intervention), and one-year after completing intervention.
Results: Adjusting for baseline value of each outcome, SES, and caregiving quality (HOME scale) a linear mixed-effects model resulted in significantly better MISC-arm performance on the KABC non-verbal index (NVI) [global performance] at 6 months, with the UCOBAC arm significantly below MISC by -2.87 points, 95% CI (-5.08, -0.65; p=0.01) (Table 1). However, by 12 and 24 months the two arms were similar (Figure 1). TOVA ADHD index favored the MISC children at six (p=0.06) and 24 months (p=0.05) but not at the completion of caregiver training at 12 months (p=0.43) (Figure 1). MISC caregivers scored their children with significantly more BRIEF (p<0.01) and ADHD-RS-IV (p<0.05) problems than the UCOBAC mothers at all time points, perhaps because of the MISC training emphasis on children’s behavior.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Time Points (Months)</th>
<th>MISC, LS Mean (SE)</th>
<th>UCOBAC, LS Mean (SE)</th>
<th>P-value for the arm difference, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>KABC Nonverbal Index</td>
<td>6</td>
<td>57.53 (0.78)</td>
<td>60.40 (0.85)</td>
<td>0.01, (-5.08, -0.65)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>58.89 (0.79)</td>
<td>59.29 (0.84)</td>
<td>0.05, (-1.61, 2.81)</td>
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<tr>
<td></td>
<td>24</td>
<td>59.22 (0.79)</td>
<td>59.96 (0.83)</td>
<td>0.50, (-1.61, 2.81)</td>
</tr>
<tr>
<td>TOVA ADHD Index</td>
<td>6</td>
<td>2.40 (0.30)</td>
<td>2.13 (0.33)</td>
<td>0.06, (-0.66, 0.05)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>1.04 (0.30)</td>
<td>0.70 (0.32)</td>
<td>0.43, (-1.10, 0.51)</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>1.39 (0.30)</td>
<td>0.56 (0.32)</td>
<td>0.05, (-1.48, 0.00)</td>
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<tr>
<td>BRIEF Behavior Regulation Index</td>
<td>6</td>
<td>41.85 (0.94)</td>
<td>46.67 (1.04)</td>
<td>&lt;0.01, (-7.57, -2.13)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>41.83 (0.95)</td>
<td>46.11 (1.03)</td>
<td>&lt;0.01, (-6.97, -1.58)</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>39.13 (0.96)</td>
<td>45.05 (1.03)</td>
<td>&lt;0.01, (-8.62, -3.23)</td>
</tr>
</tbody>
</table>

Background: Data regarding neurodevelopmental and behavioral outcomes among children who initiated antiretroviral therapy (ART) within 3 months old are limited. This study compares neurodevelopmental and behavioral outcomes among children with perinatally-acquired HIV infection (PHIV) and perinatally HIV-exposed uninfected children (PHEU). Methods: This is an observational study of children aged 12-56 months. PHIV children with 2 positive HIV DNA PCR were classified as early PHIV if they commenced ART within 3 months old, and late PHIV if ART began between 3 and 12 months. Age-matched PHEU children had negative HIV DNA PCR at age >4 months or anti-HIV negative at age >12 months. Neurodevelopmental outcomes were assessed with the Mullen Scale of Early Learning (MSEL). Behavioral outcomes were evaluated by Child Behavioral Checklist (CBCL). Global developmental impairment was defined by MSEL Early Learning Composite (ELC) Score of <70. Prevalence of development impairment and behavioral problems were compared by Chi-square test. Predictors of ELC scores were analyzed by multiple linear regression models. Results: From 2016 to 2017, 150 children were enrolled (27 early PHIV, 23 late PHIV and 100 PHEU children). Median (IQR) age was 28 (20-41) months. 37/50 (74%) of PHIV children had undetectable HIV-RNA. Prevalence of global developmental impairment was 26% in late PHIV, 74% in early PHIV, and 8% in PHEU, p=0.047. Mean ISDI ELC scores were 80 (18) in late PHIV, 85 (11) in early PHIV, and 90 (16) in PHEU, p=0.005. Late PHIV had significantly lower scores in gross motor and visual reception domains, p<0.05. Predictors of ELC score were ART initiation after 3 months old [mean difference -8.6, 95% CI (-15.3, -1.9)] and no nursery school attendance [mean difference -5.9, 95% CI (-11.4, -0.5)] p=0.06. No significant differences were observed in CBCL internalizing, externalizing or total behavioral problems. Among individual behavioral problems, somatic complaints were reported more often in late PHIV (64% in late ART, 48% in early ART and 33% in PHEU, p=0.02). Conclusions: Late PHIV had higher rate of developmental impairment when compared to early PHIV and PHEU. Early initiation ART and nursery school attendance mitigated neurodevelopmental scores in PHIV children.
Prevalence and cross-sectional correlates of cognitive difficulties among HIV-positive adolescents in South Africa

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Background: This study examined the baseline prevalence of cognitive difficulties and its correlates in a large community-based sample of South African adolescents.

Methods: A total of 1059 cART-initiated 10-19-years-old adolescents and 487 community controls attending 53 public health facilities in the Eastern Cape were interviewed in 2014-15. Cognitive difficulties were assessed as adolescent self-reports of past 6-months difficulties remembering things, following a story or conversation or < 60% immediate recall on a memory task or caregiver/school reports of an adolescent being a ‘slow-learner’ or attending a special needs school. Data on clinical and psychosocial variables associated with cognitive impairment were also gathered. Analyses were disaggregated by gender, HIV-status. To assess the correlates of cognitive difficulties, analyses used multivariable logistic regressions in Stata 14.

Results: The overall prevalence of cognitive difficulties was 64.4% (95% CI: 61.9-66.7). Cognitive difficulties were significantly higher among boys than girls (68.0% vs. 61.6%, p < 0.01). These findings are different for the different HIV groups. Indicating that the observed relationship between gender and cognitive difficulties was moderated by HIV status i.e. (61.8% vs. 59.2%, p = 0.078) and (70.4% vs. 62.8%, p < 0.001) for the community controls (apparently HIV-negative) and HIV-positive adolescents respectively. HIV-positive adolescents had higher rates of cognitive difficulties than community controls (risk difference 6%, p < 0.01). HIV-positive adolescents were also less likely to be in an age-appropriate grade than community controls (46.2% vs. 56.8%, p < 0.01). The prevalence of cognitive difficulties among adolescents for whom ART data were available was 63.7% (CI 59.4-67.7). Factors associated with cognitive difficulties among HIV-positive adolescents were age (aOR: 1.19, CI: 1.07-1.34); being in primary school (aOR: 1.99, CI: 1.10-3.42), physical disability complaints e.g. unable to self-care (aOR: 1.89, CI: 1.13-3.17), ADHD score (aOR: 1.21, CI: 1.07-1.37), and having opportunistic infections (aOR: 1.65, CI: 1.10-2.48). Stavudine-based regimens at baseline were associated with a lower likelihood of cognitive difficulties (aOR: 0.26, CI: 0.10-0.70). Other HIV treatment regimens were not associated with cognitive difficulties in our sample.

Conclusions: Cognitive difficulties were high among South African adolescents. Interventions to address cognitive impairment are urgently needed to prevent early onset dementia and help affected adolescents reach their full potential.

HIV-exposed uninfected children

THPEB155
A population-based study of health outcomes of HIV-exposed uninfected children using Ontario’s administrative health databases

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Background: Maternal treatment with combination antiretroviral therapy in pregnancy has led to a generation of HIV-exposed uninfected children (HEUs) globally and in Canada. Some data suggests increased immunologic, infectious and neurodevelopmental morbidities in HEUs. We utilized Ontario’s administrative health databases to estimate rates of these morbidities in Ontario-born HEUs.

Methods: A retrospective population-based study was conducted comparing diagnoses among children of women living with HIV to matched HIV-unexposed children born between 01-04-2002 and 31-12-2015. Each HEU was matched with up to 5 non-HEU children based on: year of birth, maternal age, calendar quarter of birth, neighbourhood income quintile, local health integrative network, and urban/rural residence. Child health outcomes included: all-cause and infection-related hospitalizations from 3-24 months of age, and autism or other developmental disabilities diagnosed from 2-10 years of age. Crude rates of outcomes were calculated and regression analyses adjusted for maternal risk factors/comorbidities, pregnancy syndromes and infant characteristics were conducted to determine whether HEUs were at greater risk of negative health outcomes.

Results: A total of 993 HEUs and 4953 matched non-HEU children were included in the analysis. All-cause (63.35 per 1000 person-years [PYs]) and infection-related hospitalizations (7.66 per 1000 PYs) among HEUs were higher than in matched non-HEUs (32.71 and 5.26 per 1000 PYs, respectively), with unadjusted hazard ratios (HR) for these diagnoses in HEUs were 1.232 (0.699-2.173) and 1.143 (0.652-2.002), respectively. The HR for autism among HEUs was 1.392 (1.125-1.682) and 1.465 (1.079-2.720), respectively. Adjusted hazard ratios (aHR) were 1.142 (0.836-1.548) and 0.681 (0.381-1.280), respectively. Rates of autism alone and autism plus other developmental disabilities were each 3.12 per 1000 PYs, higher than those for non-HEUs (2.29 and 2.60 per 1000 PYs, respectively. The HR for autism among HEUs was 1.392 (0.875-2.217) and for autism/developmental disabilities was 1.213 (0.767-1.919). aHR for these diagnoses in HEUs were 1.232 (0.669-2.173) and 1.143 (0.652-2.022), respectively.

Conclusions: HEUs had higher rates of all-cause and infection-related hospitalizations and developmental disabilities than matched controls; although adjusted hazard ratios showed no elevated risk of these outcomes compared to non-HEUs. This suggests a strong contributing role of maternal factors to the increased rates of outcomes, and warrants further investigation in this growing vulnerable population.

24-month incidence of hiv infection, loss to follow-up and mortality among exposed infants at referral hospitals in Uganda

THPEB156

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Background: Uganda has implemented Option B+ since 2012, but there is limited data on 24-months outcomes of HIV exposed infants. We examined the 24-month cumulative incidence of HIV-infection, loss to follow-up and death among HIV exposed infants at regional referral hospitals in Uganda. We also determined the factors associated with mother to child HIV transmission (MTCT).

24-month incidence of hiv infection, loss to follow-up and mortality among exposed infants at referral hospitals in Uganda

M. Kekiri1, H. Alima2, P. Elyanu3, G. Tugume1
1University Research Co LLC, Kampala, Uganda, 2University of Texas Health Sciences Center at Houston, School of Public Health, Texas, United States
Methods: We respectively reviewed clinical charts of HIV exposed infants (HEI) recruited in care between October 2012 and September 2013 at 11 regional referral hospitals in Uganda. The 24-month cumulative incidence of HIV, LTFU, and death was calculated using competing risks analysis, and predictors of MTCT determined using sub-distributional hazard regression analysis.

Results: Of 2959 HEI, 83 (2.8%) were excluded for missing date of birth and 2776 were included in the analysis. Of these 2776, the median age at 1st HIV test was 7 weeks (interquartile range: 6.4-12). The 24-month cumulative incidence of HIV infection, LTFU and death was 75% (95%CI: 66.1%, 85.1%), 31.7% (95%CI: 30.1%, 33.5%) and 0.9% (95%CI: 0.6%, 1.4%) respectively. The factors associated with MTCT were: mother or infant not receiving ARV’s for PMTCT Subdistributional Hazard ratio (sHR) 2.2(95% CI: 1.5, 3.2) and sHR 1.7(95%CI: 1.1, 2.6) respectively. Testing at age 2-6 months (sHR 2.195%CI: 1.3, 3.4) or age >7month (sHR 2.8[95%CI: 1.5, 5.1]) compared to testing 2 months of age. Other factors were mixed feeding, complementary feeding or no-longer breastfeeding at the time of first HIV test compared to those who were exclusively breastfed see table 1.

Conclusions: MTCT rate and loss to follow-up of HEI from care at regional referral hospitals in Uganda are high. Factors to prevent MTCT are maternal and infant ARV use, early care entry and testing, and exclusive breastfeeding. Loss to follow up should be addressed.

<table>
<thead>
<tr>
<th>Predictors*</th>
<th>Total</th>
<th>% infected</th>
<th>Univariable analysis Crude sHR (95% CI) (P-value)</th>
<th>Multivariable analysis sHR* (95% CI) (P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother ARVs for PMTCTs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2207</td>
<td>58</td>
<td>1.51 (3.8, 7.7) &lt;0.001</td>
<td>1.22 (2.1, 3.2) &lt;0.001</td>
</tr>
<tr>
<td>No</td>
<td>2046</td>
<td>102</td>
<td></td>
<td></td>
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<tr>
<td>Infant ARVs for PMTCTs</td>
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<tr>
<td>Yes</td>
<td>1813</td>
<td>39</td>
<td>1.5 (3.7, 4)</td>
<td>1.11 (7.1, 1.2, 4) 0.02</td>
</tr>
<tr>
<td>No</td>
<td>571</td>
<td>74</td>
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<td>Infant feeding at testing</td>
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<td>EBF Replacement</td>
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<td>11</td>
<td>1.31 (6.6, 2)</td>
<td>1.19 (0.9, 1.4) 0.11</td>
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<td></td>
<td>31</td>
<td>12</td>
<td>0.77 (9.8, 3)</td>
<td>2.1 (2.2, 3.0) 0.015</td>
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<td></td>
<td>86</td>
<td>74</td>
<td>0.76 (6.4, 2.1, 4)</td>
<td>2.31 (2.3, 4) 0.008</td>
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<td></td>
<td>276</td>
<td>24</td>
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<tr>
<td></td>
<td>86</td>
<td>24</td>
<td></td>
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<td>Age (months) at 1st HIV test &lt;2 2-6 &gt;7</td>
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<td>2.8</td>
<td>391</td>
<td>12</td>
<td>1.33 (2.3, 4.9)</td>
<td>1.27 (2.3, 3.4) 0.003 2.8 (1.5, 5.5) 0.001</td>
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<tr>
<td>24</td>
<td>346</td>
<td>26</td>
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<td></td>
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<td>Place of delivery of Health facility Home/TBA</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>2971</td>
<td>11</td>
<td>1.27 (1.2, 9.7)</td>
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<td></td>
<td>109</td>
<td>9</td>
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<td>Age of Mdm (years) &lt;20 20-24 and above</td>
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<td></td>
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<tr>
<td>15.3</td>
<td>289</td>
<td>8</td>
<td>3.51 (1.1, 5.7)</td>
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<tr>
<td></td>
<td>15585</td>
<td>7</td>
<td>5.1</td>
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Predictors associated with mother to child HIV transmission at 11 RRH, Uganda (N=2776)

THPEB158
HIV-exposure without infection impacts early language development: Outcomes from a South African birth cohort study

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Background: Sub-Saharan Africa, where HIV is most prevalent, has the highest proportion of children at risk of not reaching their neurodevelopmental potential. Whereas HIV infection is a known risk factor for developmental delay, effects of HIV and antiretroviral therapy (ART) in exposed HIV-uninfected (HEU) children remain unclear. We compared neurodevelopmental outcomes in HEU and HIV-unexposed uninfected (HUU) children during their first 2 years.

Methods: The Drakenstein Child Health Study is a population-based birth-cohort in the Western Cape, South Africa. Women were enrolled antenatally from two clinics between 2012-2015. Mothers and children from these two communities received HIV testing and treatment as per the Western Cape prevention of mother-to-child transmission guidelines at the time. Developmental assessments were conducted by trained assessors blinded to HIV/ART status, using the Bayley-III Scales of Infant and Toddler Development (BSID-III) at 6 and 24 months.

Results: A subgroup of 260 children (63 HEU, 99 HUU) had a BSID-III assessment at 6 months and 732 children (58 HEU, 564 HUU) at 24 months. Mean scaled scores of all subscales were within normal range (BSID-III standardised mean 10, SD 3) at 6 months with no differences between HEU and HUU (p>0.1). However, at 24 months, HEU scores were significantly lower than HUU in cognitive mean (SDI 6.80188 vs.7.14184, p=0.049; receptive 6.62182 vs.7.22519, p=0.001) and expressive language (6.94229 vs.7.57210, p=0.028); in contrast, fine and
Transition of adolescents into adult care

THPEB159
Post transition outcomes in young adults living with HIV: ‘90:99:80

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2Imperial College, 900 Clinic, HIV/GUM, London, United Kingdom

Background: Adolescence is the only age group where HIV associated mortality is rising, with poorer outcomes at all stages of the care cascade compared to adults; many cohorts report < 25% retained on suppressive antiretroviral therapy (ART) post transition to adult care. We examined the post transition outcomes for young adults (YA) with perinatal HIV (PaHIV).

Methods: Retrospective cohort analysis PaHIVYA attending a specialist service between 01.01.05 and 31.12.17, assessing retention, mortality, morbidity and viral load (VL) suppression. Incidence rates (IR) are compared to aged matched UK population data.

Results: 180 PaHIVYA contributed 921 person-years of follow-up within adult services. Over the study period, 14 (7.8%) transferred care, 4 (2.2%) were lost to follow-up (LTFU) and 4 (2.2%) died; median age 20 years (range 19-27), end-stage HIV/poor ART adherence (3), HIV/HBV hepatocellular carcinoma (HCC) (3), HCC (1); IR 4.3/1000 person-years (95%) CI 1.2 - 11.1; 10-fold the age-matched general population (incidence rate ratio IRRI 11.6 [95% CI 3.2 - 29.8]; p < 0.001). Post transition, 17/180 (9.4%) had 1 or more new AIDS diagnoses, IR 18.5/1000 person-years (95% CI 10.8 - 29.3). Four (2.2%) newly diagnosed lymphomas; malignancies (3); HCC (1); IR 4.3/1000 person-years (95% CI 1.2 - 11.1); twelve times the age-matched population (IRR 12.6 [95% CI 3.4 - 32.3]; p < 0.001). Nine new onset psychosis IR 9.8/1000 person-years (95% CI 4.5 - 18.6). IR to ethnically matched UK adults 50.3 (95% CI 22.6 - 97.1); p < 0.001. Of 158 in current follow up, median age 22.9 years (95% CI 20.3 - 25.4); 56% are female. 86%; Black African, 157 (94.4%) have ever received ART. At latest follow up, median CD4 count 626 cells/ul (IQR 441-820) and 127/158 (80.4%) have a VL < 200 c/ml (66/158 (42%) have resistance mutations; 23 (15%) mono, 33 (21%) dual and 10 (6.3%) tri/dual therapy. Post transition, 33/158 (20.9%) have had anxiety and/or depression, 3 attempted suicide and a further 4 self harmed.

Conclusions: Post transition retention in care with access to ART far exceeded 90:90:90 targets in this highly complex cohort. Whilst LTFU and mortality combined was < 5% over a decade, a fifth struggle with adherence and mental health issues prevail.

THPEB160
Increasing age predicts viral suppression in adolescents transitioning to adult HIV care

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2Oxford University Clinical Research Unit, Ho Chi Minh City, Vietnam

Background: Retention in care on antiretroviral therapy (ART) is key to long-term survival in people living with HIV. Perinatally-acquired HIV positive (PaHIV+) adolescents and young adults (AYA) face particular challenges when negotiating transition from paediatric to adult settings. Clinical data in HIV+ adolescents are limited despite a global population numbering two million. This retrospective, single-centre UK cohort analysis examines predictors of viral suppression in PaHIV+ AYA following transition to a specialist AYA service.

Methods: 147 PaHIV+ AYA with > 1 year ART experience were included. HIV viral load (VL) data were collected from first AYA clinic visit onwards. Two annual viral suppression outcomes were identified: intermittently suppressed (any VL < 400 c/ml in 1 year) or ‘suppressed’ (all VL < 400 c/ml in 1 year). Marginal logistic regression models using generalised estimating equations and independence working correlation structure were employed to explore sex, age at diagnosis, age and VL at first AYA clinic visit and increasing age as independent predictors of each outcome. Sensitivity analysis was conducted to examine the effect of drop out and missing data.

Results: 54% of patients were female and 82% Black African. Median age at first AYA clinic was 18yr (IQR7-19). Four patients were lost to follow up and 4 patients died during the data collection period. Amongst individuals with detectable VL at transition (<400c/ml, 36%), odds of having ‘intermittently suppressed’ or ‘suppressed’ VL increased with yearly increment in age (OR 1.64 [1.45, 1.85] p < 0.001. OR 1.47 [1.27, 1.69] p < 0.001). This relationship was preserved in individuals with at least 3 years of clinic data (OR 1.14, 2.00 p < 0.001. OR 2.51 [1.71, 3.69] p < 0.001). An inverse relationship between increasing age/logVL was also observed when VL was analysed as a continuous variable with imputations to account for missing data. Age at diagnosis and at first AYA clinic and gender were not significantly associated with VL at first AYA visit or annual VL status.

Conclusions: Viral suppression rates improved as AYA matured. With support, PaHIV+ AYA who are viraramic in transition can remain in care and achieve viral suppression.

THPEB161
Impact of a formal transition care process on young adults living with HIV attending who are moving from a pediatric to adult clinic in Mwanza, Tanzania

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2United Republic of. ‘Baylor College of Medicine International Pediatric AIDS Initiative At Texas Children’s Hospital, Houston, United States

Background: Adolescents and young adults living with HIV represent the only age group with increasing HIV prevalence and mortality worldwide. HIV-infected adolescents and young adults face many challenges to long term anti-retroviral treatment (ART) including peer pressure, risky behaviors, poor adherence, and missed appointments. To counter the potential risks these challenges pose for adolescents as they move from pediatric to adult care, the Baylor College of Medicine Center of Excellence - Mwanza,Tanzania (COE) has established a formal transition process. Adolescents complete 2 sessions between ages 15 and 17 prior to transfer to adult care. Through transition, they receive encouragement to take responsibility for their healthcare needs while learning more about their disease process and how to live positively with HIV.

Methods: To assess the impact of this transition process, we conducted a retrospective chart review of clients ages 18-24 years enrolling at Bugando Medical Centre (BMC) adult HIV clinic from January 2015 to May
Results: Sixty-four young adults who completed transition and 50 non-transitioned young adults were enrolled at BMC during the study period. Clinical and behavioral characteristics are presented in the accompanying table. Compared with non-transitioned clients, more transitioned clients had good adherence (89% vs. 64%, p < 0.01) and good clinical attendance (92% vs. 60%, p < 0.01). There were no pregnancies among the transitioned clients and one pregnancy among the non-transitioned clients. There was no difference in viral load results between the two groups.

Conclusions: Young adults completing a formal transition program had better attendance and adherence to ART. A transition process bridges the gap between pediatric and adult services and represents an effective strategy to ensure long term ART adherence for adolescents. Additional study is needed to determine the impact of transition programs on clinical indicators including viral load and treatment failure.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Transitioned Clients, n=64</th>
<th>Non-Transitioned Clients, n=50</th>
<th>p-value* (chi-square test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Line ART Regime</td>
<td>18 (28%)</td>
<td>5 (10%)</td>
<td>0.02</td>
</tr>
<tr>
<td>Good Clinical Attendance</td>
<td>50 (92%)</td>
<td>30 (60%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Missed Appointments</td>
<td>1 (2%)</td>
<td>14 (28%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Lost to Follow-Up</td>
<td>4 (6%)</td>
<td>6 (12%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Good Adherence</td>
<td>57 (89%)</td>
<td>32 (64%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Viral Load &gt;1000</td>
<td>7 (11%)</td>
<td>2 (4%)</td>
<td>0.61</td>
</tr>
<tr>
<td>Undetectable Viral Load</td>
<td>24 (36%)</td>
<td>16 (32%)</td>
<td>0.61</td>
</tr>
</tbody>
</table>
| *p<0.01 is significant based on alpha=0.05 using Bonferroni correction for multiple comparisons; **Viral load results not available for 26 transitioned and 28 non-transitioned clients. (Behavioral and clinical indicators among young adults living with HIV compared based on participation in a formal transition program)
of transition, advantages and disadvantages of transition, and what constitutes a successful transition. All participants provided written informed consent prior to FGD. Discussions were audio-recorded. FGDs in English were transcribed verbatim, those in Hausa were translated to English after transcription. Thematic analysis was performed using the MAXQDA software: common themes were extracted.

Results: A total of 150 ALHIV participated; 55 preparing for transition, 53 with successful transition, and 41 unsuccessful transition; 57% were female, 79% perinatally-infected, and 46% Muslim. Several themes emerged related to the experience of learning about transition; ALHIV reported feeling unhappy, anxious, confused, and uncomfortable when their health care provider introduced the idea of transition. Consistent with successful transition, and 41 unsuccessful transition; 57% were development of transition services in resource-limited settings.

Findings from this study will be presented to inform strategies for the interventions to support their transition from pediatric to adult HIV care.

Conclusions: The voices of ALHIV are essential to the development of interventions to support their transition from pediatric to adult HIV care. Findings from this study will be presented to inform strategies for the development of transition services in resource-limited settings.

Surveillance in key population groups

THPEC164
Do migrants acquire HIV before or after migration to Denmark? And can we determine the groups most in need of prevention?

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Background: Since the start of HIV-surveillance it has been assumed that most HIV-positive migrants were infected before arrival to Denmark. European research has revealed that the majority of migrants in Europe acquire HIV post-migration. The aim of this study was to determine what proportion of migrants in Denmark acquire HIV post-migration and to analyze the underlying demographic factors.

Methods: Using national surveillance data for 2005-2017 including date of migration, CD4-cell count, confirmed HIV-negative tests, acute HIV-infection or AIDS at diagnosis, we modelled pre-/post-migration HIV-acquisition among migrants who were newly HIV-diagnosed in Denmark. We grouped the migrants after region of origin, gender, and mode of infection. Tourists (160) and undocumented migrants (91) could not be included. Reasons for not using condoms were asked to indicate all reasons that applied. No unique identifiers to detect repeat testers were used.

Results: For 912 (98%) out of 928 migrants, 15 years or older at migration, it was possible to estimate time of infection as pre- or post-migration using the model. We included 860 migrants who were registered as MSM, and between region of origin. Figure 1 shows the most likely and the least likely groups to become infected after migration to Denmark. Groups with less than 10 HIV-positive were omitted as was persons from Greenland as they were all infected in Denmark regardless of group.

Conclusions: Among HIV-positive migrant-women regardless of origin, and HTX men from Asia, Eastern Europe and Sub-Saharan Africa the vast majority (65%-80%) of transmissions had occurred pre-migration. The opposite was true for Middle-eastern and North-African men and Eastern- and Western-European MSM. Among those groups 67%-79% were infected post-migration. Asian, Sub-Saharan and South American MSM were infected post-migration in just over half the cases (65%-60%). This large difference in risk of post-migration HIV-acquisition enables prevention-policies to focus on both openly gay men from MENA and Europe, and on men from MENA and Western Europe who seem to be MSM, but register as HTX because of stigma.

THPEC165
Changing motives to test for HIV and for not using condoms - an analysis of pre-test questionnaires from clients of community-based voluntary testing sites in three large German cities, 2015-2017

U. Marcus, S.B. Schink, German Checkpoint Collaborative Group
Robert Koch-Institut, Infectious Disease Epidemiology, Berlin, Germany

Background: Since 2015 the estimated HIV incidence among men having sex with men (MSM) residing in Germany has decreased. Due to a significant price cut, HIV pre-exposure prophylaxis (HIV-PrEP) became more widely affordable by late 2017. We analysed data collected by pre-test questionnaires from 7 community-based voluntary counselling and testing sites (CBVCT) from 2015 through 2017 in the three largest German cities to monitor changes in the motives for HIV testing and for not using condoms amongst MSM and non-MSM clients.

Methods: CBVCT clients filled-in self-administered pre-test questionnaires. Data collected included motives for HIV testing and motives for not having used condoms during the last sexual risk situation. Clients were asked to indicate all reasons that applied. No unique identifiers to detect repeat testers were used.

Changes in the frequency of motives of MSM and non-MSM CBVCT clients from 2015 through 2017 were analysed using logistic regression (with Stata 14).

Results: Data from 28,654 client visits (MSM: 18,936; non-MSM: 9,718) could be evaluated. Reasons for testing were given by 15,492 MSM and 7,850 non-MSM, reasons for not having used condoms by 7,949; 4,629 respectively. Reasons for testing were given by 15,492 MSM and 7,850 non-MSM, reasons for not having used condoms could be evaluated. Reasons for testing were given by 15,492 MSM and 7,850 non-MSM, reasons for not having used condoms by 7,949; 4,629 respectively.

Figure 1 shows changes of the frequency of responses from MSM and non-MSM clients comparing 2016 and 2017 with 2015. Amongst both groups, routine testing increased, while testing when entering a new partnership decreased. Having had an (unsuspected) HIV-positive partner decreased amongst MSM as reason for testing. Amongst both groups, routine testing increased, while testing when entering a new partnership decreased. Having had an (unsuspected) HIV-positive partner decreased amongst MSM as reason for testing. Amongst both groups, routine testing increased, while testing when entering a new partnership decreased. Having had an (unsuspected) HIV-positive partner decreased amongst MSM as reason for testing. Amongst both groups, routine testing increased, while testing when entering a new partnership decreased. Having had an (unsuspected) HIV-positive partner decreased amongst MSM as reason for testing. Amongst both groups, routine testing increased, while testing when entering a new partnership decreased. Having had an (unsuspected) HIV-positive partner decreased amongst MSM as reason for testing.

Conclusions: Promotion of routine sexual health checks at CBVCT is successful and appears to partly replace testing when entering a new partnership. Testing due to unprotected sex with an unsuspected HIV-discordant partner decreases, and viral testing (condomless sex with effectively treated partners) increases among MSM, suggesting increased serostatus awareness. Demand for condomless sex is increasing, which may be a consequence of increased serostatus awareness and may also reflect increasing discussion and awareness of HIV-PrEP as an additional prevention tool.
Background: It is estimated that 7% of the population of the Dominican Republic is Haitian or of Haitian descent (UNFPA 2013). However, uncertainty has persisted about the burden of HIV and the degree of risk between people who migrate from Haiti and people born in the Dominican Republic and 2% in Haiti. The prevalence is close to 5%, a threshold considered as a definition of a key population that merits special resources for the prevention and care of HIV. The study corroborates the fundamental hypothesis that mobile men in many parts of the world carry a disproportionate burden of infection.

**THPEC167**

Presentation with advanced HIV disease in a Southern US State, 1996-2013

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**Background:** Late presentation with HIV is associated with poor response to treatment and high risk of mortality and remains a major issue in all settings affected by HIV. In the US, national and state-level HIV testing programs have been initiated to enhance early diagnosis and link infected individuals to care. The objective of this study was to assess whether these programmatic efforts have improved the timing of presentation with advanced HIV disease (AHD) by examining presentation trends in a Southern US state.

**Methods:** This was a retrospective study of individuals aged 18 to 89 years who were diagnosed with HIV in Texas from 1996 to 2013. Eligible cases were identified using surveillance data from Texas Department of State Health Services. The proportion of individuals presenting with AHD, defined as having an AIDS diagnosis within 365 days of HIV diagnosis, was determined and compared for each year from 1996 to 2013—whether these programmatic efforts have improved the timing of presentation with advanced HIV disease (AHD) by examining presentation trends in a Southern US state.

**Results:** Of the 77,844 individuals included in the cohort, 78% were male and 27%, 38%, and 31% were Whites, Blacks, and Hispanics, respectively. Overall, 30,573 individuals (39%) presented with AHD. Sixty-five percent, 63.3%, and 60.2% of individuals diagnosed with HIV respectively presented with AHD in 1996, 1997, and 1998. The proportion presenting with AHD fell sharply to 38.3% in 1999 and then gradually declined to 29.3% in 2013. The percentage drop from 1996 to 2013 was greater among men (40%, 95% confidence interval:38%-42%) than women (18%, 14%-23%), greater among Whites (42%, 39%-46%) than Blacks (34%, 31%-38%) and Hispanics (35%, 31%-38%), and greater among males who have sex with males (41%, 39%-44%) than homosexuals (22%, 17%-26%) and injecting drug users (32%, 24%-41%) (p< 0.001 in each case).

**Conclusions:** In Texas, the timing of presentation with AHD has improved. The sharp drop in 1999 may reflect the introduction of highly active antiretroviral therapy allowing for uptake and adoption in clinical practice. Close to 30% presented with AHD in 2013, indicating that there are still opportunities for early diagnosis and consequent improvement of health outcomes for people living with HIV.

**THPEC166**

Surveillance surveys of behavior with biological linkage in Haitian and Dominican-Haitian construction workers living in Santo Domingo, Dominican Republic

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**Background:** It is estimated that 7% of the population of the Dominican Republic is Haitian or of Haitian descent (UNFPA 2013). However, uncertainty has persisted about the burden of HIV and the degree of risk behavior between people who migrate from Haiti and people born Dominican of Haitian descent. The degree to which their risk derives from factors related to internal and external migration, their livelihood while living in the Dominican Republic, their behavior, their access to health services and the effect of a higher overall prevalence of HIV compared with the Dominican Republic has not been measured.

**Methods:** Sampling of construction workers was carried out at the construction sites using a local-based cluster sampling design (VBCS). We start with a mapping phase to create a sample frame of construction sites including the number of workers in each location. We divided a map of Santo Domingo and its surroundings into five geographic areas: Distrito Nacional, Santo Domingo Este, Santo Domingo Oeste, Santo Domingo Norte and Boca Chica.

**Results:** A large percentage of the participants reported having had unprotected sex at some time (44.1%) with their last partner. 56.5% of the population believed that a person who looked healthy could not be HIV positive. This study calculated the prevalence of HIV among Haitian and Dominican-Haitian construction workers in Santo Domingo at 4.6%. That is, one in every 22 Haitian or Dominican-Haitian men who work in construction in Santo Domingo in 2014 was infected with HIV. The prevalence of syphilis among Haitian and Dominican-Haitian construction workers in Santo Domingo was 7.9%; that is, about one in every 13 workers was infected with syphilis in 2014.

**Conclusions:** Relatively high prevalence of HIV. In this sample, HIV prevalence was 4.6%, much higher than the national prevalence of 0.7% in the Dominican Republic and 2% in Haiti. The prevalence is close to 5%, a threshold considered as a definition of a key population that merits special resources for the prevention and care of HIV. The study corroborates the fundamental hypothesis that mobile men in many parts of the world carry a disproportionate burden of infection.

**[Figure 1. Reasons for screening and for not using condoms for MSM and non-MSM clients of CBVCT sites by survey year. Germany 2015-2017.]**
Background: Men having sex with men (MSM) remain one of the most HIV vulnerable groups of population in developed countries. There is very limited data on HIV epidemics among MSM in Central Asia region, especially in Tajikistan, primarily due to the hidden character of the group. The surveillance studies conducted earlier 2011 and 2015 showed alarming HIV prevalence among MSM (4.1% in Dushanbe and 2.7% in the whole country, 2015).

Methods: A cross-sectional integrated bio-behavioral survey was conducted among MSM by UN Development Program in Tajikistan and National AIDS Center from November to December, 2017. A total respondent-driving sample was 700 MSM (390 in Dushanbe).

Results: MSM in Dushanbe were 28 y. o. in average: 44% had secondary and 33% tertiary education. 38% are living with women; last 6 months they had sex with 3 men in average; last year, no one was an injection drug user; 72.6% (CI 68.2-78.0) used a condom at last anal intercourse with man; 8.5% (5.7-11.7) were HIV tested and knew their result during last 12 months.

In 2017, the prevalence of HIV among MSM in Dushanbe was 2.4% (CI: 0.9-4.3); HCV 4.3% (2.1-6.8) and syphilis 4.9% (2.7-7.2). In 2015 and 2011, HIV prevalence was 4.1% (2.6-5.1); 1.5% (0.2-3.2) respectively. HCV prevalence was 2.3% (0.9-4.0) and 3.9% (2.1-7.3); syphilis prevalence 9.3% (6.4-12.4) and 5.1% (2.7-8.8).

Conclusions: The analysis of the collected data shows that HIV, HCV and syphilis prevalence among MSM in Tajikistan are stabilized (compared to 2015). This is one of the major positive impacts of prevention programs among MSM in the country. For further progress in the prophylaxis of these infections among MSM prevention programs should be continued and strengthened.

Tuberculosis and HIV co-infection in the European Union: Epidemiology and tuberculosis treatment outcomes

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1European Centre for Disease Prevention and Control, Stockholm, Sweden
2National AIDS Center, Dushanbe, Tajikistan

Background: Tuberculosis (TB) is a common disease in people living with HIV. To implement adequate activities for the prevention and control of TB/HIV co-infection robust and timely information is essential. European Union (EU) and European Economic Area (EEA) countries report their TB cases annually to the European Surveillance System (TESSy). We analysed trend data on the epidemiology of TB-HIV co-infection and TB treatment outcomes of co-infected people in order to provide up-to-date information to guide TB control efforts.

Methods: We analysed case-based information on HIV status of TB cases for the years 2012 to 2016. We assessed reporting completeness, trends in TB-HIV co-infection and TB treatment outcomes 12 months after diagnosis.

Results: In the years 2012 to 2016, 14 to 21 of the 31 EU/EEA countries reported on HIV status of TB cases and in the countries reporting, the completeness was on average 65.3% (range between 2.2 and 100.0%). In the analysis period, the percentage TB-HIV co-infected cases varied between 3.1 and 3.3% in the EU/EEA. Of the countries reporting HIV status of > 20 TB cases in 2016, Malta reported the highest percentage of co-infected cases (6.0%), whereas Bulgaria, Cyprus, and Slovakia reported no co-infected cases. Four countries reported > 10% of the TB cases co-infected with HIV in any of the years included in the analysis. Of the total of 5109 co-infected cases 1413 (27.6%) were in women and 2065 (40.5%) in children < 15 years. For TB-HIV co-infected cases diagnosed in 2015, TB treatment outcomes were reported by 14 countries. Of 779 co-infected cases 438 (55.2%) were successfully treated. The percentage of cases successfully treated was similar in other years.

Conclusions: There are gaps in the surveillance of TB-HIV co-infection in the EU/EEA with about 65% of the countries reporting case-based HIV-status data. The observed co-infection percentage of around 3% is significantly lower than the 10% estimated at global level. An important point of attention are the treatment outcome results for co-infected cases which are worse than the overall treatment success rate of 71.5% in the EU/EEA and far from the 85% target.

Measuring late diagnosis in an era of frequent testing: Correcting for CD4 at seroconversion

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2Public Health England, Virus Reference Department, London, United Kingdom

Background: For public health purposes, persons diagnosed with a CD4<350 are classified as “late presenters”. However, people can experience a transient dip in CD4 during seroconversion or may experience rapid progression of HIV and expedite CD4 decline, resulting in misclassification. We present a novel algorithm to measure late diagnosis using tests for recent infection (TRI) and evidence of recent negative tests.

Methods: All persons diagnosed in England, Wales and Northern Ireland between 2011-2016 with baseline CD4 within 92 days were included (83% completion) and linked to TRI results and STI clinic data for testing history. Those with viral load < 200 indicated recent treatment initiation and were excluded. Patients with TRI LAg results ≤1.5 and CD4 >50 suggested likely recent infection and those with negative HIV tests within 2 years ILIN were classified as “not-late”. A correction factor (CF) was defined as the percentage change applied to the original figure to adjust for seroconversion (CF=unadjusted/adjusted*100).

Results: Of 27,652 eligible people, 43% (11,935) had CD4<350 (unadjusted late diagnosis figure); 55% (15,324) had a TRI and 20% (5,516) had a LN test. No difference by age, ethnicity or country of birth was observed between those with/without CD4 or TRI information.

Among those with CD4<350, 7% (480/6,655) had a TRI suggesting recent HIV acquisition and a further 6% (657/6,795) had a LN test. Reclassification of these cases resulted in a late diagnosis rate of 37% (5,668/15,324) among those with complete information and 38% (10,479/27,652) for the whole study group, equating to a CF of 16%. The CF increased over time (from 11% in 2011 to 19% in 2015) and was larger among gay and bisexual men (27%) than heterosexual men and women (both 8%) (table 1).

Tuberculosis and HIV co-infection in the European Union: Epidemiology and tuberculosis treatment outcomes

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2National AIDS Center, Dushanbe, Tajikistan

Background: Tuberculosis (TB) is a common disease in people living with HIV. To implement adequate activities for the prevention and control of TB/HIV co-infection robust and timely information is essential. European Union (EU) and European Economic Area (EEA) countries report their TB cases annually to the European Surveillance System (TESSy). We analysed trend data on the epidemiology of TB-HIV co-infection and TB treatment outcomes of co-infected people in order to provide up-to-date information to guide TB control efforts.

Methods: We analysed case-based information on HIV status of TB cases for the years 2012 to 2016. We assessed reporting completeness, trends in TB-HIV co-infection and TB treatment outcomes 12 months after diagnosis.

Results: In the years 2012 to 2016, 14 to 21 of the 31 EU/EEA countries reported on HIV status of TB cases and in the countries reporting, the completeness was on average 65.3% (range between 2.2 and 100.0%). In the analysis period, the percentage TB-HIV co-infected cases varied between 3.1 and 3.3% in the EU/EEA. Of the countries reporting HIV status of > 20 TB cases in 2016, Malta reported the highest percentage of co-infected cases (6.0%), whereas Bulgaria, Cyprus, and Slovakia reported no co-infected cases. Four countries reported > 10% of the TB cases co-infected with HIV in any of the years included in the analysis. Of the total of 5109 co-infected cases 1413 (27.6%) were in women and 2065 (40.5%) in children < 15 years. For TB-HIV co-infected cases diagnosed in 2015, TB treatment outcomes were reported by 14 countries. Of 779 co-infected cases 438 (55.2%) were successfully treated. The percentage of cases successfully treated was similar in other years.
THPEC171
Complex health issues experienced by people accessing HIV care in England

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**Background:** As people with HIV are living longer, an increasing number may experience complex health issues. Using national HIV cohort data we examine the demographic characteristics of patients with co-morbidities, co-infection and persistent viraemia accessing HIV care in England.

**Methods:** We used attendance-based data on adults (aged 15+) attending specialist HIV clinics in 2016. Clinics submitting all 4 quarters (1637/183, 92%) of data were included and attendances linked across quarters. We analysed demographic characteristics of patients with and without a co-morbidity or co-infection reported at one or more attendances in 2016 including: tuberculosis, an AIDS-defining illness, HIV-associated end organ disease, cancer (on treatment) care, chronic viral liver disease (receiving treatment) and under psychiatric care, and those with persistent viraemia (≥2 viral loads ≥200 copies/mL after >6 months on ART). A suppressed viral load was defined as a viral load <200 copies/mL.

**Results:** Of 68,667 adults included in the study, 12% (8,306/68,667) had at least one co-infection, co-morbidity or persistent viraemia reported in 2016 with 2% (1,102/68,667) experiencing two or more conditions. Demographic characteristics differed by condition (Table 1) with co-morbidities disproportionately affecting older persons and those living in more deprived areas of England. Among people with any co-morbidity, co-infection or persistent viraemia, 41% were aged 50 years or over and 6% were aged 65 years or over. This compared to 36% and 5% for those without these conditions. 77% of people with a co-morbidity or co-infection were men, compared to 67% without. Regardless of co-infection or co-morbidity, >52% of people on HIV treatment attained viral suppression.

**Conclusions:**

1. Prevalence and key demographics of co-morbidities, co-infections and persistent viraemia

<table>
<thead>
<tr>
<th>Condition</th>
<th>% of study population</th>
<th>% aged over 50 years</th>
<th>% living in most deprived quintile</th>
<th>% on treatment with suppressed viral load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis treatment</td>
<td>0.7%</td>
<td>31%</td>
<td>42%</td>
<td>94%</td>
</tr>
<tr>
<td>AIDS-defining illness</td>
<td>2.3%</td>
<td>48%</td>
<td>41%</td>
<td>94%</td>
</tr>
<tr>
<td>Chronic viral liver disease</td>
<td>2.0%</td>
<td>42%</td>
<td>37%</td>
<td>96%</td>
</tr>
<tr>
<td>Cancer treatment</td>
<td>1.1%</td>
<td>58%</td>
<td>35%</td>
<td>96%</td>
</tr>
<tr>
<td>End organ disease</td>
<td>3.1%</td>
<td>60%</td>
<td>39%</td>
<td>96%</td>
</tr>
<tr>
<td>Under psychiatric care</td>
<td>3.3%</td>
<td>35%</td>
<td>39%</td>
<td>92%</td>
</tr>
<tr>
<td>Persistent viraemia</td>
<td>1.5%</td>
<td>25%</td>
<td>43%</td>
<td>N/A</td>
</tr>
<tr>
<td>None</td>
<td>87.9%</td>
<td>36%</td>
<td>35%</td>
<td>97%</td>
</tr>
</tbody>
</table>

Prevalence and key demographics of co-morbidities, co-infections and persistent viraemia.

**Conclusions:**

A significant proportion of people living with HIV experience complex health issues, with the prevalence of certain conditions increasing with age. We anticipate that the economic impact of such conditions will intensify as people continue to live longer with HIV. Complex health issues were more common among people living in deprived areas which may suggest inequity of access to appropriate healthcare services. Reassuringly, the presence of a co-infection or co-morbidity did not have a significant adverse effect on virological suppression, suggesting effective management of HIV by clinicians in spite of co-morbidity and co-infection.

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THPEC172
Vulnerability, risk and HIV, Syphilis and other infections among female sex workers in Agadir, Casablanca, Fes, Marrakesh, Rabat and Tangier, Morocco 2016

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**Background:** An HIV bio-behavioral survey using respondent-driven sampling was conducted in 2016 among 256 female sex workers (FSW) in Agadir, 276 in Casablanca, 253 in Fes, 254 in Marrakesh, 250 in Rabat and 261 in Tangier.

**Methods:** Eligible females were ≥18 years, reported exchanging penetrative sex for money with > one male client in the past six months, having Moroccan nationality and working in the study location. Respondents completed an interview and provided blood specimens for HIV and syphilis. These findings are compared to a 2011-2012 survey.

**Results:** As in 2011-2012, almost half of FSW in all cities reported ever attending school and most reported having been married but currently being either separated or divorced and financially supported other adults or children. The percentage of Agadir FSW reporting always using condoms in the past 30 days increased significantly, by almost 30% between 2011-2012 and 2016 whereas in Fes, Rabat and Tangier percentages were unchanged or declined. Between 27% in Tangier and 68% in Agadir reported having an HIV test in past 12 months, among which all or almost all received their results (Table). There were substantial increases in ever having an HIV test in Agadir, Fes, Rabat and Tangier between the 2011-2012 and 2016 surveys. Agadir FSW had the highest HIV prevalence and Tangier FSW had the highest active syphilis prevalence. Overall, HIV prevalence was >2.5% and syphilis prevalence was >25%. Between 2011-2012 and 2016, there were non-significant decreases in HIV prevalence in Agadir (5.1%-2.3%) and increases in Tangier (1.4%-1.8%) and a significant decrease in Fez (1.8%-0.2%). No one was positive for HIV in Rabat in 2011-2012 and only one person was positive in 2016 (0.4%). In Agadir, active syphilis prevalence was 21.2% in Casablanca 15.7%, in Fes 21.7%, in Marrakesh 22.6%, in Rabat 4.7% and in Tangier 24.8%. Although there was no change in syphilis prevalence in Agadir (21.2%) and Fes (18.8%) between 2011-2012 and 2016, there was a significant increase in Tangier (13.3%) and decrease in Rabat (13.9%).

**Conclusions:** Findings show improvements in HIV testing but also identify the need to expand programs targeting FSW in Morocco.
Background: The South African National PMTCT programme has made remarkable progress in reducing vertical transmission and increasing the proportion of children and adolescents entering care with advanced HIV disease. CD4 testing to identify advanced disease, provide screening and timely ART initiation for children and adolescents entering care with advanced HIV disease (CD4 < 200 cells/mm$^3$) is critical.

Methods: We constructed a cohort of children and adolescents aged 5-19 years utilizing nationwide laboratory records of CD4 counts from 2005-2016. Using probabilistic linkage methods, we determined first CD4 cell count at entry to care. Numbers and proportions of patients with first CD4 < 200 cells/mm$^3$ by age and sex were calculated.

Results: From 2005-2016, 587,316 children and adolescents had a first CD4 count test and 18.0% had CD4 count < 200 cells/mm$^3$. The proportion of children and adolescents entering into care with advanced HIV disease (CD4 < 200 cells/mm$^3$) over time.

Conclusions: The proportion of children and adolescents presenting with advanced HIV disease remains consistently high despite ART scale up. Testing campaigns focused on early HIV-diagnosis and linking patients to ART care should be prioritised, particularly among adolescent boys. CD4 testing to identify advanced disease, provide screening and prophylaxis for opportunistic infections and rapidly initiate ART remains critical.

<table>
<thead>
<tr>
<th>Year</th>
<th>0-199 Cells/mm$^3$</th>
<th>Females With First CD4 Test No.</th>
<th>Males With First CD4 Test No.</th>
<th>All Sexes With First CD4 Test No.</th>
<th>RR (95% CI) of Males with First CD4 Count 0-199 Cells/mm$^3$ Compared to Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-07</td>
<td>20.3% (10,996)</td>
<td>54,329</td>
<td>30.0% (5,357)</td>
<td>17,886</td>
<td>22.6% (16,353)</td>
</tr>
<tr>
<td>2008-10</td>
<td>17.7% (18,037)</td>
<td>104,800</td>
<td>28.3% (8,196)</td>
<td>28,184</td>
<td>20.0% (26,722)</td>
</tr>
<tr>
<td>2011-13</td>
<td>14.6% (22,389)</td>
<td>153,281</td>
<td>23.6% (11,691)</td>
<td>49,086</td>
<td>16.8% (34,080)</td>
</tr>
<tr>
<td>2014-16</td>
<td>13.4% (18,131)</td>
<td>135,136</td>
<td>23.6% (10,340)</td>
<td>43,814</td>
<td>15.9% (28,471)</td>
</tr>
<tr>
<td>All years</td>
<td>15.7% (70,043)</td>
<td>447,546</td>
<td>25.5% (55,583)</td>
<td>139,770</td>
<td>18.0% (105,626)</td>
</tr>
</tbody>
</table>

(Females, Males, and All Subjects 5-19 Years of Age With First CD4 Count Test >200 Cells/mm$^3$ by Sex and Calendar Year of Test, South African National HIV Cohort, 2005-2016)
THPEC175
An innovative vending machine-based HIV testing and intervention service: Anonymous urine collection kits distributed at universities in China

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Background: Vending machines have recently been evaluated as a feasible delivery mode for HIV tests. In this study, we for the first time, assessed an innovative HIV vending machine and internet-based anonymous urine test at seven universities in four provinces of China in 2016.

Methods: The students anonymously and voluntarily purchased the urine collection kits from vending machines after publicity campaigns which were launched by university student organizations on campuses. Students collected their own urine samples in private and returned them to vending machine return slot. Urine samples were transported to the laboratory for testing within seven days using urine HIV-1 antibody ELISA kits. Uploaded the results to a special website where participants could receive their test results. Provided testing instructions on the results search page and a confidentiality notification for participants to receive post-test support services. Finally, retrieved and analyzed the data from the positioning and online data management systems.

Results: In total, we dispensed 957 HIV urine collection kits through vending machines sales and free as part of an education campaign, a total of 378 (39.5%) urine samples were returned and 376 (99.5%) of them were qualified to be tested for HIV antibody in a local professional laboratory. 7 (1.86%) urine samples were HIV antibody positive. 67.8% (255/376) participants searched for their test results using the internet. The percentages of participants testing HIV antibody positive and negative who searched for their results were 100% (7/7) and 67.2% (248/376). Finally, 1 of 7 HIV antibody-positive participants voluntarily accepted support services and was referred to a hospital for antiviral treatment.

Conclusions: The results showed the acceptability, feasibility, and effectiveness of this innovative HIV testing service based on vending machines. This service can play an important role in HIV education and intervention.

THPEC176
Disparities in timely ART initiation among persons newly diagnosed with HIV in San Francisco, California, USA 2011-2016

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Background: In 2010 the San Francisco Department of Public Health recommended universal antiretroviral therapy (ART) for all persons with HIV regardless of CD4 count and in 2015 implemented the rapid ART initiation initiative. We used the San Francisco HIV surveillance registry data to examine trends and characteristics of persons with timely ART initiation and reasons for not initiating ART.

Methods: Data were obtained from mandatory HIV reporting from laboratories and physicians, and from medical chart review that included dates of HIV diagnosis and ART initiation and when noted in the chart, reasons for not initiating ART. Persons aged 13 years and older who were diagnosed with HIV in 2011-2016 and resided in San Francisco at time of diagnosis were included. Differences in socio-demographic and risk characteristics between those who initiated ART within one month of diagnosis and those who did not were assessed using the Chi-Square test. Logistic regression was used to identify factors independently associated with timely ART initiation.

Results: The population was predominately male (90%), white (43%), men who have sex with men (MMS) (74%), aged less than 40 years (59%), born in the United States (67%), housed (90%), and had CD4 count ≥ 200 cells/mm³ at diagnosis (78%). The number of persons newly diagnosed with HIV increased from 2011 to 2012 and then declined through 2016. Overall, 55% of the 2083 persons diagnosed in 2011-2016 initiated ART within one month of diagnosis, increasing from 36% in 2011 to 72% in 2016 (p < 0.0001). In the multivariate analysis, females, trans females, African Americans, MSM who inject drugs, and persons without health insurance were less likely to initiate ART within one month of diagnosis (all p < 0.05). Of the 203 persons not known to have started ART, 51% were not in care and 7% of patients refused ART. Other less frequently documented reasons included perception of non-adherence and homelessness.

Conclusions: While rapid initiation of ART has become significantly more likely in recent years in San Francisco, improved timely ART initiation has not benefited all persons equally. Efforts to address barriers to timely ART initiation should focus on vulnerable populations.

THPEC177
High HIV and STI diagnosis rates in people without health insurance in community based HIV/STI testing services in large cities across Germany, 2015-2017

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Background: Universal health insurance was mandated in Germany in January 2005 requiring everybody to have public or private healthcare coverage. Nevertheless, people report that they lack health insurance. We analysed health outcome data from community-based voluntary counselling and testing (CBVCT) with regard to insurance status in Germany from 2015 through 2017.

Methods: CBVCT visits from self-administered pre-test questionnaires. Data collected included sexual orientation, migration, hepatitis A vaccination and health insurance status. We matched questionnaire data to laboratory results for HIV, gonorrhea and chlamydia. We used bivariate analysis and multivariate logistic regression (MLR) analysis with stratification by self-declared gender/sexual orientation (women, heterosexual, homosexual men, men having sex with men (MSM) in Statcalc 14.

Results: Data from 27,439 CBVCT visits were evaluated. 43% (1,190) reported no valid health insurance. Compared to women, heterosexual men were 15 times (odds ratio (OR) = 15, 95% confidence interval (95% CI: 11-19) and MSM more than twice (OR=2.4, 95%CI: 1.9-3.1) as likely to be uninsured. Compared to nationals, we found no difference to people with a parental migration history, however clients born abroad were almost 15 times more likely to be uninsured (OR=14, 95%CI: 12.3-17.8). Table 1) A new HIV diagnosis was 3.5 times (OR=3.5, 95%CI: 2.5-5.1) more likely in visits by uninsured people compared to insured people. For MSM without healthcare coverage. MLR showed that MSM were twice (OR=2.0, 95%Cİ: 1.6-2.5) as likely to be vaccinated against hepatitis A virus infection, 1.4 times (OR=4.4, 95%CI: 1.1-19) more likely to test positive for gonorrhea and/or chlamydia and 2.9 times (OR=2.9, 95%CI: 1.6-5.4) more likely to be newly diagnosed with HIV infection.

Conclusions: In spite of mandatory health insurance, 43% of CBVCT visits are by people who are uninsured. Uptake of recommended preventative services like HAV vaccination is lower while infection rates with gonorrhea and chlamydia are higher in uninsured MSM. Infected rates for HIV are higher among women, heterosexual men and MSM alike. Since CBVCT welcome uninsured people at risk for HIV and other infections, we recommend that either referral services for treatment complement CBVCT screening or CBVCTs are strengthened to provide treatment to those without access to care.
Recent HIV infection among newly diagnosed individuals in the Eastern European country of Georgia, 2015-2016

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Background: Surveillance of recent infection can help to better understand patterns of HIV transmission and identify populations at most risk of infection. Initially injection drug use driven HIV epidemic in Georgia had been shifting to predominance of sexual transmission. Objective of this study was to identify recent infections and associated factors among newly diagnosed persons.

Methods: Recent HIV infections were identified using recent infection testing algorithm (RITA) combining laboratory assay for recent infection and clinical data on immune status and disease stage. Limited antigen avidity (LAg) enzyme immunoassay (EIA) was used on frozen remnant HIV diagnostic specimens. Data on CD4 cell count, presence of AIDS defining illness and viral load was extracted from the national AIDS health information system. HIV infection was defined as recent if individual had LAg EIA and did not have evidence of longstanding infection. Study included 1132 adult persons newly diagnosed in 2015-2016 (80% of new diagnoses made).

Results: Among 1132 persons included 547 (48.3%) were infected in 2015 and 585 (51.7%) in 2016. 853 (75.4%) were men and 279 (24.6%) women; 599 (52.9%) were infected through heterosexual contact, 324 (28.6%) - through injection drug use (IDU) and 324 (28.6%) through sex between men. Overall 156 (12.0%) persons were classified as recently infected with HIV in this population.

Conclusions: High rate of recent infection among MSM indicates active ongoing transmission of HIV in this population. Scale-up of combination prevention including PrEP for MSM is urgently needed to halt the spread of the virus.

Trends in HIV and HCV seroprevalence among inmates entering the NYS department of corrections and community supervision system, 1988-2015

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Background: HIV and HCV are serious health issues for correctional facilities and their incarcerated populations. Rates of diagnosed HIV infection among persons incarcerated in US prisons are more than five times higher compared to those not incarcerated: estimates of HCV prevalence range from 10-17 times higher. This analysis monitors trends in HIV and HCV seroprevalence among persons entering custody of the New York State (NYS) prison system over three decades.
Wednesday 25 July

Methods: Since 1988, NYS Department of Health and Department of Corrections and Community Supervision have conducted biennial crosssectional anonymous HIV seroprevalence surveys among persons entering the NYS prison system. HCV testing was introduced in 2000. Self-reported demographic and risk data are collected during medical intake, and remnant blood is tested for HIV and HCV antibodies. Females are oversampled.

Results: 43,051 persons are included in the study. The 2015 cohort includes 4,239 newly incarcerated persons, who are predominately male (80%) and racially diverse (42% black; 32% white; 21% Hispanic). Median age is 34 years. Self-reported HIV and HCV risk includes history of injection drug use (19.5%), sex partner of person who injects drugs (11.4%), history of exchange sex (4.1%), and male to male sexual contact (2.5%). The 2015 cohort has the highest proportion self-reporting injection drug use since the 1992 (15.5%) and 1998 (27.6%) study cohorts.

Between 1988 and 2015, HIV seroprevalence decreased significantly for both male and female incoming inmates (17.6% to 1.9% males; 18.8% to 2.8% females). HCV seroprevalence was relatively stable over time for males. Among females entering prison, 2015 marked a reversal in the historical decline in HCV seroprevalence since the 2003 high, with 24.2% seropositivity. Between 2012 and 2015, HCV seroprevalence increased 65.8% among females. Overall HIV–HCV coinfection rates are low in 2015 (0.63%), though 31% of HCV seropositive inmates were also HCV seropositive.

Conclusions: This study is the longest and largest HIV and HCV seroprevalence study of an incoming addressing HIV and HCV treatment needs, both during and after incarceration.

We compared housing status reported during MMP interviews between 2012–2016 with eHARS data and a Kappa score was calculated to estimated agreement between the two data sources. For persons with multiple addresses, the address with date closest before and after the MMP interview was selected (N=1,030).

Results: Twenty-seven percent of MMP participants who self-reported as homeless were also classified as homeless in eHARS and 97.6% of MMP participants classified as housed were classified as housed in eHARS (Table). The Kappa coefficient showed fair agreement by housing status between data sources (κ= 0.162, 95% CI 0.237 - 0.399, p< .001). Ninety-two of the homeless MMP participants reported living in a SRO. If these 92 were reclassified as housed in MMP, the concordance between self-reported homelessness in MMP and eHARS would increase to 30.6% and decrease between participants classified as housed to 96.5%.

Conclusions: The strict definition of homelessness used by surveillance significantly underestimated self-reported homelessness and unstable housing among PLWH.

Go forward, surveillance-based definitions of homelessness should be considered conservative and may benefit from including of other types of unstable housing including living in a SRO.

| [Homelessness by data source - comparing matched self-reported Medical Monitoring Project data with surveillance-based eHARS data] |

### THPEC181

**Definitions of homelessness - surveillance-based housing status compared to self-reported housing status, San Francisco, California, USA, 2012–2016**

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**Background:** Unstable housing and homelessness have been shown to be risk factors for HIV seroconversion and strong predictors of suboptimal health outcomes among people living with HIV (PLWH). We sought to compare housing status among PLWH in the San Francisco (SF) surveillance case registry (eHARS) with self-reported housing status from interview during the Medical Monitoring Project (MMP) to assess concordance.

**Methods:** In SF, housing status and address is collected at time of diagnosis and updated through medical chart abstraction and from HIV-related laboratory reports. PLWH are defined as homeless in eHARS if their medical record states they are homeless or not housed or their address is a known homeless shelter or free postal address not connected to a residence. Persons living in a single room occupancy hotel (SRO) or other transitional housing situation are considered housed. MMP is a supplemental surveillance project collecting information on HIV care via interview that defines homelessness as living on the streets, a shelter, a SRO or a car 12 months prior to interview.

| [HIV and HCV Seropositive of Inmates Entering the NYS DOCCS, 1988-2015] |

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<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV Seropositive - Female</td>
<td>18.8</td>
<td>N/A</td>
<td>20.3</td>
<td>15.8</td>
<td>17.8</td>
<td>13.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV Seropositive - Male</td>
<td>17.6</td>
<td>8.8</td>
<td>11.5</td>
<td>9.9</td>
<td>6.6</td>
<td>4.7</td>
<td></td>
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</tr>
<tr>
<td>HCV Seropositive - Female</td>
<td>23.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCV Seropositive - Male</td>
<td>13.4</td>
<td></td>
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</tr>
</tbody>
</table>

**THPec182**

**Misclassification of the male-to-male sexual mode of HIV transmission in HIV case reporting data in Ukraine**

O. Varetska1, K. Dumchev2, C. Vitek3
1Alliance for Public Health, M&E Team, Kyiv, Ukraine, 2. Ukrainian Institute on Public Health Policy, Kyiv, Ukraine, 3. Ukraine Country Office, Division of Global HIV/TB, Centers for Disease Control and Prevention, Kyiv, Ukraine

**Background:** The literature suggests that stigmatization of men who have sex with men (MSM) leads to underreporting of male to male sexual transmission of HIV in Ukraine. As of December 31, 2015, 1,368 HIV cases were registered with male to male sexual mode of transmission in Ukraine out of a total of 128,604 registered cases (1.1%). Recent integrated bio-behavioral surveillance (IBBS) data suggest HIV prevalence among MSM is 13% in certain cities, and a minimum of 14,000 MSM live with HIV infection nationwide. Reluctance by clinicians to assess sexual behavior risks and hesitation by patients to self-report stigmatized risk behaviors may lead to misclassification or non-reporting of transmission risk.

The purpose of this study is to evaluate the probable misclassification of male to male sexual mode of transmission in Ukrainian HIV case reporting.

**Methods:** The study included 2,066 randomly selected HIV-positive males enrolled into care in 7 regions of Ukraine during Q4 (October – December) of 2013, 2014 and 2015. Results of patient interviews about potential exposure to HIV and presence of risk behavior in the past 10 years (to capture all potential risks prior to transmission) were compared to the patient registration data used for the Ukrainian case-reporting system. McNemar’s test was used to test the difference between paired measures.

**Results:** Of 2,066 study participants, 1,240 participated in the interview. Out of these, 59 (4.7%) (95%CI 3.5%-6.0%) had male to male sexual mode of transmission recorded in the medical record. 130 (10.6%) (8.6%-12.6%) reported male-to-male anal sex in past 10 years during the interview, and 96 of them (7.7% of total 13% of-9.3%) denied injecting drug use, thus likely they acquired HIV through MSM contact. Therefore, the true proportion of MSM transmission among newly registered cases may be at least 1.7 times higher than currently reported 4.7% (p< 0.001).
Conclusions: This study provides evidence of misclassification of the male-to-male sexual mode of HIV transmission in HIV case reporting data in Ukraine. Improvements in ascertaining risk-factor information from patients are important to monitor the epidemic and to provide relevant HIV clinical care.

THPEC183
Estimating the number of men who have sex with men (MSM) and female sex workers (FSW) in Mozambique using a multiple methods approach

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Background: Mathematical modelling demonstrates that the greatest reduction in HIV incidence can be achieved through prioritization of resources to key populations. Evidence is needed about the number of men who have sex with men (MSM) and female sex workers (FSW) in order to measure their contribution to the HIV epidemic and appropriately allocate prevention and treatment efforts. Mozambique conducted the first Biobehavioral Survey (IBBS) survey in three urban areas Maputo, Beira and Nampula in 2012. This analysis presents size estimations for MSM and FSW.

Methods: We used multiple methods to generate best estimates of MSM and FSW living in major cities in Mozambique: unique object, unique event and service multipliers with sequential sampling. Multiplier methods rely on two independent data sources from the same target group. Sequential sampling is a relatively new Bayesian approach for estimating population size using data from Respondent Driven Sampling (RDS) survey methodology. The median used different estimators to establish best estimates for each city-population, while the interquartile range of the different estimates served as plausibility bounds. Our best estimate was then compared to plausibility bounds found in the literature.

Results: IBBS survey were conducted among MSM (Maputo n=496; Beira n=583; Nampula n=353) and FSW (Maputo n=401; Beira n=442; Nampula n=429). The numbers of MSM were estimated at 10,070 (1.9% of the adult male population) in Maputo, 2,129 (1.5%) in Beira and 1,608 (1.1%) in Nampula. Among FSW, population size was estimated at 8,603 (1.5% of the adult female population), 2,936 (2.4%) and 2,033 (1.4%), respectively. Using these population size estimates, we estimate that there are 951 MSM in Maputo, 179 in Beira, 45 in Nampula and 1,851 FSW in Maputo, 619 in Beira and 328 in Nampula living with undiagnosed HIV.

Conclusions: Our results demonstrate the feasibility of using multiple methods to generate population sizes, falling within the estimates produced in other sub-Saharan countries. This provides essential information for optimal resource allocation and contributes to the literature about key populations in the region.

THPEC184
Results of a third round of HIV surveillance amongst female sex workers in Hargeisa, Somaliland

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Background: Research in Somaliland indicates a concentrated HIV epidemic, including two previous rounds of HIV surveillance in Hargeisa, Somaliland in 2008 and 2014, showing an HIV prevalence amongst female sex workers (FSW) of 5.2% and 4.8%. A third round of surveillance was conducted in 2017.

Methods: A cross-sectional integrated biological and behavioural surveillance survey among FSW was undertaken between April and June 2017. A total of 238 FSW participated in the study. A face-to-face, structured interview using electronic data collection was completed and blood samples collected for serological testing. All three surveillance surveys used respondent driven sampling and data was analysed using RDS Analyst for comparing results.

Results: The 2017 IBBS survey showed a steady decline in HIV prevalence in Somaliland from 5.1% in 2008 to 4.8% in 2014, and 3.6% in 2017. On the contrary, prevalence for active syphilis decreased from 3.4% in 2008 to 2.4% in 2014, and rose again to 3.3% in 2017. Condom use with last client has steadily improved across the three surveys - 25.6% in 2008, 31.5% in 2014, and 37.0% in 2017. Similarly, the proportion of vulnerable women who know their HIV status from an HIV test 12 months prior to this survey shows an upward trend - 24%, 21.3% and 36.5% in 2008, 2014 and 2017, respectively.

Similarly, improvement on knowledge has improved significantly: with 48.6% of FSW in 2017 correctly identifying ways of preventing sexual transmission of HIV and rejecting major misconceptions, in comparison with 10.4% in 2014 and 6.4% in 2008. However, key indicators around stigma and discrimination remain suboptimal. 30.7% of FSW avoid accessing services because of stigma and prevention programmes are only reaching 23.1% of the population, two indicators which were added to the survey in 2017.

Conclusions: HIV prevalence among FSW remains five times higher than in the general population, emphasizing the need for targeted prevention, care and treatment services. While improvements have been shown in condom usage, HIV testing and knowledge around HIV, high stigma and discrimination of FSWs persist, affecting access to services and ultimately impacting effectiveness of prevention and treatment programmes.

THPEC185
The impact of childhood sexual abuse on the HIV epidemic among men who have sex with men on a Western State in the U.S.

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Background: Men who have sex with men (MSM) continue to carry the burden of HIV in many parts of the world. Histories of trauma, including childhood sexual abuse (CSA) have been associated with high HIV risks among different populations. This study examined the association between CSA, HIV serostatus, and risky behaviors among a sample of MSM.

Methods: Data were obtained from the Portland, Oregon arm of the 2017 National HIV Behavioral Surveillance system, a cross-sectional survey conducted in 22 cities in the United States. Interviews and HIV tests were completed by 424 MSM. We used correlational and logistic regression analysis to test associations between experiences of CSA and HIV serostatus, and risky behaviors among a sample of MSM.
Results: An estimated 33% percent of the sample reported experiences of CSA, and 16.5% tested, or had previously tested, positive for HIV. Thirty-four percent of men identified as African American. Latino or other non-white ethnicity, while the rest identified as white (65%). All participants were adults, with 65% between the ages of 18 to 39 (65%). MSM with a history of CSA were significantly more likely to report unprotected casual sex in past 12 months (Odds Ratio [OR] = 17 CI 1.1-2.6), mental health problems (OR: 17 CI 1.0-2.8), and HIV positive serostatus (OR: 2.0 CI 1.1-3.1).

Conclusions: For decades, childhood sexual abuse has been at epidemic levels among different populations throughout the globe. CSA among MSM in this part of the United States was alarmingly high, and appeared to increase the vulnerability of men to high risk behaviors such as condomless casual sex, and increased prevalence of mental health problems. This study highlights the continued need for combination prevention strategies that take into account the consequences of childhood trauma, especially CSA, among men at higher risk for HIV and sexually transmitted infections.

**THPEC186**

A population-based assessment of the HIV care cascade among gay, bisexual and other men who have sex with men and transgender women (MSM/TG) in Johannesburg

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Background: To track HIV care, treatment adherence and onwards transmission, UNAIDS has set the 90-90-90 targets. Despite the high HIV burden experienced by MSM/TG, population-based assessments of progress towards these targets among MSM/TG in sub-Saharan Africa are lacking. This study estimated the HIV care cascade among a representative sample of MSM/TG in Johannesburg, and investigates factors associated with viral suppression.

Methods: In 2017, we recruited 301 MSM/TG via respondent-driven sampling in Johannesburg (birth/current male gender, sex with a man in previous 12 months). Participants gave a blood sample for HIV rapid testing, ELISA-confirmed if positive (Alere Combo and Advanced Quality HIV tests, back-up Alere Determine), and viral load-testing if HIV-positive (GeneXpert). Participants completed a self-administered survey detailing socio-demographics, sexual behaviour, HIV testing history and engagement in care. We compared survey responses to the HIV counsellor report for those who tested HIV-positive and were virally suppressed (< 40 copies/ml) but did not report being on ART; as this would be improbable in large numbers. To inform gaps in care and potential patterns of onwards transmission, multivariate logistic regression sought to identify factors associated with viral suppression among participants who tested HIV-positive. Proportions and analyses were RDS-II weighted.

Results: There were 118/300 MSM/TG who tested HIV-positive (37.5%, 95% CI 28.2-46.9%), of whom 55 were virally suppressed (18.5%, 95% CI 19.3-27.9%). Figure 1. One participant refused testing. There were 29 of these 55 virally suppressed HIV-positive participants who reported no current ART usage. The 90-90-90 using survey data was estimated to be 57% (n=76/138) (55/76) (n=39/76); 57% (n=72/126) (39/76) (n=27/76), and using HIV testing counsellor-reported data, 56% (n=78/138) (72/76) (n=43/55). Viral suppression among HIV-positive GBMST varied by neighbourhood (p=0.023), but lacked substantial evidence for a difference by age, education, employment, birth place or sexual or gender identity, nor sexual behaviours after adjustment by neighbourhood.

Conclusions: The proportion of HIV-positive MSM/TG who are virally suppressed falls well short of the UNAIDS targets. As in other surveys, we have found discrepancies between self-reported cascade indicators and biologically-measured viral load that could indicate misunderstandings or social desirability biases. The study does indicate gaps in testing and/or ART adherence, and a high potential for ongoing transmission.

**THPEC187**

HIV prevalence and sexual behavior among transgender in Paraguay, 2017

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Background: Trans women may be the population most vulnerable to HIV in the world, with prevalence in Latin America ranging from 18-38%. In Paraguay too, HIV prevalence (26%) was higher among trans women than among men who have sex with men (MSM) and female sex workers (FSW) when first measured in 2014. A high level of vigilance is warranted for trans women to track HIV and behavioral causes of infection for this marginalized and disproportionately affected population who have been left out of previous surveillance data. We therefore conducted a bio-behavioral survey among trans women in Paraguay in 2017, incorporating novel methods in the design to increase inclusion.

Methods: We conducted a cross-sectional survey with transgender women in Paraguay in 2017. To maximize efficiency in reaching diverse trans women, we used a hybrid method ("Starfish Sampling") that combines venue recruitment, a random sample of clients, and short-chain peer referral. The study began with mapping places of sex work and where trans women congregate. A random selection of trans women clients was also conducted. Further, trans women referred peers to the study. Participants complete a questionnaire on demographic characteristics and behavior, and blood samples were drawn for HIV antibody testing. Participants provided written informed consent.

Results: A total of 304 trans women were enrolled. Participants were young, with 56.3% in their 20s. The majority had secondary education or less (74.5%). HIV prevalence was 25.6% (95% confidence interval 19.3-31.3%). Trans women reported a mean of 22.5 casual partners in the last 6 months, with whom condom use was 73%. The proportion of trans women who had sex for the first time under age 14 years was 58.6%. The majority of trans women (82.6%) reported selling sex.

Conclusions: Our bio-behavioral survey found the prevalence of HIV consistently high among trans women in Paraguay, confirming this population remains the most severely affected. The young age of the population, the young age of sexual debut, the high partner number, and inconsistent condom use point to high potential for continuing transmission. New strategies are necessary to improve education on reducing acquisition risk among transgender women.
THPEC188
Recent infection and repeat testing among MSM newly diagnosed with HIV at STI clinics

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Background: To detect HIV infections early, Dutch STI clinics advise men who have sex with men (MSM) to test 3- or 6-monthly, dependent on risk behaviour. Previous studies showed that repeat testing increased, but consistent 6-monthly testing among MSM was low. Recent HIV infection (RHI) surveillance facilitates the understanding of transmission patterns. We explored proportions of recent HIV infections (RHI) and repeat testing among MSM newly diagnosed with HIV at STI clinics between January 2016 and September 2017.

Methods: Samples from MSM newly diagnosed with HIV at participating STI clinics (n=1226) were tested with an avidity assay. Cut-off values for Avidity Index (AI) were AI<0.75 for RHI (<6 months), AI between 0.75-0.84 for dubious result, and AI>0.85 for established infection (>6 months). The results were merged with STI clinic surveillance data. Repeat testing was based on a self-reported date of last negative HIV test or on information from previous consultations as identified by a unique client number. Dubious and negative results were reclassified to RHI if within the 6 months prior to diagnosis an HIV-negative test result was available.

Results: In total, 270 samples were tested for RHI. Of these, 121/270 (44.8%) were categorized as having RHI. 53 based on an AI>0.75 plus a recent negative HIV-test, 40 based on an AI<0.75 only and 28 based on a recent negative test result despite an AI>0.75. Among those who had RHI, 2.6% tested positive in the first time, 66.1% tested negative 6 months previously, 21.5% tested negative more than 6 months previously (median 10.5 months, IQR: 8-20) and 9.9% tested negative previously but the date was unknown. Among those not recently infected, 25.5% tested positive for the first time, 43.6% tested negative previously (median time since last negative test 20 months, IQR: 12-27) and 30.3% tested previously but the test date was unknown.

Conclusions: The proportion of RHI was high among MSM diagnosed with HIV at STI clinics and the majority had tested HIV-negative within the 6 months prior to diagnosis. Repeat testing among MSM at high risk for HIV should be further encouraged to increase early diagnosis of HIV.

THPEC189
Complacency is the new problem: Comparative analysis of recent outbreaks of HIV among persons who inject drugs in Europe and North America

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Background: Despite the effectiveness of “combined prevention,” outbreaks of rapid HIV transmission have recently occurred in Europe and North America. Understanding how/why these outbreaks occurred should contribute to avoiding future outbreaks.

Methods: A research group among persons interested in outbreaks was formed by the EMCDDA to conduct a systematic review/comparison of the outbreaks. Publications and conference presentations on the outbreaks were compiled and a standardized template was constructed for structured comparisons. A mixed quantitative/qualitative synthesis was developed through successive rounds of data analyses and interpretation among members of the group.

Results: Outbreaks occurred among PWID in Athens, Greece; Bucharest, Romania; Dublin, Ireland; Glasgow, Scotland; Luxembourg and Scott County, Indiana, United States. There was substantial variation in the size of the outbreaks from under 100 (Dublin, Luxembourg) to over 1100 (Athens, Bucharest) new HIV infections. Outbreaks occurred in areas that had not implemented large-scale combined prevention programming (Athens, Indiana) or where funding was interrupted (Bucharest) but also in areas where combined prevention had been implemented but changes in patterns of drug use (increased use of cocaine or novel psychoactive substances (NPS)) may have led to high rates of injection risk behavior (Bucharest, Dublin, Glasgow, Luxembourg). HIV infection increased rapidly and/or was at very high prevalence prior to several outbreaks (Athens, Bucharest, Glasgow, Indiana, Luxembourg). Community economic problems preceded the outbreaks in Athens, Dublin and Indiana and homeless/economically disadvantaged PWID were particularly vulnerable in all outbreaks. Public health responses included introduction (Indiana) or expansion of standard prevention interventions (livering service programs, medication-assisted treatment and antiretroviral treatment) but coverage of interventions varied. HIV transmission among PWID has continued in all outbreak locations. Despite substantial decreases in some settings (Athens, Indiana, Dublin), the number of reported cases has not yet been reduced to pre-outbreak levels in any sites.

Conclusions: Complacency for HIV prevention is emerging as an important threat to the success of combined HIV prevention for PWID. Successful HIV prevention for PWID needs to be contextualized as implementing and maintaining high coverage prevention programs and adapting to changes in patterns of drug use. Particular attention should be paid to NPS, communities undergoing economic difficulties, and homeless PWID.

THPEC190
Size estimation of FSW population in Ulaanbaatar, Mongolia via mapping and quantitative survey: Lessons and program recommendations

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Background: An accurate estimation of the size of FSW in Mongolia is challenging due to hidden nature, generalized stigma and outreach limitations by community-based organizations (CBO) and targeted programs. Previous size estimation attempts used rapid assessment and survey built-in multiplier methods and produced varying estimates noted for methodological limitations.

Description: A modified Priorities Locations for AIDS Control Efforts (PLACE) method was used to characterize venues where FSW meet sexual partners, recruit FSW into a quantitative survey, and conduct size estimation of FSW population in Ulaanbaatar. Mongolia between August 2015 and May 2016. The survey conducted verification of 134 venues and recruited 293 FSW. The size estimation methods employed were the wisdom of the masses, multipliers, and capture-recapture. The multipliers were derived using a broad range of data sources, including 1) research or survey-based data, 2) FSW-targeted programs and 3) police records on FSW detentions. After validation, the mean of point size estimates was calculated to arrive at the final estimate. The range was constructed using the lowest and highest point size estimates.

The final FSW population size estimate was 1,293 (range: 549-2,860) which corresponds to proportions in the female population age 15-49 in Ulaanbaatar of 0.33% (range: 0.14%-0.74%). These proportions fall within the range of the similar estimates in countries of Asia-Pacific region. Mapping showed that venues frequented by FSW are widely distributed across the city. Street-based FSW comprised approximately 60% of surveyed participants.
**THPEC191**

The first HIV and hepatitis C prevalence and behavioral survey among crystal methamphetamine (Sabu) users in Indonesia

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**Background:** The National Narcotics Board (NNB) estimated that crystal methamphetamine or sabu users in Indonesia has reached up to 750,795 individuals in 2015. Previous research show that methamphetamine use is significantly associated with the higher risks of HIV transmission and HIV infection. This study aims to identify the HIV and HCV serology and associated risk behaviors among sabu users in order to provide an evidence for developing an HIV prevention program targeting sabu users.

**Methods:** The study was conducted in 2017 as a cross-sectional survey using the respondent-driven sampling (RDS) method in six cities (Makassar, Denpasar, Jakarta, Bandung, Batam and Medan). Through 3-4 seeds in each city, a total of 1968 crystal meth users consisting of 85% male and 15% female were recruited to participate in the study. Data analysis was conducted using RDSA to produce population estimates and STATE to assess the characteristics of social and sexual network of sabu users.

**Results:** HIV and HCV prevalences were 10.15% and 14.23% respectively. Based on ASSIST scale, 92.5% of the respondents reported to have drug problems at medium level and 7% at high level. One fifth of Sabu users have had experience in injecting drugs, but only 2% reported injecting Sabu. Only 60% Sabu users were unmarried, the majority of them (84%) were sexually active in the last one year. Sabu users reported to have heterosexual, homosexual and bisexual sexual behavior. Consent use during the last sexual encounter was reported to be 34% and 17% has reported consistency in the last 30 days. Three quarter of Sabu users do not have comprehensive knowledge on HIV. Only 2% of them accessed drug treatment last year.

**Conclusions:** This survey shows that sabu users are at the higher risk of being exposed to HIV and HCV through risky sexual behaviors. This population has been overlooked by HIV response in Indonesia. As the second largest number of drug user in Indonesia, Sabu users has to be included in the existing HIV prevention and treatment in order to achieve national target of the triple 90s.

**THPEC192**

Changes in HIV and syphilis prevalence among female sex workers (FSW) in Brazil from 2009 to 2016

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**Background:** In the context of introducing PrEP in Brazil, the present study aims at establishing the main predictors of HIV prevalence increase from 2009 to 2016 among Female Sex Workers (FSW).

**Methods:** The baseline RDS study among FSW was carried out in 2009 and recruited 2523 women in 10 Brazilian cities. The second RDS survey was carried out in 2016 and recruited 4265 FSW in 12 Brazilian cities. Both surveys aimed at estimating prevalence of HIV and syphilis and establishing knowledge, attitudes, and risky practices related to HIV infection. In this study, we analyzed changes in HIV and syphilis prevalence based on the comparison of 95% confidence intervals for each estimate. We used Poisson regression models to estimate prevalence ratios (PR) and to establish the main factors associated to HIV prevalence increase between 2009 and 2016. The analyses took into account the dependency among observations resulting from the recruitment chains, and the unequal probabilities of selection, resulting from the different network sizes.

**Results:** HIV prevalence was 4.8% (95% CI: 3.4-6.1%) in 2009, and 5.3% (4.4-6.2%) in 2016, with no significant difference. In contrast, syphilis prevalence was found to be more than three times higher in 2016 (8.4% vs. 2.5% in 2009, p<0.01). Among FSW diagnosed with syphilis, HIV prevalence significantly increased from 11.5 to 14.1% (p<0.01). Although the 5% level was sustained for the total sample, significant PR (p<0.01) were found for: FSW who work at street points (PR=1.33); are aged 35 years or over (PR=1.10); did not complete elementary school (PR=1.37); are low-paying FSW (PR=1.17); and use coke or cocaine more than once a month (PR=1.32). Older street FSW with low educational level and crack/cocaine users showed the highest HIV prevalence increase, from 7.6 to 14.6% (PR=2.42, p<0.0001).

**Conclusions:** The results emphasize the need of introducing PrEP among those FSW most-at-risk for HIV. However, given the low educational level of these women and the significant syphilis prevalence increase, many challenges have to be faced to monitor the consistent uptake of medications as well as use of the condoms and other combined prevention methods.
Determining the incidence of HIV

THPEC194
Community-level HIV incidence in a hyper-endemic epidemic region in KwaZulu-Natal, South Africa

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Background: In hyper-endemic epidemic settings, as prevention strategies are scaled-up to achieve epidemic control, timely reliable measurements of new HIV infections are critical elements of surveillance. However, measurement of new HIV infections is complex and challenging. We report on the measurement of HIV incidence from The HIV Incidence Provincial Surveillance System (HIPSS) in KwaZulu-Natal (KZN), South Africa.

Methods: We undertook a community representative, cross-sectional household survey enrolling men and women 15 to 49 years of age from rural to peri-urban areas of uMgungundlovu district in KZN. We measured HIV prevalence and HIV negative individuals between the ages of 15 and 35 years were follow-up approximately 12 months later to measure new HIV infections. HIV prevalence and incidence rates were adjusted allowing for multilevel sampling and to represent the population.

Results: Of the 9812 (15-49 years) individuals enrolled from June 2014 to June 2015, 3548 (15-35 years) were re-tested from June 2015 to February 2017. HIV prevalence was 36.3% (95% Confidence interval CI 34.8-37.8%), 44.1% (95% CI 42.3-45.9%) in women and 28.0% (95% CI 25.9-30.1%) in men. Overall 163 seroconversions occurred, an HIV incidence rate of 2.31 (1.89-2.87) per 100 person-years of observation (pyo). HIV incidence was 3.44 (95%CI 2.76-4.36) per 100 pyo in women and 1.44 (95% CI 0.96-2.25) per 100 pyo in men. The highest HIV incidence was 4.34 (95% CI 3.75-5.69) per 100 pyo in women in the age group 15-24 years, whilst in men in the same age group it was 0.93 (95% CI 0.45-1.50) per 100 pyo. However, in men 25-35 years HIV incidence was 2.29 (95% CI 1.26-4.01) per 100 pyo whilst in women in the same age group it was 1.65 (95% CI 0.67-2.92) per 100 pyo.

Conclusions: Our findings show the excessively high HIV incidence rates in men and women 15-35 years in this hyper-endemic epidemic setting of KwaZulu-Natal. The disproportionate rate of HIV acquisition in young women 15-24 years underscores the importance of strengthening and intensifying coverage of HIV prevention strategies to reduce transmission potential.

THPEC196
Estimating national HIV incidence, prevalence and the proportion diagnosed in Canada in 2016

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Background: In 2017, an estimated 2,570 new HIV infections occurred in Canada for 2014, an incidence rate of 7.1 per 100,000 population. Fifty-four percent of new infections were among women, 33% were attributed to the heterosexual exposure category, and 11% to injection drug use. Indigenous people and people from sub-Saharan Africa or Caribbean countries were over-represented. An estimated 21% of new infections were among Indigenous persons, who comprised 4.3% of the Canadian population. An estimated 14% of new infections were among persons in the heterosexual exposure category born in sub-Saharan Africa or the Caribbean, whereas people born in these countries represented 2.5% of the overall population. An estimated 65,040 persons were living with HIV in Canada, of whom an estimated 80% were diagnosed. Updated estimates for Canada in 2016 are being finalized and will be presented.

Conclusions: Estimated HIV incidence in Canada has declined since 2005 but may have levelled off in the past 5 years. Despite the great progress Canada has made in addressing HIV, there is still work to be done to reach the first 90-90-90 target by 2020.

THPEC197
Diverging trends in incidence of HIV-1 versus other sexually transmitted infections in HIV-negative men who have sex with men (MSM) in Amsterdam

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Background: The incidence of HIV-1 among men who have sex with men (MSM) in the Amsterdam Cohort Studies (ACS) slowly increased between 1996-2009. In the Netherlands, several new HIV prevention strategies were implemented thereafter. For this study, we investigated the incidence rates of HIV-1 and other sexually transmitted infections (STIs) among MSM in the ACS from 2009-2016. Moreover, we explored changes in condomless anal sex (CAS) over time.

Methods: We included all HIV-negative MSM participating in the ACS between 2009-2016. Participants completed a self-administered questionnaire on sexual behavior and were tested for HIV-1, syphilis, urethral and rectal chlamydia and gonorrhea, and pharyngeal gonorrhea every 3-6 months. Time trends in incidence rate were assessed using an exponential survival model with gamma-distributed shared frailty. Trends in CAS were evaluated using a non-parametric test for trend.

Results: Of 7897 HIV-negative MSM, with a median age of 34 (IQR 28-41) years in 2009, 40 HIV seroconverted during follow-up. HIV-1 incidence rate was 1.9/100 person-years (PY) (95% confidence interval CI 1.0-3.7) in 2009 and decreased non-significantly over time to 0.6/100 PY (95% CI 0.2-1.5) in 2016 (p=0.4; fig A). Among 722 MSM with other STI testing during follow-up, 807 STI diagnoses were made, of which 334 were rectal STIs. STI incidence rate was 13.5/100 PY (95% CI 10.2-17.8) in 2009 and significantly increased over time to 19.6/100 PY (95% CI 16.2-23.7) in 2016 (p<0.001; fig B). The incidence rate for rectal STIs significantly increased over time from 7.4/100 PY (95% CI 5.1-10.8) in 2009 to 12.6/100 PY (95% CI 10.0-16.1) in 2016 (p<0.001). In total, 30.9% reported CAS with casual sexual partners in 2009, compared to 50.5% in 2016 (p<0.001; fig C). CAS with steady partner(s) remained stable over time (p=0.5; fig C).

Conclusions: Among MSM in Amsterdam, incidence rates of HIV-1 versus other STIs show diverging trends. The increase in STI incidence coincides with a decrease in condom use with casual partners. However, the decreasing trend in HIV-1 incidence despite the decrease in condom use, might suggest that other HIV prevention methods have been successful in lowering the transmission of HIV-1 among MSM, such as treatment as prevention or more recently, pre-exposure prophylaxis (PrEP).
Novel methods/algorithms for detecting acute and recent HIV infections

**THPEC197**

Estimating HIV-1 infection recency: Viral diversity from next-generation sequencing is more informative than the fraction of ambiguous nucleotides from population sequencing

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Background: Viral genetic diversity within an HIV-1 infection increases over time and can be used to classify an infection as recent or chronic. We assess whether the diversity calculated from next-generation sequencing (NGS) correlates more strongly with time since infection, and offers a more accurate classification than the fraction of ambiguous nucleotides obtained by population sequencing (AN-PS), a previous proxy.

**Methods:** We considered 165 HIV-1 individuals from the Zurich Primary HIV Infection Study and Swiss HIV Cohort Study, for whom true time since infection (±12 months) could be determined by other methods, and NGS-derived nucleotide frequency data were available for over 50% of the 3rd codon positions in pol. A previously calculated fraction of ambiguous nucleotides from AN-PS data was available for 79/165 individuals. We calculated average pairwise diversity over pol 3rd codon positions using the NGS data, with a 1% error cut-off. A linear regression was performed against time since infection, and sensitivity and receiver operating characteristic (ROC) analyses were used to measure the ability to predict if a sample came from recent (< 1 year) or chronic infection. These measures were compared to values obtained using AN-PS data.

**Results:** Using NGS data, average pairwise diversity calculated over pol 3rd codon positions can classify an infection as recent with a sensitivity of 81.1% and specificity of 75.0% (ROC area under curve = 82.8%, n=165). When directly comparing the 79 samples to the AN-PS method, the NGS method has a lower sensitivity (77.5% vs 87.5%), but a higher specificity (87.2% vs 46.2%) and a higher ROC area under curve (85.3% vs 75.7%). Diversity calculated from NGS data correlates with time since infection ($R^2 = 0.258$), and for the sub-sample of 79 does so more strongly than the fraction of ambiguous nucleotides ($R^2 = 0.258$).

![Figure 1. A. HIV-1 incidence rate. B. STI incidence rate. C. reported condomless anal sex (CAS) with casual or steady partners(s) among HIV-1 negative MSM participating in the Amsterdam Cohort Studies 2009-2016](image-url)
Conclusions: Viral genetic diversity calculated using NGS data is a better predictor of recency of infection, and correlates more strongly with time since infection than using the fraction of ambiguous nucleotides from AN-PS data. This approach is therefore a promising method to estimate the time since an individual was infected with HIV.

THPEC198
Social network methods for HIV case-finding among people who inject drugs in Tajikistan
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Background: HIV testing programs have struggled to reach the most marginalized populations at risk for HIV. Social network methods such as respondent-driven sampling (RDS) and peer-based active case-finding (ACF) may be effective in overcoming barriers to reaching these populations. We compared the client characteristics, yield, and number of new cases found through two RDS strategies and an ACF approach to HIV case-finding among people who inject drugs (PWID) in Tajikistan.

Methods: Routine program data from adult PWID recruited to testing under the USAID Central Asia HIV Flagship Project in Tajikistan were analyzed to compare client demographic and clinical characteristics across the three approaches. We also compared the number of previously untested clients, the number of new HIV cases found, and the yield across the case-finding strategies, and evaluated predictors of new HIV diagnosis using fixed-effects logistic regression.

Results: Between October 24, 2015–June 30, 2017 Flagship tested 10,300 PWID for HIV, including 2,143 under RDS with unrestricted waves (RDS1, yield: 1.5%), 3,617 under restricted RDS (RDS2, yield: 2.6%), and 4,540 under ACF (started in January; yield: 1.5%). Clients recruited under ACF were significantly younger than those recruited through RDS (35.8 vs. 36.8, p < 0.001), more likely to be male (93.1% vs. 89.6%, p < 0.008), and more likely to report being a first-time tester (85.1% vs. 68.3%, p < 0.001). After controlling for age, sex, previous testing history, and accounting for clustering at the site level, we found that clients tested under both RDS1 (aOR: 1.74, 95% CI: 1.04-2.90) and RDS2 (aOR: 1.54, 95% CI: 1.11-2.15) had significantly higher odds of testing newly positive for HIV relative to clients recruited through ACF. We did not find significant differences in the odds of new HIV infection between those recruited from RDS1 vs. RDS2 (aOR: 1.12, 95% CI: 0.67-1.86).

Conclusions: RDS-based interventions resulted in higher yields and overall case-finding, especially when recruitment was restricted. However, ACF identified a higher proportion of new testers and younger PWID and recruited clients faster than RDS1. To find at least 90% of PWID living with HIV in Tajikistan, it may be necessary to implement multiple case-finding approaches concurrently to maximize testing coverage.

THPEC199
Interpreting diagnostic histories into HIV infection date estimates: An online tool
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Background: The ability to estimate the date of infection for people with HIV is useful for surveillance purposes, pathogenesis studies, and evaluation of novel diagnostics. For more than 15 years, the only widely referenced algorithm to estimate time-since-infection has been ‘Fiebig staging,’ which defines stages of early HIV infection through standard combinations of discordant results using diagnostic tests of different sensitivity; however, the tests used in these original calculations are no longer in use. We set out to develop a new, flexible infection dating algorithm to translate information from a subject’s diagnostic testing history into an Estimated Date of Detectable Infection (EDDI), and to develop an open-source tool that would make this algorithm accessible to researchers.

Description: Every HIV assay has a ‘diagnostic delay,’ i.e. the number of days from infection during which the test will continue to produce a negative result. Estimating median diagnostic delays - accounting for inter-subject variability in assay performance - allows for calculation of an individual EDDI, using an algorithm to infer a time interval during which the date of detectable infection likely lies. Our team has curated estimates of diagnostic delays for approximately 70 assays currently or formerly in use, incorporating them into a new online tool that allows users to fill in the model’s scale with their own preferred delays.

Lessons learned: This online tool synthesizes available assay data to allow for easy computation of individual EDDIs, provided that each individual has at least one negative and one positive HIV test result, and the dates of testing and assays used are known. To facilitate automated processing, the tool demands a simple dataset with four columns: Subject, Date, Test, and Result, with the result being ‘positive’ or ‘negative’ for each test. EDDIs, along with an ‘earliest plausible’ and ‘latest plausible’ date of infection are calculated for each subject. The tool is easily updated as new assays come into use worldwide.

Conclusions/Next steps: The whole code base for the tool (available at tools.incidence-estimation.org/iddt) is available in a publically-viewable repository on github. Anyone can deploy their own copy of the tool or make modifications.

THPEC200
Performance of a novel point-of-care HIV recency test among newly diagnosed pregnant adolescent girls and young women — Malawi, 2017
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Background: Tests for recent infection (TRI) distinguish recent HIV infection from non-recent infection using markers of antibody maturation. The Lag-Avidity enzyme immunoassay (LAg) is widely used together with HIV viral load (VL) in a recent infection testing algorithm (RITA) to estimate HIV incidence to inform epidemic monitoring. A new point-of-care recency test (POC-RTC), Asante, can determine HIV serostatus and HIV recency within minutes at a single lateral flow device through visual or quantitative assessment. We conducted a field validation of the Asante POC-RTC in routine HIV testing services for pregnant adolescent girls and young women (AGYW) attending antenatal clinics (ANC) in Malawi to inform prevention strategies.

Methods: We enrolled pregnant AGYW aged < 25 years testing HIV-positive at their first ANC visit from 94% of ANCs in Lilongwe and Blantyre. Consententing participants provided blood for recency testing using the LAg and Asante assays. Specimens with LAg normalized optical density (ODn) values ≤2.0 tested LAg-recent, else they tested LAg-non-recent. Asante results were determined based on: (1) visual assessment: presence of the line indicated recent infection or (2) quantitative assessment. We conducted a field validation of the Asante POC-RTC in routine HIV testing services for pregnant adolescent girls and young women (AGYW) attending antenatal clinics (ANC) in Malawi to inform prevention strategies.

HIV incidence to inform epidemic monitoring. A new point-of-care recency test (POC-RTC), Asante, can determine HIV serostatus and HIV recency within minutes at a single lateral flow device through visual or quantitative assessment. We conducted a field validation of the Asante POC-RTC in routine HIV testing services for pregnant adolescent girls and young women (AGYW) attending antenatal clinics (ANC) in Malawi to inform prevention strategies.
Monitoring acute HIV infections

THPEC021
Acute HIV infection among newly diagnosed patients in Santo André Aids Program, São Paulo, Brazil

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Background: Identifying and incorporating acute HIV infection (AHI) into health system, with adequate viral suppression, may diminish secondary transmission as well as benefit patients, including by reducing HIV reservoirs, favoring future cure strategies. We evaluated newly diagnosed cases according to CDC2014 categories.

Methods: Patients newly diagnosed with HIV infections at our service (2020-2022) with blood collection for pol genotyping were included. Viral load (Abbott rPCT), CD4 (BD, USA), antibodies avidity (CEPHIA protocol) and HIV partial pol sequences (nested RT-PCR followed by Big Dye, life, USA) were analyzed, with subtypes (REGA Subtyping tool), resistance mutations (CPR v6.0 and GRI-HIVdb) and genetic ambiguity (BioRad). Continuous variables are described as median and percentile 25th-75th (IQR).

Results: 204 new diagnoses were studied out of 1337 admissions at the study period. Patients’ were mostly male young MSM. Table 1 shows demographic and laboratory characteristics according to CDC2014 classification.

Sifmication. 194 started ART. 92% on treatment for 180+ days with viremia < 2000copies/mL at last viral load measurement. Out of 25% cases at CDC2014-zero, 22% were Fiebig stage III. Most patients (83%) referred previous negative serological result, mostly by rapid diagnostic test (RDT). Recent infection surrogates as low avidity (<40%) or ambiguity <0.45 were observed in 30% and 58% of cases, respectively, with significant lower genomic ambiguity (p<0.002) and avidity index (p<0.0001) among cases at CDC-zero. A lower avidity and ambiguity also showed a significant association to previous HIV negative result (p<0.0003/p<0.0002). Heterosexual man was more likely than MSM to be at CDC-3 (35% versus 5.5%, p<0.0002) and less likely to refer previous HIV test (9% versus 70%, p<0.0001).

Conclusions: Patients classified as recent infections (CDC2014_zero) tended to have laboratory surrogate markers of recent infection, which was also associated to previous negative HIV serological testing. The diagnosis of some cases might have been delayed by previous rapid testing during immunological window. Recommendation to prompt retesting and easier access to RNA tests and/or fourth generation when a serological window may be considered can improve AHI diagnosis, especially for the MSM population. Health policies aiming heterosexual men, as incentives to repeat testing, may improve earlier diagnosis.

**Table 1. Description of demographic and laboratory characteristics according to CDC2014 classification**

<table>
<thead>
<tr>
<th>Category</th>
<th>Median age (years)</th>
<th>Male/MSM (n=204)</th>
<th>CD4 cells/mm³</th>
<th>Subtype pol</th>
<th>TCRM (CPR)</th>
<th>GRIHIVdb (n=181)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=204) (25-36)</td>
<td>(25-50)</td>
<td>(200-500)</td>
<td>(200-300)</td>
<td>(5%)</td>
<td>(5%)</td>
</tr>
<tr>
<td>Median age</td>
<td>27 (25-36)</td>
<td>45 / 40</td>
<td>570 (600-940)</td>
<td>7/8/10</td>
<td>6/2/4</td>
<td>5/6/4</td>
</tr>
<tr>
<td>Male/MSM</td>
<td>17 (25-36)</td>
<td>133 / 105</td>
<td>64 (33-140)</td>
<td>5/6/4</td>
<td>6/2/4</td>
<td>5/6/4</td>
</tr>
<tr>
<td>CD4 cells</td>
<td>4.67 (4.06-5.19)</td>
<td>5.11 (3.65-6.17)</td>
<td>4.25 (3.55-4.29)</td>
<td>4.6 (4.25-5.07)</td>
<td>5.23 (4.81-5.49)</td>
<td>4.60 (3.95-5.10)</td>
</tr>
<tr>
<td>Subtype pol</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>B/C/FF/AG/</td>
<td>0.20 (0.00-0.59)</td>
<td>0.09 (0.00-0.45)</td>
<td>0.09 (0.00-0.45)</td>
<td>0.45 (0.11-0.73)</td>
<td>0.64 (0.54-1.34)</td>
<td>0.36 (0.00-0.64)</td>
</tr>
<tr>
<td>BC/FF (REGA)</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>(n=181) %</td>
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<tr>
<td>TCRM (CPR)</td>
<td>0.19 / 0.95</td>
<td>0.19 / 0.95</td>
<td>0.19 / 0.95</td>
<td>0.19 / 0.95</td>
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<tr>
<td>GRIHIVdb</td>
<td>0.0001 / 0.0001</td>
<td>0.0001 / 0.0001</td>
<td>0.0001 / 0.0001</td>
<td>0.0001 / 0.0001</td>
<td>0.0001 / 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

*MSM: men who have sex with men; **Avidity index for Bio-Rad-Avidity assay serology test (CEPHIA protocol) / % of cases with Avidity index lower than 40% (surrogate for recent infection); ***Ambiguity index as the number of nucleotide mismatches (excluding unresolved four nucleotides) divided by the total number of nucleotides analyzed / % of cases with index below 0.45 (surrogate for recent infection) ;**** TCRM transmitted drug resistance mutation, % cases with mutation according to Stanford database calibrated population resistance (CPR v 6.0) / % cases with mutations according to Stanford HIV Database Genotyping Resistance Interpretation (GRIHIVdb). Continuous variables described as median and percentile 25th-75th (IQR). *Tates-corrected, **Mann-Whitney

(Patients characteristics at enrollment according to CDC2014 classification)
Novel studies to measure HIV incidence

THPEC202
New methods of HIV incidence estimation indicate a second wave of infections in Brazil
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Background: Emerging evidence has suggested that HIV incidence rates in Brazil, particularly among young men, may be rising. Brazil has a wealth of surveillance data, with integrated health systems documenting reported HIV/AIDS cases since the 1980s. Here we describe a mathematical model designed to reproduce the complex surveillance systems, providing estimates of HIV incidence, prevalence and linkage to care over time.

Methods: An age-structured deterministic model with a flexible B-spline was used to describe the natural history of HIV along with detection and treatment rates. Individual-level surveillance data (new detected cases, ART dispensations, CD4 counts and HIV/AIDS-related deaths) were used to calibrate the model using Bayesian inference.

Results: The estimated epidemic curve showed a second wave of infections occurring after 2003. The number of new infections in 2016 was 15,121 (95% CI 12,187 - 18,366), 7,572 (7,814 - 8,531) and 5,270 (4,944 - 5,577) in men and 13,011 (11,876 - 14,287), 5,307 (4,998 - 5,629) and 3,797 (3,506 - 4,135) in women. The prevalence by end-2016 was 876,582 (95% CI 780,002 - 984,558), with 135,603 (84,907 - 169,916) individuals infected and undiagnosed.

By end-2016, 78.6% (60.5 - 97.2%) of people living with HIV in Brazil were aware of their status. Women were more likely to be diagnosed and reported than men; 86.8% of infected women had been reported compared with 75.7% of men and the average time from infection to detection was 1.9 years in women and 2.5 years in men. Of those who had been reported, 482,654 (70.2%) were accessing ART, indicating an overall treatment coverage level of 55.1%.

Conclusions: The finding of a second wave of infections contradicts previous estimates and official positions on the HIV incidence trends in Brazil. There are persistent differences in the rates of accessing care between men and women. Nevertheless, the HIV program in Brazil has achieved high rates of detection and treatment initiation, making considerable progress over the past ten years.

THPEC203
Newly increasing HIV incidence among adults aged 50 years or older in Ukraine
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Background: Eastern Europe and Central Asia (EECA) is the only region globally where HIV incidence and mortality are still increasing. Ukraine has one of the most volatile HIV epidemics in the world (after Russia) with over 240,000 PLWH (~0.5%) and 17,066 new HIV diagnoses in 2016. While the 15-24 HIV risk group is a priority, there is a dearth of HIV prevention efforts for mature adults and HIV incidence in later life is understudied. We sought to explore and characterize the new trend in HIV epidemic in Ukraine.

Methods: We reviewed trends in aggregated national data from the All-Ukrainian Network for People Living with HIV 2014-2017 (1st 6 mo) and compared 1) 2014-2017 & 2) 25-49yo 3) 15-24yo. Bi-variate statistical analyses were performed using Chi-square test (p < 0.05). We defined CD4 200 cells/ml as advanced HIV and mortality as annual number of deaths among people living with HIV (PLWH) diagnosed with HIV during that year.

Results: In 2014, those 15-24yo and 150yo constituted 9.4% and 8.7% of all new HIV diagnoses respectively. In 2015 however, new diagnoses among 50yo became more common, increasing 90% by 2017 (p<0.001), and took over those 15-24yo (Figure 1). Second, the majority (64.9%) of PLWH 50yo had advanced HIV at the time of diagnosis, and were significantly more likely to have advanced HIV at diagnosis than both 25-49yo (39.3%) and 15-24yo (17.2%) (p<0.001). Third, in 2016-17, nearly 5% of PLWH 50yo died within the first year of HIV diagnosis; mortality was nearly double among those 15-49 yo (p<0.001), and 17 times more likely than 15-24yo (p<0.001).

Conclusions: This is the first report to identify a new epidemiological trend in the HIV epidemic in Ukraine. PLWH are increasingly comprised of an older population who are being diagnosed at late stage of HIV disease with high rates of mortality. While further exploration of this population is critical, HIV programs and public health efforts need to recognize this population by supporting routine screening of adults 50yo+ for HIV. These findings have potentially tremendous implications for public health policy and clinical HIV practice.

[Figure 1. HIV Incidence in Ukraine, 2014-2017]

THPEC204
Incidence of HIV in sub-Saharan Africa: A systematic review with implications for surveillance and prevention planning
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Background: Population-based HIV incidence estimation and risk factor identification is increasingly being incorporated into routine HIV/AIDS surveillance activities. The US recently produced a national HIV incidence estimate of 0.022 per 100 person-years (PY) using the serologic testing algorithm for recent HIV seroconversion (STARHS) method via BED capture ELISA. We conducted a systematic review of estimates and risk factors for HIV incidence from sub-Saharan Africa, including the methods by which they were obtained.

Methods: We examined peer-reviewed articles, conference proceedings and technical reports published between 2010-2016. Incidence estimates were classified by country, year, population group, and estimation method (prospective study or STARHS).

Results: Our search yielded HIV incidence estimates for 15 of 44 sub-Saharan African countries, including 57 studies, for a total of 264 unique HIV incidence estimates. Of these, 239 (92%) were obtained via prospective studies (range: 0.6-16.5 infections/100PY), and 25 (9%) via the STARHS method (24 using BED) (range:1.8-17.0/100PY). Only 5 countries (Kenya, South Africa, Tanzania, Uganda, and Zimbabwe) reported national population-based estimates (range: 0.6-9.0/100PY). STARHS use increased over time, comprising 20% of estimates since 2010. However, African studies that compared STARHS estimates with prospectively observed or modeled estimates often found concerning levels of disagreement. There was a high degree of correspondence between risk factors for HIV incidence versus prevalence in studies where both were measured.

Conclusions: Population-based HIV incidence estimates and associated risk factor information in sub-Saharan Africa remain scant but increasingly available, and are 1-2 orders of magnitude higher than the most recent national estimate in the US. However, data from some studies using the STARHS method in sub-Saharan Africa suggest a need for


Further validation prior to widespread scale-up. In the meantime, prevalence and behavioral risk factor data remain an important mainstay for HIV prevention planning.

**Measuring the epidemic through population-based surveys, including the undiagnosed fraction**

**THPEC205**

90-90-90 targets in Malawian men using results from MPHIA

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1Centers for Disease Control and Prevention, Division of Global HIV and Tuberculosis, Lilongwe, Malawi, 2Ministry of Health, Lilongwe, Malawi, 3I-TECH, Lilongwe, Malawi, 4UNAIDS, Lilongwe, Malawi, 5Centers for Disease Control and Prevention, Atlanta, United States, 6ICAP at Columbia University, New York, United States.

Background: Men remain an important group for testing and treatment interventions in Malawi, as they represent a probable source of HIV transmission in the country. This analysis aimed at describing present and associated factors in achieving UNAIDS 90-90-90 targets among adult men in Malawi.

Methods: The 2015-16 Malawi Population-Based HIV Impact Assessment (MPHIA) was a two-stage cluster survey of randomly selected households in Malawi. The survey included home-based HIV counseling and testing using the national rapid testing algorithm, followed by laboratory-based confirmation for positive results using GeneXu™. HIV-1 viral load was measured using the Abbott m200 System; viral load suppression (VLS) was defined as < 1,000 HIV RNA copies/mL. Antiretroviral drugs (ARVs; atazanavir, efavirenz, nevirapine, tenofovir) in blood. All therapy (ART) was determined by self-report or detection of antiretroviral suppression and testing using the national rapid testing algorithm. All analyses accounted for survey design.

Results: A total of 7,208 men aged 15-64 years were interviewed and tested. HIV prevalence was 8.5% (95% confidence intervals (CI): 7.8-9.2). Seventy-one percent (71.7% 95CI: 67.7-75.6) of men were aware of their HIV+ status. Among men who knew their HIV+ status, 88.7% (95CI 85.5-92.0) reported being on ART or had detectable ARVs in their blood. Of these, 89.8% (95CI 86.2-93.4) had achieved VLS. Among all HIV+ men, irrespective of awareness of HIV and ART status, 60.9% (95CI 56.8-65.0) had achieved VLS. Status towards 90-90-90 targets varied by age (Table 1). Younger HIV+ men aged 15-29 years were less likely to be aware of their status and be on treatment. Men in urban areas (65.7% 95CI 53-72.1) compared to those in rural areas (73.8% 95CI 69-78.6) were also less likely to be aware of their status (p<0.05). Of men who were unaware of their status, 23.4% (95CI 16.3-30.6) reported two or more sexual partners in the last 12 months.

Conclusions: MPHIA results indicate that there is still progress to be made in reaching men for HIV testing and treatment in Malawi. 40% of all HIV+ men in Malawi are not virally suppressed, demonstrating gaps in achieving 90-90-90 targets. Strategies are needed to facilitate access to services for men, especially testing among younger men and those residing in urban areas.

**THPEC206**

Late diagnosis of HIV among adults in Zimbabwe, Malawi and Zambia: Risk factors and burden from three population-based HIV impact assessments (PHIAs)


Background: Late diagnosis (LD) of HIV increases the risk of morbidity, mortality, and disease transmission. However, the group(s) at greatest risk for LD are not clearly identified in Zimbabwe, Malawi and Zambia. We describe the distribution, burden and correlates of LD among people living with HIV (PLHIV) using the 2015-16 PHIA household surveys.

Methods: The Zimbabwe, Malawi and Zambia PHIAs respectively recruited 20,577 adults aged 15-64, 17,187 adults aged 15-64 and 19,315 adults aged 15-59 for interviews and HIV rapid testing using each country’s national algorithm. All HIV+ adults underwent CD4 count testing. HIV+ participants who reported being HIV- or unaware of their status were defined as undiagnosed. Undiagnosed PLHIV with CD4 cell count<350 cells/µl were defined as meeting LD criteria. Correlates of LD were assessed using multivariate logistic regression. All analyses were weighted to account for the complex survey design of the PHIAs.

Results: Across countries, 26% of PLHIV were undiagnosed. Among undiagnosed PLHIV, 48% met LD criteria: 54% of men and 43% of women. This correponds to 371,000 undiagnosed adults, 189,000 men and 182,000 women, meeting LD criteria in the total population. Among undiagnosed PLHIV aged 15-24, 35%, or 58,000 people, met LD criteria, while 49% of undiagnosed PLHIV aged 25-40, or 196,000 people, and 55% of undiagnosed PLHIV aged 41-64, or 116,000 people, met LD criteria.

In multivariate analysis, being male (Adjusted Odds Ratio (aOR) 1.54), being aged 25-40 (aOR 1.62), being aged 41-64 (aOR 1.89) and being widowed (aOR 1.76) were associated with LD. Wealth, education, country, urban residence, never having an HIV test and high-risk sexual behaviors (having multiple partners in 12 months, buying or selling sex, and having non-marital, non-cohabiting partners) were not associated with LD.

**Table**: Proportion, Number and Correlates of CD4 cell count <350 cells/µl among Undiagnosed PLHIV in Zimbabwe, Malawi and Zambia (N=1934)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Proportion with CD4 cell count &lt;350 cells/µl</th>
<th>Number in Total Adult Population with CD4 cell count &lt;350 cells/µl</th>
<th>aOR (95% CI) (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zimbabwe</td>
<td>50.3% (46.6-54.1%)</td>
<td>157,000 (137,000-177,000)</td>
<td>ref</td>
</tr>
<tr>
<td>Malawi</td>
<td>47.1% (41.2-53.1%)</td>
<td>93,000 (77,000-109,000)</td>
<td>0.88 (0.66-1.19)</td>
</tr>
<tr>
<td>Zambia</td>
<td>45.1% (41.1-49.1%)</td>
<td>121,000 (105,000-138,000)</td>
<td>0.86 (0.68-1.07)</td>
</tr>
<tr>
<td>Female</td>
<td>42.6% (39.5-45.7%)</td>
<td>182,000 (164,000-202,000)</td>
<td>ref</td>
</tr>
<tr>
<td>Male</td>
<td>54.0% (49.9-58.0%)</td>
<td>189,000 (167,000-210,000)</td>
<td>1.54 (1.25-1.90) ***</td>
</tr>
<tr>
<td>Age 15-24y</td>
<td>54.7% (28.5-70.3%)</td>
<td>58,000 (47,000-70,000)</td>
<td>ref</td>
</tr>
<tr>
<td>Age 25-40y</td>
<td>48.2% (34.5-61.7%)</td>
<td>196,000 (175,000-215,000)</td>
<td>1.62 (1.22-2.16) ***</td>
</tr>
<tr>
<td>Age 41-64y</td>
<td>55.2% (50.6-59.7%)</td>
<td>116,000 (102,000-131,000)</td>
<td>1.89 (1.32-2.59) ***</td>
</tr>
<tr>
<td>Widowed</td>
<td>61.1% (52.3-69.2%)</td>
<td>35,000 (27,000-43,000)</td>
<td>1.76 (1.18-2.64) ***</td>
</tr>
</tbody>
</table>

**Conclusions**: Timely diagnosis remains a challenge, particularly among men and PLHIV over 40 in Zimbabwe, Malawi and Zambia. In addition to increasing risk for morbidity, mortality and transmission, LD may compound difficulties faced by older adults in immune system recovery after treatment initiation. To improve patient outcomes and control the epidemic, it is critical to reach the large numbers of undiagnosed PLHIV with low CD4 counts in this African sub-region.

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THPEC207
Who are the missing men? Characterizing men who have never tested for HIV from population-based surveys in six sub-Saharan African countries

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4Research Centre in Sex, Health & Society, Melbourne, Australia;
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Background: Attaining the first of the 90-90-90 global targets requires focused approaches to reach people with undiagnosed HIV. In 2014, men took only 30% of all HIV tests. We sought to characterize men who had never tested for HIV, understand factors associated with not testing, and measure survey HIV test uptake.

Methods: We analyzed nationally-representative Demographic and Health Surveys (DHS) from six sub-Saharan countries: Malawi, Zimbabwe, Lesotho, Rwanda, Zambia, and Ethiopia. We included adult men who tested positive to treatment.

Results: Between 2,931-14,773 men and 6,621-24,562 women participated in each survey. Approximately double the proportion of men had never tested for HIV compared to women (Malawi: 30% vs. 17%, p<0.0001; Zimbabwe: 35% vs. 19%, p<0.0001; Lesotho: 34% vs. 15%, p<0.0001; Zambia: 36% vs. 20%, p<0.0001), although, less of a differential existed in Rwanda (9% vs. 14%, p<0.0001) and Ethiopia (60% vs. 61%, p=0.14).

When offered a test during the survey, high proportions of sexually-active men who had never previously tested, did accept testing (Malawi: 90%; Zimbabwe: 85%; Rwanda: 99%; Lesotho: 93%; Zambia: 91%; Ethiopia: 92%). HIV positivity ranged from 1-14% (Table 1). Across countries, factors associated with never having tested for HIV among men after adjusting for age, were never being married (adjusted odds ratios for countries aOR 1.07 - 1.56), living in urban areas (aOR 1.70 - 2.10) and having secondary education (aOR 1.74 - 2.12). In Lesotho, having more than one lifetime sexual partner (aOR 1.78, CI 1.08 - 2.96) and primary (aOR 2.43, CI 1.46 - 4.00) or secondary education (aOR 5.07, CI 3.04 - 10.67) were significant correlates for fear of HIV-positive results.

Conclusions: Fear of positive results remains an overriding reason for not testing for HIV among both men and women. Outreach messages that aim to increase risk perception and emphasize treatment success may assist in reaching people who have never tested for HIV.

THPEC208
Reasons for not HIV testing among sexually active men and women who have never tested for HIV

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Background: By 2016, 70% of people with HIV knew their status. To reach the UN 90-90-90 target for 90% of people with HIV to be diagnosed, HIV test uptake must increase. We aimed to quantify and compare reasons for not testing for HIV among sexually-active men and women who had never tested.

Methods: We analyzed Demographic and Health Surveys in Zambia and Lesotho. Respondents were household residents or overnight visitors aged 15-49 years for women and 15-59 years for men. We reported frequencies of sexually-active respondents who had never tested and answered ‘yes’ to reasons why people do not test. Survey results were weighted using country-specific sampling weights.

Results: More men than women had never tested for HIV (Zambia: 68.7% vs. 31.3%; p<0.0001; Lesotho: 64% vs. 36%; p<0.0001). The most common reasons for not previously testing among men and women were fear of results (Zambia: 81.4% vs. 74.1%; p<0.0001; Lesotho: 72.2% vs. 79.0%, p<0.051), fear of stigma (Zambia: 39.6% vs. 30.9%; p=0.033; Lesotho: 23.9% vs. 29.2%, p=0.132), and low perceived HIV risk (Zambia: 19.4% vs. 13.0%, p<0.0001; Lesotho: 13.0% vs. 12.1%, p=0.652). After adjusting for age, for Zambia, statistically significant correlates for fear of results were being male (adjusted odds ratio [aOR] 1.29, 95% confidence interval [CI] 1.07 - 1.56), living in urban areas (aOR 1.70, CI 1.37 - 2.10) and having secondary education (aOR 1.74, CI 1.07 - 2.15) or higher (aOR 1.29, CI 1.07 - 1.56). Correlates for low perceived risk of HIV infection were being male (aOR 1.54, CI 1.24 - 1.92) and living in urban areas (aOR 1.29, 95% CI 1.07 - 1.56). Low perceived risk of HIV infection and corresponding HIV test results. Survey results were weighted using country-specific sampling weights provided by DHS.

Results: Between 2,931-14,773 men and 6,621-24,562 women participated in each survey. Approximately double the proportion of men had never tested for HIV compared to women (Malawi: 30% vs. 17%, p<0.0001; Zimbabwe: 35% vs. 19%, p<0.0001; Lesotho: 34% vs. 15%, p<0.0001; Zambia: 36% vs. 20%, p<0.0001), although, less of a differential existed in Rwanda (9% vs. 14%, p<0.0001) and Ethiopia (60% vs. 61%, p=0.14).

When offered a test during the survey, high proportions of sexually-active men who had never previously tested, did accept testing (Malawi: 90%; Zimbabwe: 85%; Rwanda: 99%; Lesotho: 93%; Zambia: 91%; Ethiopia: 92%). HIV positivity ranged from 1-14% (Table 1). Across countries, factors associated with never having tested for HIV among men after adjusting for age, were never being married (adjusted odds ratios for countries aOR 1.07 - 1.56), living in urban areas (aOR 1.70 - 2.10) and having secondary education (aOR 1.74 - 2.12). In Lesotho, having more than one lifetime sexual partner (aOR 1.78, CI 1.08 - 2.96) and primary (aOR 2.43, CI 1.46 - 4.00) or secondary education (aOR 5.07, CI 3.04 - 10.67) were significant correlates for fear of HIV-positive results.

Conclusions: Fear of positive results remains an overriding reason for not testing for HIV among both men and women. Outreach messages that aim to increase risk perception and emphasize treatment success may assist in reaching people who have never tested for HIV.

Table 1: Number of respondents by reasons for not HIV testing

<table>
<thead>
<tr>
<th>Country</th>
<th>Male (n=768)</th>
<th>Female (n=1,171)</th>
<th>Total (n=1,939)</th>
<th>p value</th>
<th>Male (n=514)</th>
<th>Female (n=785)</th>
<th>Total (n=1,299)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of results/ testing positive</td>
<td>2,954 (81.4%)</td>
<td>1,281 (74.4%)</td>
<td>4,235 (79.1%)</td>
<td>0.000</td>
<td>545 (72.2%)</td>
<td>320 (79.0%)</td>
<td>865 (79.4%)</td>
<td>0.031</td>
</tr>
<tr>
<td>Fear of stigma/ discrimination</td>
<td>1,353 (36.9%)</td>
<td>550 (30.9%)</td>
<td>1,903 (33.0%)</td>
<td>0.000</td>
<td>187 (23.9%)</td>
<td>120 (29.2%)</td>
<td>307 (29.8%)</td>
<td>0.113</td>
</tr>
<tr>
<td>Low perceived risk for HIV</td>
<td>719 (19.4%)</td>
<td>223 (13.0%)</td>
<td>942 (15.4%)</td>
<td>0.000</td>
<td>91 (13.0%)</td>
<td>50 (12.1%)</td>
<td>142 (12.7%)</td>
<td>0.692</td>
</tr>
<tr>
<td>Knowledge barriers</td>
<td>149 (4.0%)</td>
<td>83 (4.7%)</td>
<td>232 (4.2%)</td>
<td>0.138</td>
<td>102 (12.1%)</td>
<td>43 (9.4%)</td>
<td>145 (11.1%)</td>
<td>0.268</td>
</tr>
<tr>
<td>Other reason/ don’t know</td>
<td>257 (6.3%)</td>
<td>148 (8.6%)</td>
<td>405 (7.1%)</td>
<td>0.005</td>
<td>140 (17.4%)</td>
<td>64 (15.5%)</td>
<td>204 (16.9%)</td>
<td>0.456</td>
</tr>
</tbody>
</table>

THPEC209
The continuum of HIV care and population viral load (PVL) among a representative sample of gay, bisexual and other men who have sex with men (MSM) in Nairobi, Kenya

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1University of Oxford, Nuffield Department of Population Health, Oxford, United Kingdom; 2Partners for Health and Development, Nairobi, Kenya; 3London School of Hygiene and Tropical Medicine, Department of Public Health, London, United Kingdom; 4La Trobe University, Australian Research Centre in Sex, Health & Society, Melbourne, Australia; 5University of Manitoba, Department of Medical Microbiology and Infectious Diseases, Winnipeg, Canada

Background: The UNAIDS 90-90-90 is central to Kenya’s National AIDS Control Strategy. MSM are a key population in Kenya yet criminalisation and discrimination present obstacles to care engagement. This study set out to assess for the first time the continuum of HIV care among a representative sample of MSM in Nairobi.

Methods: Respondent-driven sampling (RDS) was employed to recruit 618 MSM. Eligibility criteria were age 18+, male gender at birth or currently, Nairobi residence and consensual oral or anal intercourse with a male partner in the last 12 month. Consenting HIV-positive participants conducted a computer-assisted survey, which included HIV testing history, timing of diagnosis, care linkage within 3 months, retention in care...
(12 months) and current ART use. HIV status was established using Determine® & First Response® HIV-1-2 and Xpert® HIV-1 Dual. Viral load was quantified using Xpert® HIV-1 Viral Load (cut off 200 cells/mm³). All measures were adjusted for RDS sampling (RDS-II).

**Results:** 186/618 participants were HIV positive (28.7%[21.4-37.3]). In total 139 (71.3%) were aware of their status. 116 (59.6%) had a viral load < 200 copies/mL. In relation to 90-90-90 targets, these data represent 71-83-83. Among men aware of their diagnosis, 118/129 (93.5%[88.7-97.9]) reported linkage to a care provider within 3 months of diagnosis and 76/111 (65.8%[54.3-75.8]) started ART within two weeks of diagnosis. 121/127 (94.9%[88.7-97.8]) reported linkage to clinical HIV services in the last year (public clinic 37.0%, private clinic 21.5%, MSM-specific services 41.2%). The geometric mean PVL among HIV positive MSM was 298[189-466] copies/mL. The proportion of HIV positive MSM with viral loads >50,000 copies/mL was 21.0%[14.9-28.7] or 5.5%[3.9-7.9] of the MSM population as a whole.

**Conclusions:** These first population-based estimates of the care cascade and PVL among MSM in Kenya are highly encouraging. Engagement in care is remarkably high and compares favourably to continuum estimates among MSM in other settings and to the general adult population in Kenya. HIV diagnosis represents the weakest link in the current continuum of care for MSM in Nairobi, and approaches to increase testing access and uptake should be prioritised.

**[HIV diagnosis, care and treatment engagement among MSM in Nairobi, Kenya (2017)]**

**THPEC210**

Characterizing the prevalence and determinants of newly HIV diagnosed female sex workers in urban centers across Cameroon


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**Background:** Female sex workers (FSW) are disproportionately affected by HIV in Cameroon with an estimated HIV prevalence of 23.6%. Although HIV incidence data are unavailable, here we assess the prevalence and determinants of new HIV diagnoses among FSW in Cameroon.

**Methods:** In 2016, FSW (sex work principal source of income in past year) were recruited through respondent-driven sampling for a bio-behavioural survey carried out in five urban centers in Cameroon. New diagnoses were defined as testing HIV positive when participant reported HIV-negative or unknown status; participants self-reporting to be living with HIV or with indeterminate test status were excluded from these analyses. A multivariable Poisson regression model was developed to assess determinants of new HIV infection using a priori determined individual, network and structural covariates, with manual backwards elimination and controlling for clustering by study site; adjusted prevalence ratios (aPR) are reported if significant (p<0.05).

**Results:** Overall, 2,255 FSW were recruited. Excluding participants who self-reported HIV positive (n=299) and indeterminate (n=7) test results, prevalence of newly diagnosed HIV was 13.3% [520/3,953]. Variables significantly associated with new HIV diagnosis were: older age (aPR: 1.05, 95% CI: 1.04-1.07), primary school education or less (aPR: 1.51, 95% CI: 1.07-2.14), sex with clients at brothels (aPR: 1.52, 95% CI: 1.10-2.11), unprotected sex with regular non-paying partners (aPR: 1.75, 95% CI: 1.17-2.60); knows safest lubricant is water-based (aPR: 1.52, 95% CI: 1.08-2.13); no HIV test in previous year (aPR: 1.98, 95% CI: 1.20-2.27); experienced STI symptoms in past year (aPR: 1.65, 95% CI: 1.19-2.29); and low social participation (aPR: 1.59, 95% CI: 1.11-2.28).

**Conclusions:** In the absence of HIV incidence data, these results provide insights into ongoing HIV acquisition risks among FSW across Cameroon. These data specifically suggest the need to understand HIV acquisition risks from non-paying partners, build social capital, and better integrate services such as PrEP and STI services into HIV programs to prevent new HIV infections.

**[Table 1: Determinants of newly diagnosed HIV among FSW in urban centres across Cameroon]**

**THPEC211**

Hidden epidemic in Akwa Ibom State: Findings from the first AIDS Indicator Survey (AIS) in Nigeria


**Background:** HIV testing remains the gateway to achieving the ambitious UNAIDS 90-90-90 targets. Undiagnosed HIV-infected individuals are more likely to transmit infection to others. We analyzed the prevalence of undiagnosed HIV and its correlates in Nigeria.

**Methods:** Akwa Ibom AIDS Indicator Survey (AKAIS), a USAID-funded population-based cross-sectional survey, was conducted between April and June, 2017. The survey was a collaborative effort between Akwa Ibom state government and USAID implementing partner FHI 360. Households were selected and household members were consented/ enrolled through a two-stage probability sampling technique. A total of 15,609 eligible participants including children and adults were sampled. Tablet-based questionnaires were administered through face-to-face interviews. Participants were questioned about socio-demographics, history of HIV testing, and sexual behavior. Participants self-reported their self-status. Consenting participants were tested for HIV according to national algorithm and confirmed with Bio-Rad Genius HIV 1/2 Con-
Thpec212
Knowledge of HIV-positive status among adult people living with HIV (PLHIV) in Swaziland: A population-based survey

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Background: HIV testing is the entry point to HIV prevention and treatment. The Joint United Nations Programme on HIV/AIDS set the 90-90-90 targets with the first-90 expecting 90% of PLHIV to know their status by 2020. Swaziland has 220,000 PLHIV but lacks a population-based first-90 estimate. Therefore, we used the 2016-17 Swaziland HIV Incidence Measurement Survey2 (SHIMS2) to describe and determine factors associated with knowledge of HIV-positive status (awareness/ unaware).

Methods: Completed in 2017, SHIMS2 was a cross-sectional, nationally representative, and population-based, two-stage randomized cluster-sampled household survey. Interviews and rapid HIV testing were conducted on adults aged ≥15 years. Using weighted Jackknife survey data in Stata 14, frequencies, weighted proportions, Chi-square and logistic regression analyses were conducted. Potential factors were analyzed in two blocks, namely socio-demographic and behavioral. Adjusted odds ratios (aOR) with 95% confidence intervals (CI) were reported.

Results: Of the 12,330 adults, 10,934 (81.97%) responded to the HIV-testing questionnaire. With 2,031 (32.51%) females and 972 (20.39%) males confirmed HIV-sero-positive. Among those confirmed, 1,811 (88.56%) females and 1,131 (85.42%) males knew their HIV-positive status (p-value = 0.005). Awareness was less likely among those reporting no condom usage compared to those who used condoms at last sexual encounter within the preceding year in both females (aOR = 0.48 [95% CI: 0.30-0.76]; p = 0.005) and males (aOR = 0.56 [95% CI: 0.34-0.96]; p = 0.02). Awareness was more likely in females (aOR = 1.26 [95% CI: 0.75-2.10]; p < 0.005) and males (aOR = 1.62 [1.58-1.64]; p < 0.001) reporting previous tuberculosis-clinic visits compared to those reporting no previous visits. Among females, awareness was more likely in those aged 25-49 years compared to those 15-24 (aOR = 2.23 [1.53-3.26]; p < 0.001) and those reporting previous antenatal-clinic visit (aOR = 1.76 [1.20-2.58]; p = 0.004) compared to those reporting no previous visits. Awareness increased with increasing number of pregnancies (see Table). Among males, awareness was more likely among those aged 25-49 (aOR = 2.65 [1.95-3.57]; p = 0.002) and 50+ (aOR = 3.88 [1.77-8.57]; p = 0.001) compared to those aged 15-24 years. Awareness was more likely among married (aOR = 2.09 [1.38-3.16]; p < 0.001) and divorced (aOR = 2.32 [1.26-4.26]; p = 0.007) men compared to never married men.

Conclusions: In Swaziland, females are close to reaching the first-90 whilst males are >10% behind. Providing male-friendly, male-targeted services may unlock more testing opportunities required to bridge this gap.

Thpec213
Prevalence and correlates of active syphilis and HIV co-infection among persons aged 15 - 59 in Zambia: Results from the Zambia population-based HIV impact assessment (ZAMPHIA) 2016

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1Ministry of Health Zambia, Lusaka, Zambia, 2National Health Research Authority, Lusaka, Zambia, 3Zambian National Public Health Institute, Lusaka, Zambia, 4Centers for Disease Control and Prevention, Atlanta, Atlanta, United States, 5ICAP at Columbia University, New York, United States, 6DPS University of the Witwatersrand, Johannesburg, South Africa

Background: Prior studies have suggested sexually transmitted infections, such as syphilis, are associated with an increased risk of transmission of the HIV virus. However, no study has measured the population-level prevalence and predictors of co-infection in Zambia.

Methods: We use data from the 2016 ZAMPHIA, a national household survey that included the DPP® Syphilis Screen & Confirm Assay (Chembio) for active syphilis and Alere Determine™ and Uni-Gold™ rapid HIV tests, per national algorithm. Bivariate and multivariate logistic regression models were developed to assess associations between co-infection and selected socio-demographic and sexual behavior variables. For the multivariate analysis, those infected with both active syphilis and HIV were classified as co-infected, and the comparison group is those who had no infection.

Due to the complex survey design, all reported figures account for the survey design and are weighted.

Results: A total of 19,114 individuals aged 15-59 responded to the individual interview and had a valid syphilis and HIV test. Among this sample were 10,972 females and 8,142 males. The national prevalence of active syphilis was 3.0%. Prevalence of active syphilis was highest among females (3.4%), those ≥25 years of age (3.3%) and respondents who reported ≥2 sexual partners in the last 12 months (5.3%). Sexually active HIV-positive persons had a higher prevalence of active syphilis compared to those who were HIV-negative (9.6% vs. 2.1%). The national prevalence of HIV/syphilis co-infection was 1.3% (95% CI 1.1, 1.5).

Co-infection was higher among females living in urban areas (aOR = 3.1, 95% CI 1.9, 4.9) and females who had an early sexual debut (before age 15 years) (aOR = 1.7, 95% CI 1.0, 3.0). Co-infection was also high among both men and women who engaged in transactional sex in the past 12 months (aOR = 2.9, 95% CI 1.1, 7.2) and 4.1 (95% CI 17, 9.8, respectively).

(Table: Multivariate analysis of factors affecting awareness of HIV positive status among adults aged 15+)
Conclusions: These findings show high prevalence of HIV/syphilis co-infection in Zambia and the need for the scale up of syphilis screening and treatment, particularly among HIV-infected adults. Additionally, these results can be used by syphilis and HIV prevention programs to target populations most at risk for co-infection, specifically those engaging in transactional sex.

(Table 1. Active Syphilis Infection and HIV and Syphilis Co-infection among ZAMPHIA 2016 respondents aged 15-59 who were sexually active in the last 12 months)

THPEC214
Prevalence and factors associated with HIV infection among pregnant women attending ANC in Tanzania Mainland: Results from a National ANC Sentinel Surveillance 2017

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Background: Globally, HIV and AIDS still a major public health problem. In Tanzania, it is estimated that 1.4 million people are living with HIV. Prevalence among pregnant women aged 15-49 years is 6.2%. This is above the National prevalence of 4.7%. Antenatal screening for HIV is important for early diagnosis as it is routinely offered to all pregnant women attending ANC. This study aimed at determining the prevalence of HIV infection and associated factors among pregnant women attending ANC in Tanzania mainland following a National survey in 2017.

Methods: A cross-sectional survey was conducted in all 26 regions in Tanzania mainland: Both urban, semi-urban and rural sites were included. All eligible and consenting pregnant women were tested using National HIV testing algorithm. Data were analyzed using STATA. Logistic regression technique was used to establish factors associated with HIV infection.

Results: A total of 34,935 attendees were enrolled in the survey. HIV prevalence was found to be 6.1% (95% CI: 5.9-6.3). After adjustment for other covariates; increasing age, marital status and total number of previous pregnancies were found to have association with increased odds of HIV infection. Compared to women aged 15-19 years, those aged 20-24, 25-34, and 35-49 had aOR=1.90, (95% CI: 1.54-2.36), aOR=4.00 (95% CI: 3.21-4.97), aOR=5.89 (95% CI: 4.59-7.68) higher odds of HIV infection respectively. Divorced/separated and widowed women had nearly two times increased odds of HIV infection compared to married/cohabiting women (aOR=1.58, 95% CI:1.05-2.36) and (aOR=1.90, 95% CI 1.12-3.22) respectively. Women with 3-4 previous pregnancies were at risk by 2.53 more-times of having HIV compared to those with zero previous pregnancy (aOR= 2.53 (95% CI 2.17-2.99). Increase in education level was associated with decreased odds of HIV infection; women who attained secondary and post-secondary education had 44% and 65% lower odds of HIV infection compared to those with no formal education (aOR 0.46; 95% CI: 0.46-0.60) and aOR 0.35 (95% CI: 0.22-0.60).

Conclusions: HIV prevalence among pregnant women is still high in Tanzania. To achieve the goal of eliminating HIV, effective combination prevention strategies should be used with special emphasis on risk factors.

Measuring the population impact of prevention and treatment interventions

THPEC215
Prevalence and correlates of PrEP awareness and use among Black bisexual men in the United States

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Background: In the United States, Black men who have sex with men (MSM) have the highest incidence and prevalence rates of HIV infection. Though men who have sex with men and women (MSM/W) have been shown to experience lower HIV prevalence rates than men who have sex with men only (MSMO), they experience higher rates than the general male population. Pre-exposure prophylaxis (PrEP) is an efficacious tool to prevent HIV infection, but utilization among Black MSM remains low. Limited research exists on prevalence and correlates of PrEP awareness and use among Black MSM/W.

Methods: We used time-location sampling to recruit Black MSM ≥18 years old attending Black Gay Pride events in six U.S. cities between 2014–2017. We conducted multivariable logistic regressions to assess correlates of self-reported PrEP awareness and utilization among serologically confirmed HIV-negative Black MSM (n=2398). Within-group analyses assessed predictors of PrEP awareness and current use among past-year MSMW (n=419). Analyses adjusted for year, city, Hispanic/Latino ethnicity, age, and income.

Results: Black MSM/W were significantly less likely than Black MSMO to report being aware of PrEP (45.3% vs. 55.2%; aOR=0.74; 95% CI: 0.59, 0.92), however, among PrEP-aware Black MSM (n=1278), MSMW were significantly more likely than MSMO to report currently using PrEP (aOR=1.67; 95% CI: 1.12, 2.48). Within Black MSM/W, those reporting any past-year sexually transmitted infection (STI) diagnosis (aOR=1.94; 95% CI: 1.16, 3.24) were more likely to be PrEP-aware, as were those who reported social support from the gay community (aOR=2.07, 95% CI: 1.25, 3.42). MSM/W reporting any past-year STI diagnosis were significantly more likely to report current PrEP use (aOR=2.74; 95% CI: 3.50, 18.83), as were MSM/W who reported three or more past-year STI diagnoses (aOR=10.57; 95% CI: 4.07, 27.50).

Outcome | Sub-sample | Main predictor | aOR (95% CI) |
--- | --- | --- | --- |
PrEP-aware | HIV-negative Black MSM (n=2998) | MSMW | 0.74 (0.59, 0.92) |
HIV-negative Black MSM (n=419) | Past-year STI diagnosis | 1.94 (3.50, 18.83) |
HIV-negative Black MSM (n=419) | Any gay community support | 2.07 (1.25, 3.42) |
Current PrEP use | HIV-negative, PrEP-aware Black MSM (n=1278) | MSMW | 1.67 (1.12, 2.48) |
HIV-negative Black MSM (n=419) | Past-year STI diagnosis | 7.44 (3.50, 18.83) |

(Predictors of PrEP awareness and use among Black MSM/W: multivariable logistic regressions)
Conclusions: Low rates of PrEP awareness and utilization among Black MSM persist in the U.S., including among Black MSMW. Our data show that, if aware of PrEP, Black MSMW may be even more likely than other Black MSM to use it. PrEP awareness and linkage campaigns tailored for Black bisexual men, in conjunction with practitioner-based STI-to-PrEP interventions, will likely increase PrEP utilization in this group.

THPEC216


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Background: Zimbabwe began implementing Option B+ nationwide in 2015, having achieved an 18-month cumulative mother-to-child HIV transmission (MTCT) risk of 7.0% in 2014 under Option A. We assessed the population level impact of Option B+plus and maternal viral load (VL) suppression (VLs, defined as ≤ 1,000 copies/mL) on the cumulative MTCT risk during pregnancy and through 18 months post-delivery.

Methods: From February to May 2016, using a multistage stratified cluster sampling method, we consecutively recruited a nationally representative sample of 8,570 pairs of mothers and infants aged 4-12 weeks, from 151 immunization clinics. Of those, we identified 1,978 pairs with HIV-infected mothers using HIV-rapid tests or documented ART pre-conception at enrollment. We evaluated these pairs at baseline and every three months until the child became HIV-infected, died, or reached age 18 months. Maternal VL was measured at 4-12 weeks, and 12 months post-delivery. We defined a mother with a durable VL status if she had VLS at both time points. Findings were adjusted for study design and non-responses.

Results: Nationally, the observed 18-month cumulative MTCT risk was 3.3%, including 1.7% perinatal MTCT. Overall, 52.1% of mothers who started ART pre-conception and 44.9% (CI:41.9-47.8) initiated during pregnancy. The lowest MTCT of 0.76% (95% CI: 0.36% - 1.61%) was achieved when the mother initiated ART before pregnancy and during pregnancy, 1.2% post-delivery and 3.2% never received ART. Mothers who started ART before pregnancy and during pregnancy had low MTCT risk, 0.78% (95% CI: 0.31%-1.96%) and 0.98% (95% CI: 0.33%-2.91%), respectively. MTCT rose to 4.13% (95% CI: 0.54%-25.68%) when the mother initiated ART after delivery and 11.62% (95% CI: 4.07%-28.96%) when she never received ART. The lowest MTCT of 0.76% (95% CI: 0.36%-1.61%), a seven-fold decrease compared to the risk among mothers without durable VLS, was measured at 4-12 weeks and 12 months post-delivery, respectively, including 49.9% (CI: 46.1-52.8) of the mothers with a durable VL status. Mothers with a durable VL status had an 18-month cumulative MTCT risk of 0.1%, a seven-fold decrease compared to the risk among mothers without durable VLS (7.0%). Of mothers with VLS at baseline, the perinatal MTCT risk was 0.2% (CI:0.0-0.9) among mothers starting ART pre-conception.

Conclusions: After one year of implementing Option B+ nationwide, Zimbabwe reduced the cumulative 18-month MTCT risk from 7.0% to 3.3%. Eliminating MTCT to zero may be feasible through the prioritization of ART for HIV-infected women planning to become pregnant coupled with intensified VL monitoring and ART adherence support during pregnancy and breastfeeding could increase the proportion of mothers with a durable VLS status.

THPEC217
Population-level effectiveness of antiretroviral therapy (ART) to prevent early mother to child transmission of HIV in Namibia

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Background: Namibia introduced the prevention of mother to child HIV transmission (MTCT) program in 2002 and lifelong antiretroviral therapy (ART) for pregnant women (option B-plus) in 2013. We sought to quantify MTCT measured at 4-12 weeks post-delivery.

Methods: During Aug 2014-Feb 2015, using two stage sampling approach we recruited a nationally representative sample of 1040 pairs of mother and infant aged 4-12 weeks at routine immunizations in 60 public health clinics. Of those, 864 HIV exposed infants (HEI) had HIV test results available. We defined an HEI if born to an HIV-positive mother with documented status, or diagnosed at enrolment using rapid HIV tests. Dried Blood Spots samples from HEIs were tested for HIV. Interview data and laboratory results were collected on smartphones and uploaded to a central database. We measured MTCT risk at 4-12 weeks post-delivery and evaluated associations between infant HIV infection and maternal and infant characteristics including maternal treatment and infant prophylaxis. All statistical analyses accounted for the survey design.

Results: Nationally weighted early MTCT was 1.74% (95% CI: 1.00%-3.01%). Overall, 62% of mothers started ART before pregnancy. 33% during pregnancy. 12% post-delivery and 3% never received ART. Mothers who started ART before pregnancy and during pregnancy had low MTCT risk, 0.75% (95% CI: 0.31%-1.96%) and 0.98% (95% CI: 0.33%-2.91%), respectively. MTCT rose to 2.13% (95% CI: 0.54%-25.68%) when the mother initiated ART after delivery and 11.62% (95% CI: 4.07%-28.96%) when she never received ART. The lowest MTCT of 0.76% (95% CI: 0.36%-1.61%) was achieved when mother received ART and ARV prophylaxis for infant and highest 22.32% (95% CI: 2.78%-74.25%) when neither mother nor infant received ARVs (RR=29.2, 95% CI: 4.47-190.7; p<0.01). After adjusting for mother’s age, no maternal ART (RR=1.02, p>0.01) and no infant ARV prophylaxis (RR=3.24, p=0.05) remained strong predictors of HIV transmission.

Conclusions: As of 2015, Namibia achieved MTCT of 1.74%, measured at 4-12 weeks post-delivery. Women already on ART, pre-conception had the lowest risk of MTCT emphasizing the importance of early HIV diagnosis and treatment initiation before pregnancy. Studies are needed to measure MTCT and maternal HIV seroconversion during breastfeeding.

THPEC218
Effectiveness of interventions for changing HIV related risk behaviours among key populations in low-income settings: A meta-analysis, 2001-2016

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Background: Lack of evaluation of interventions presents a hurdle in identifying what works best for reducing the HIV incidence in low-income countries. The aim is to conduct a meta-analysis to assess the effectiveness of behavioural interventions in reducing HIV related risk behaviours among key populations [people who inject drugs (PWID), female sex workers (FSW), men who have sex with men (MSM) and transgender (TG)] in Nepal.

Methods: Systematic searching of literature focusing on peer education interventions and HIV testing and counselling (HCT) services in Nepal was done using different electronic databases. Search was restricted to...
Couple Oriented Counselling improves male partner involvement in sexual and reproductive health of the couple: Evidence from the ANRS 12127/12236 PRENAHTTEST Cohort in Cameroon

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Background: Male partner involvement (MPI) has been recognized as a priority area to be strengthened in prevention of Mother to Child Transmission (PMTCT) of HIV. Here, we explored the impact of Couple Oriented Counseling (COC) in MPI in sexual and reproductive health and associated factors.

Methods: From February 2009 to October 2011, pregnant women were enrolled at their first antenatal care visit (ANC-1) and followed up until 6 months after delivery in the Mother and Child Center of the Chantal Biya Foundation within the PRENAHTTEST multicentric project (Figure 1A). A composite variable was defined using sexual and reproductive health behaviors variables by multiple correspondence analysis followed by mixed classification. Men were considered highly involved if they had shared their HIV test results with their partner, discussed on HIV or condom use, contributed financially to ANC, accompanied their wife to ANC or practiced safe sex. Factors associated to MPI were investigated by the logistic model with GEE estimation approach.

Results: A total of 484 pregnant women were enrolled at a median age of 27 years (IQR: 23-31). Among them, HIV prevalence was 11.9% (95% CI: 9.0 - 14.1) and 55.23% had a gestational age greater than 16 weeks at ANC-1. The median duration of the women relationship with partner was 84 months (IQR: 24-120). MPI was significantly greater in COC group than SC group (aOR = 1.37; 95% CI = 1.00 - 1.89) and whose partner came early for ANC-1 (aOR = 1.45; 95% CI = 1.00 - 2.10) than others. Partners with no incoming activity (aOR = 2.90; 95% CI = 1.96 - 4.29) who did not use condoms within the couple (aOR = 1.07; 95% CI = 1.07 - 2.68), and whose partner came early for ANC-1 (aOR = 1.37; 95% CI = 1.00 - 1.89) were more likely to be involved than others.

Conclusions: MPI remains low in stable couples and COC improves partner involvement. Our results also confirm that strengthening outreach towards „stable“ couples and address barriers could go a long way to improve PMTCT in Cameroon.

THPEC220
Application of goal 90-90-90 (OUNA / UNAIDS) in an infectious-contagious disease hospital for adult patients in Belo Horizonte, Brazil

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Background: This survey is premised on the ambitious 90-90-90 goal launched by the ONU / UNAIDS and its member countries to overcome the AIDS epidemic by 2030. It consists of 90% of patients diagnosed, 90% in treatment and 90% with viral suppression by the year 2020. In the period from July 2016 to July 2017, all patients diagnosed with HIV / AIDS at Eduardo de Menezes / FHEMIG Hospital, a state reference in infectious-contagious diseases for adult patients were analysed.

Methods: The parameters gender, onset of ART and viral suppression (viral load below 50 copies / ml) were evaluated. Data were obtained through compulsory HIV / AIDS notifications from the HEIM Epidemiology Center, the Laboratory Testing System of the National Network for CD4+ / CD8+, Lymphocyte Count and HIV Viral Load (SISCEL) and the National Service System Physician (SINAMI).
Results: We evaluated 424 patients (through serology Elisa method and rapid testing). 78.6% of the patients were male and 21.4% were female. The onset of HAART occurred in 100% of patients and the viral suppression rate was 84.1%. It is worth mentioning that, in Brazil, the initial HAART regimen is composed of a non-combined triple of drugs, one integrase inhibitor associated with 2 NRTIs.

Conclusions: Among the patients diagnosed with HIV / AIDS, we noticed that the target of 90% in treatment was successfully achieved. A 90% with viral suppression was close to being achieved. Decreasing the number of pills would be important to reach this goal. One way to help reach 90% of diagnosed patients would be easy access to the self-test (CROI / 2017), made available in Brazil from July 2017, when this survey had already ended. However, it is well known that most seropositive patients adhere to treatment in the first few years after diagnosis, but maintaining adherence is somewhat challenging. According to national studies, at least 1/3 will drop out of treatment at some point. In view of this, preventive and facilitative educational strategies are necessary for the end of the epidemic to take place in Brazil.

THPEC221
Closing the third 90 gap: Viral suppression in adults 15 years and older in Swaziland

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Background: Viral load suppression (VLS) indicates the effectiveness of national HIV treatment programs. The Swaziland HIV Incidence Measurement Survey (SHIMS2, 2016) shows that Swaziland has achieved the third 90 target set by the United Nations Joint Programme on HIV/AIDS (UNAIDS). However, program data suggests that the third 90 has not been achieved for all sub-populations. We assessed correlates of VLS among HIV+ participants 15+ to identify remaining unsuppressed sub-populations.

Methods: SHIMS2 used a two-stage cluster randomized design to attain a nationally representative sample. The national testing algorithm was used to determine HIV status and a qualitative assay to test for efavirenz, nevirapine, and lopinavir. Prevalence and correlates of ART use were estimated using weighted multivariable logistic regression analyses with jackknife variance estimation methods accounting for the complex survey design.

Results: Seventy-two (72%) of all PLHIV were virally suppressed. Among 15,628 surveyed adults, 10,934 agreed to HIV testing, of which 1,003 (27%, 95% Confidence Interval (CI):25.7, 28.3) were HIV+, of these 65.5% were female and the median age was 37 years (Interquartile range (IQR): 30–47). A majority (87.4%, CI: 85.8-89.1) reported current ART use. Among those reporting ART use: VLS among those who had never married (93.9%, CI: 92.7, 95.2) was significantly lower compared to ever married (95.0%, CI: 94.0-96.1). PLHIV were progressively more likely to be VLS with increasing age: compared to 15-24 year olds odds ratios (OR): 2.9, p<0.001 for 25-34 years, OR: 4.4, p<0.001 for 35-44 years and OR: 8.3, p<0.001. No significant difference in VLS by sex, region or education was observed. In multivariable modelling, controlling for sex and marital status, older participants still had higher odds of being VLS compared to 15-24 year olds, adjusted odds ratios (aOR):2.9, p=0.003 for 25-34 years, aOR:3.5, p<0.001 for 35-44 years and aOR:6.7, p<0.001 for 45+ years.

Conclusions: Young PLHIV have lower odds of having VLS compared to older age groups. Though many factors influence VLS including ART adherence, age is the most significant. It is critical that programs understand the needs of 15-24 year olds in order to close the gap in VLS, since this population will expand as the youth bulge ages.

THPEC222
Antiretroviral therapy uptake among adults 15 years and older in Swaziland, 2016

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Background: As countries scale up anti-retroviral treatment (ART) to achieve epidemic control and end the global HIV pandemic by 2030, it is critical to understand factors associated with ART uptake to guide program modification and implementation. Data from the Swaziland HIV Incidence Measurement Survey 2 (SHIMS2) included measurement of progress towards the UNAIDS three 90s i.e. HIV status awareness, ART uptake and viral load suppression. Although Swaziland has made significant progress, deeper analysis is required to understand which populations and geographic locations are not meeting ART coverage targets.

Methods: Using data from a nationally representative survey, we examined correlates of ART uptake, defined as either self-reporting being on ART and/or testing positive for one or more antiretrovirals in their blood. The survey used a two-stage cluster sampling design to attain a nationally representative sample. National testing algorithm was used to determine HIV status and a qualitative assay to test for efavirenz, nevirapine, and lopinavir. Prevalence and correlates of ART use were estimated using weighted multivariable logistic regression analyses with jackknife variance estimation methods accounting for the complex survey design.

Results: Of the 2,997 HIV+ participants, 87.0% were reported to be aware of their status with 88.8% of those being on ART. ART uptake did not differ by sex. Compared to people residing in Lubombo (Eastern region), people residing in Hhohho (Adjusted odds ratio (aOR):1.83, p=0.0127) and Shiselweni (aOR:1.92, p=0.0105) regions had higher odds of ART uptake. Those with lower than secondary education had higher odds of being on ART compared to those with secondary education or higher (aOR:0.65, p=0.0096). Older participants (35-44 years, aOR:1.70, p=0.0390; 45+ years, aOR:1.81, p=0.0480) were more likely to be on ART compared to 15-24 year olds while those that had disclosed their HIV status were 92% more likely to be on ART compared to those who had to hide their status (aOR:1.92, p=0.0034).

Conclusions: Disparities observed in ART uptake by region, level of education, age and disclosure status, emphasize the need to expand and modify existing interventions to reach specific sub-populations that currently have lower ART coverage as demonstrated in this analysis.
THPEC223
Earlier treatment initiation correlates with a decreased number of HIV-1 subtype A transmissions in Greece

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Background: Subtypes A1 and B are the most prevalent HIV-1 clades in Greece. The subtype A1 epidemic is highly monophyletic and corresponds to transmissions that occurred locally. UNAIDS has set a global target to eliminate the HIV pandemic in 2030 by reaching a 90-90-90 treatment cascade. We aimed to investigate the role of treatment as prevention (TasP) to prevent new HIV-1 transmissions.

Methods: Our analysis focused on the major subtype A1 local cluster that included 791 out of 916 (86.4%) sequences from treatment-naïve individuals sampled in Greece during 22/07/1997-02/06/2015. Estimation of infection and sampling dates was performed by molecular clock calculations using phylodynamic analysis based on birth-death models, as implemented in BEAST v1.8.0. We also estimated the time interval:

i) between the infection and sampling dates (linkage to care window), and
ii) between infection dates and antiretroviral therapy (ART) initiation (transmissibility window) for the study population.

Results: The number of new transmissions (incidence trend) decreased during the 2008-2014 period among subtype A1-infected individuals in Greece. A significant time trend for the transmissibility window was found. Similarly, the linkage to care window decreased significantly over time.

Conclusions: It has been demonstrated that molecular analysis can be used for accurate estimation of infection dates. Our findings, based on a large proportion of subtype A1 infections in Greece, showed that the linkage to care and transmissibility windows are decreasing over time, suggesting that a larger proportion of individuals are being diagnosed and treated closer to their infection dates, presumably due to improved diagnosis and updated treatment guidelines. Our study also provides evidence that earlier treatment is correlated with lower incidence among subtype A1 strains in Greece, thus documenting the benefits of early ART initiation to prevent ongoing HIV-1 transmission.

THPEC224
Trends in HIV diagnostic coverage & prevalence of undiagnosed infection in a high burden district with annual home-based HIV testing: Findings from the Chókwè Health Demographic Surveillance System, Mozambique, 2014-2017

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Background: Few communities in sub-Saharan Africa have achieved the UNAIDS goal of diagnosing >90% of HIV-infected residents (diagnostic coverage). Beginning in April 2014, periodic rounds of home-based HIV testing and counseling (HBHTC) were conducted in the Chókwè Health Demographic Surveillance System (CHDSS), located in a high-prevalence district in southern Mozambique. We describe uptake of HBHTC, and trends in diagnostic coverage and prevalence of undiagnosed HIV infection among CHDSS residents.

Methods: CHDSS conducts annual demographic surveillance of 95,000 residents. During each surveillance round, all households are visited and encountered residents aged 15-59 years are asked to participate in a brief survey on prior HIV testing and result of most recent test, and to test for HIV if not confirmed HIV-positive through CHDSS. Estimated diagnostic coverage and prevalence of undiagnosed HIV infection among CHDSS residents.

Results: From 2014-2017, 76,620 tests were conducted, 40,272 (78%) of 51,878 residents aged 15-59 years tested at home at least once, and 3,957 were newly HIV diagnosed. In each round, 19,811-24,946 residents participated in the brief survey. Among participants with HIV, diagnostic coverage increased in all demographic groups, particularly among young adults, and in 2017, exceeded 90% among men, women, and persons aged 25-59 years. In 2015, 2016, and 2017, prevalence of undiagnosed (total) HIV infection was 5.0% (24.5%), 3.1% (26.1%), and 1.8% (25.6%), respectively. In 2017, prevalence of undiagnosed HIV infection was greater among males (2.0%) than females (1.6%), and greatest among...
males 30-34 years (4.4%) and females 25-29 years (2.9%) (Figure). Applying estimated prevalence of undiagnosed HIV infection to the CHDSS census, we estimate that 934 HIV infected CHDSS residents were undiagnosed in 2017, 693 (61%) of whom are 35-44 years of age.

Conclusions: In a high HIV prevalence district in Mozambique with annual HBHTC, substantial progress has been made in achieving the UNAIDS goal of >90% diagnostic coverage and reducing the prevalence of undiagnosed infection in all demographic groups. In the CHDSS, focused efforts are now warranted on identifying methods to reach and test young adult men and women at high risk for undiagnosed infection.

Total HIV-positive and newly HIV-diagnosed (Di) participants, and percentage previously aware of HIV infection (diagnostic coverage), by surveillance round, gender, and age group, CHDSS, Chókwè Mozambique, 2014 - 2017.

<table>
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<tr>
<th>Round</th>
<th>(Di) n</th>
<th>Aware</th>
<th>%</th>
<th>HIV+</th>
<th>(New Di) n</th>
<th>Aware</th>
<th>%</th>
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<td>3201</td>
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<td>5841</td>
<td>1069</td>
<td>79.7</td>
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<td>1/2016</td>
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<tr>
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<td>355</td>
<td>27.5</td>
<td>1564</td>
<td>3/2017</td>
<td>90.0</td>
<td>1670</td>
<td>90</td>
<td>94.9</td>
<td>1376</td>
</tr>
</tbody>
</table>

Table: Prevalence of undiagnosed (red) and total HIV infection of 19,811 survey participants, by age-group and sex, CHDSS, 2017.

THPECC25
Earlier HIV diagnosis among men who have sex with men in Amsterdam following interventions to increase awareness of early HIV infection

A van Sighem1, G. de Bree1, U. Davidovich1, W. Zuilhof1, A. van Bijnen1, G. de Bree2,3, U. Davidovich4, W. Zuilhof5, A. van Bijnen5,8,9, J. van Bergen5,8,9

Background: The HIV Transmission Elimination AMsterdam (H-TEAM) initiative, a unique collaboration between all relevant stakeholders involved in HIV prevention and care in Amsterdam, implemented several interventions to increase awareness of early HIV infection, including a multi-media campaign targeting men who have sex with men (MSM), which was launched in August 2015 and repeated early 2016. We investigated the possible impact on early-diagnosed HIV infections in Amsterdam compared to the rest of the Netherlands.

Methods: Data on people diagnosed with HIV in 2010-2016 were retrieved from the ATHENA national HIV database. We studied changes over time in proportions of people with recent infection, defined as HIV diagnosis with a negative test ≤6 months before, and changes in CD4 cell counts at diagnosis. Differences between groups were compared with Pearson’s chi-square test.

Results: 6,931 people were newly diagnosed in 2010-2016: 1,193 (17%) MSM and 3,761 (55%) other men and women in Amsterdam, and 3,476 (50%) MSM and 1,829 (27%) other men and women outside Amsterdam. The proportion of MSM with a recent infection was 18% (196/1,080) in 2010-2015 and increased (p<0.01) to 36% (411/1,134) in 2016 in Amsterdam, compared to a more modest increase (from 18% to 22%, p<0.03) outside Amsterdam (Figure). Among other men and women, <10% had a recent infection, both in and outside Amsterdam, without significant changes over time (p>0.1).

CD4 counts at diagnosis were available for 4,234 (91%) MSM and 1,988 (88%) other people. Among MSM, the proportion with <350 CD4 cells/mm3 increased from 62% (597/956) in 2010-2015 to 77% (185/241) in 2016 in Amsterdam (p<0.001), but did not change outside Amsterdam: 62% (147/241) in 2010-2015 and 58% (202/341) in 2016 (p>0.1). Among other men and women 39% (772/1,988) had <350 CD4 cells/mm3 at diagnosis with no differences by time period or residence.

Conclusions: MSM in Amsterdam are now being diagnosed earlier in their HIV infection than in the rest of the Netherlands. Although our findings need further confirmation with ongoing observation, they may be an early indicator of the effectiveness of H-TEAM’s combined efforts to increase HIV testing and diagnosis at early stages of the infection.
Measuring the population-level impact of policy-level HIV interventions

**THPEC226**

Achieving >80% ART coverage in a high burden district with annual home-based HIV testing: Findings from the Chókwè Health Demographic Surveillance System (CHDSS), Mozambique, 2014-2017

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2US Centers for Disease Control and Prevention, Atlanta, United States.
3Chókwè Health Research and Training Center, National Institute of Health, Chókwè, Mozambique.
5District Directorate of Public Health, Chókwè, Mozambique.
6Elizabeth Glaser AIDS Foundation, Maputo, Mozambique.
7Elizabeth Glaser AIDS Foundation, Xai-Xai, Mozambique.

**Background:** Few communities in sub-Saharan Africa have achieved the UNAIDS goal of more than 80% of people living with HIV (PLHIV) on antiretroviral therapy (ART). In September 2016, the Government of Mozambique approved ART for all PLHIV (Test & Start, T&S), beginning with highest burden districts. We evaluate trends in ART coverage in a T&D district where home-based HIV testing and counseling (HBHTC) had been implemented since 2014.

**Methods:** The Chókwè Health and Demographic Surveillance System (CHDSS) conducts annual demographic surveillance of 95,000 residents in Chókwè District. During each round of surveillance, encountered residents aged 15-59 years in all CHDSS households are asked to participate in a brief survey on knowledge of HIV status and current ART use, and to test for HIV if not previously tested positive through CHDSS. For each round 2014-2017, we estimate ART coverage overall, and by sex and age group. All estimates are weighted to the 2016 census.

**Results:** Between 2014 and 2016, 37,776 (73%) of 51,878 adult residents aged 15-59 years of age underwent home-based HIV counselling and testing (HBHTC) at least once, with 19,811-24,946 residents participating in each round of the survey. Among participants with HIV, ART coverage increased from 49% (95% confidence interval CI) 47.7-50.6) in 2014 to 85% (95% CI. 83.7-86.0) in 2017 (Table); pill bottles were observed for >82% of ART reporters per round. ART coverage increased most among residents aged 15-24 years, from 28% (95% CI 25-31.8) in 2014 to 73% (95% CI. 70-75) in 2017. ART coverage exceeded 80% for women aged 25-59 years and men aged 35-59 years (Figure). The percentage of participants on ART in 2017 who were newly HIV-diagnosed at home in prior surveillance rounds was 29%, 21%, and 18% among participants aged 15-34, 35-45, and 45-59 years, respectively.

**Conclusions:** One year after approval of T&S, substantial progress has been made in achieving the UNAIDS goal for over 80% ART coverage among all demographic groups in a high burden district in Southern Mozambique. Improvements are still needed to expand this achievement to all sub-populations, particularly youth aged 15-34.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>HIV+ n</td>
<td>On ART (95% CI)</td>
<td>HIV+ n</td>
<td>On ART (95% CI)</td>
</tr>
<tr>
<td>Total</td>
<td>10578</td>
<td>49 (48.51)</td>
<td>5841</td>
<td>68 (66.99)</td>
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<tr>
<td>Male</td>
<td>981</td>
<td>41 (38.44)</td>
<td>1227</td>
<td>60 (57.62)</td>
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<tr>
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<td>4979</td>
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<td>71 (70.73)</td>
</tr>
<tr>
<td>Age Group</td>
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<tr>
<td>15-24</td>
<td>697</td>
<td>28 (25.52)</td>
<td>723</td>
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<td>57 (54.99)</td>
<td>1842</td>
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<tr>
<td>45-59</td>
<td>1275</td>
<td>81 (58.63)</td>
<td>1564</td>
<td>80 (78.82)</td>
</tr>
</tbody>
</table>

[ART coverage among HIV-positive survey participants, by survey round, gender, and age group.]

**THPEC227**

Improvements in the South African HIV care cascade: Findings on 90-90-90 targets from successive population-representative surveys

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3University of Washington, Department of Global Health, Seattle, United States.
4International Training and Education Center for Health (IP-TECH) South Africa. Pretoria, South Africa.
5National Institute for Communicable Diseases/NHLS. Johannesburg, South Africa.
6University of Witwatersrand, Johannesburg, South Africa.
7University of California, HIV, Infectious Diseases and Global Medicine Division. Department of Medicine, San Francisco, United States.

**Background:** South Africa began staged roll-out of fixed dose combination (FDC) antiretroviral therapy (ART) in April 2013; expanded ART initiation from CD4 ≥ 350 to CD4 ≥ 500 in January 2015; and instituted universal treatment in September, 2016. We assessed whether these changes facilitated meeting UNAIDS 90-90-90 targets by comparing population-representative surveys before and after expanded treatment policies were introduced.

**Methods:** Data were collected in January-March 2014 and August-November 2016 in Lekwa-Teemane and Greater Taung sub-Districts, Dr. Ruth Segomotsi Mompati District, North West Province. In both surveys, 46 enumeration areas (EA) were selected proportional to size, an average of 39 dwelling units (DU) per EA were randomly selected, with one DU resident 18-49 years old randomly selected for participation. Participants responded to a behavioral survey, were invited to undergo rapid antibody testing and provide dried blood spots (DBS) for HIV detection and viral load testing. Weighted analyses accounted for multi-stage sampling.

**Results:** For both surveys, over 90% of those eligible enrolled, resulting in 1044 participants in 2014 and 971 in 2016; approximately 70% underwent HIV testing. HIV prevalence was 23.1% (95% CI=19-27.2) in 2014 and 21.0% (95% CI=17-24.9) in 2016. The proportion of HIV-positive individuals with knowledge of their status remained constant at 65.8% (95% CI)=58.1-72.7 in 2014 and 65.3% (95% CI=56.3-74.1) in 2016, despite increases in reported testing. Men were significantly less aware of their status than women in both surveys (Table 1). The proportion of HIV-positive individuals on ART increased significantly from 79.0% (95% CI=69.6-86.0) in 2014 to 91.3% (95% CI=84.3-95.4) in 2016. Among those on ART, viral suppression (< 5000 DBS copies/ml) increased significantly from 56.6% (95% CI=40.0-71.1) in 2014 to 83.6% (95% CI=74.0-93.2) in 2016, with a particularly large increase for men.

**Conclusions:** Over two and a half years during which FDC was introduced and ART eligibility was expanded to universal access, the second 90-90-90 target was reached and the third is within reach in rural South Africa. No improvements were evident in the first 90 target. Despite increases in reported HIV testing, targeted and differentiated testing models to encourage uptake of HIV testing by people most at risk are required.
THPEC228

HIV incidence trends by marital status in mature HIV epidemics: Evidence from two community cohort studies in Uganda

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1. London School of Hygiene and Tropical Medicine, Department of Population Health. London, United Kingdom.
2. University of the Witwatersrand, School of Public Health, Johannesburg, South Africa.
3. Gutmacher Institute, New York, United States.
4. Uganda Virus Research Institute, Rakai Health Sciences Program, Rakai, Uganda.
5. University of York, Department of Health Sciences, York, United Kingdom.
6. Medical Research Council / Uganda Virus Research Institute, Uganda Research Unit on AIDS, Entebbe, Uganda.
7. London School of Hygiene and Tropical Medicine, Department of Global Health and Development. London, United Kingdom.

Background: The association between marital status and HIV incidence has at times been heavily contested in the literature. In this study, we revisit the evidence against the background of increasingly expansive prevention efforts. We find support for recent studies that documented a decline in HIV incidence rates in young married men and women. Other prevention efforts are needed to reach older and never married or formerly married men and women.


THPEC229

Changes in time to ART initiation in adults with high CD4 count in Latin America, 2003–2016

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3. Universidad de Chile. Fundacion Anarian, Santiago, Chile.
4. Instituto Hondureño de Seguro Social and Hospital Escuela Universitario. Tegucigalpa, Honduras.
5. Instituto de Medicina Tropical Alexander von Humboldt, Lima, Peru

Background: In 2013 the World Health Organization (WHO) recommended initiating ART in all adults with HIV and CD4 lymphocyte counts (CD4) < 500 cells/mm3. In 2015, WHO updated this guidelines to recommend initiating ART in all patients with HIV, regardless of CD4 count. Implementation of these guidelines in real-world settings has not been evaluated in Latin America.

RESULTS: Time to ART initiation in patients with high CD4 cell counts decreased significantly following changes in WHO guidelines in this real-world setting in Latin America. Nonetheless, a sizeable portion of patients never initiating ART, 55% were enrolled before 2013, 49% of older patients (50 vs. 20 years: HR=1.24, 95%CI: 1.09-1.41) and receiving care in Honduras and Mexico (HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B). Older age (50 vs. 20 years: HR=12.62, 95%CI: 10.58-15.05) (Fig. 1B).

RESULTS: Among 3326 patients, 1720 (52%) had CD4 > 500 cells/mm3 at enrollment. Median time to ART initiation by calendar year. Using a Cox model, we calculated adjusted hazard ratios (HR) and 95% confidence intervals (95%CI) for trends in ART initiation using splines for continuous variables accounting for age, sex, CD4 at enrolment, route of HIV transmission, and site.

RESULTS: Among 3326 patients, 1720 (52%) had CD4 > 500 cells/mm3 at enrollment.
the cohort never started ART; half of these were lost to follow-up. Further efforts to reduce time to ART initiation are needed particularly for those at risk for loss to follow-up.

Results: There were 2,530 persons analyzed. After adjusting for confounding, the risk of late entry into care and not achieving viral suppression by 12 months after diagnosis was significantly decreased in 2014 compared to all earlier years (Table). Rapid progression to AIDS was also significantly less likely in 2014 compared to 2009-2011 (Table). Risk for late initiation of care and for not remaining in care after initial linkage was significantly increased for persons with no reported risk of HIV (NRR) (PR=2.47, 95% CI 1.49-4.07) and (PR=1.84, 95% CI 1.22-2.76), respectively. For no early viral suppression, increased risk was observed for MSM who inject drugs (PR=1.39, 95% CI 1.13-1.71), persons with NNR (PR=1.57, 95% CI 1.03-2.40) and homeless persons (PR=1.30, 95% CI 1.00-1.72). For late HIV diagnosis, an increased risk was observed for older age (PR=1.34, 95% CI 1.24-1.44), older race (PR=1.32, 95% CI 1.03-1.69), and heterosexual HIV transmission (PR=1.89, 95% CI 1.32-2.69). Risk for death was increased for older persons (PR=1.79, 95% CI 1.41-2.26) and those with NRR (PR=3.99, 95% CI 1.59-10.05).

Conclusions: Temporal improvements in indicators support the beneficial impact of HIV care-related interventions, including rapid linkage to care and ART initiation, but targeted services are needed to reduce disparities. Public health surveillance provides a population-based data-driven approach to evaluate interventions and identify vulnerable populations in greatest need of assistance.

<table>
<thead>
<tr>
<th>Variable</th>
<th>No initiation of care &lt;=3 months of diagnosis (n=2333)</th>
<th>No viral suppression &lt;=12 months of diagnosis, among those linked to care (n=2193)</th>
<th>AIDS diagnosis &lt;=3 months of HIV diagnosis (n=2333)</th>
<th>Died &lt;=12 months of diagnosis (n=2333)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosed in 2009</td>
<td>1.15 (0.86-1.55)</td>
<td>1.24 (2.24-4.30)</td>
<td>1.11 (1.22-2.32)</td>
<td>2.43 (0.80-7.42)</td>
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<tr>
<td>Diagnosed in 2010</td>
<td>1.23 (0.92-1.65)</td>
<td>1.68 (1.29)</td>
<td>1.55 (1.12-2.14)</td>
<td>2.05 (0.64-6.33)</td>
</tr>
<tr>
<td>Diagnosed in 2011</td>
<td>1.53 (0.70-3.32)</td>
<td>1.99 (1.33-2.98)</td>
<td>1.89 (1.07-3.39)</td>
<td>1.99 (0.82-6.33)</td>
</tr>
<tr>
<td>Diagnosed in 2012</td>
<td>1.05 (0.76-1.43)</td>
<td>1.11 (1.26)</td>
<td>1.29 (0.92-1.81)</td>
<td>0.57 (0.13-2.57)</td>
</tr>
<tr>
<td>Diagnosed in 2013</td>
<td>1.11 (0.82-1.51)</td>
<td>1.57 (1.09-2.96)</td>
<td>1.12 (0.79-1.60)</td>
<td>2.59 (0.98-6.94)</td>
</tr>
</tbody>
</table>

(Figure 1: A) Median time of starting ART by calendar year among all ART initiators. B) Relative Hazard of ART initiation by calendar year, adjusted for sex, age, CD4 at enrollment, route of HIV transmission, and site.

THPEC230
Trends and disparities in failure to achieve indicators of engagement in HIV care, San Francisco, CA, USA 2009-2014
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1San Francisco Department of Public Health, HIV Epidemiology Section, San Francisco, United States, 2University of California, Departamento of Clinical Pharmacy and of Medicine, San Francisco, United States

Background: Aggressive efforts are underway to reduce new HIV infections and improve health outcomes for persons living with HIV. While measured trends and factors associated with failure in the care continuum among persons newly diagnosed with HIV in San Francisco (SF).

Methods: Newly diagnosed (2009-2014) HIV/AIDS cases reported to the SF surveillance registry were analyzed to identify persons: who failed to enter care ≤3 months after diagnosis, who remained in care 6-12 months after entry into care, who achieve viral suppression ≤12 months after diagnosis, who had AIDS ≤3 months after diagnosis, and died ≤12 months after diagnosis. Multivariable Poisson logistic regression model measured prevalence ratios and 95% confidence intervals of each outcome, adjusted for gender, race/ethnicity, age, transmission risk, homelessness, low income, and CD4 count.

Monitoring and evaluation of health systems along the HIV cascade
THPEC231
Who will be lost? A psychosocial review on loss to follow-up in people with HIV
P Torres-Bertran1, M.J. Ferrer Lасалa1, J.A. Mulas-Moragas2
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Background: Although access to antiretroviral therapy and viral suppression may be available and achievable, retention in care is crucial to reach these and other successful goals in HIV clinical management. However, undesirable rates of loss to follow-up (LTFU) are still present today. We reviewed the literature with 2 primary aims: 1) to identify the correlates associated with LTFU, and 2) to categorize those factors involving psychological, social and cultural issues.

Methods: We developed a narrative review of studies in HIV infection in which variables concerning retention in care were investigated. We used PubMed with a selection period from January 2010 to December...
2017. Eligible studies met the following criteria: 1) English language, 2) published in a peer-reviewed journal, 3) including any step of the HIV care continuum, and 4) finding at least one of the following factors as relevant: psychological, social or cultural. We performed descriptive statistical analyses.

Results: We found 2,235 citations investigating aspects related to retention in care. A total of 29 reports met the study criteria and were included in the review. The most common definition of LTFU was not attending the next scheduled clinical or medical appointment up to 180 days following the last clinical visit. The rate of LTFU ranged from 1% to 59%. The studies described up to 55 variables, which could be classified into 7 categories: anthropometric, demographic, institutional, physical complications, psychosocial, related to laboratory results, and therapeutic. Regarding psychosocial variables, 13 factors were detected in connection with LTFU (Table 1): the most important were depression (in 14% of the reports), low social support (14%), perceived stigma (14%), and HIV nondisclosure (10%).

Conclusions: Psychological, social and cultural factors influence not only health-related outcomes of people living with HIV, but also, importantly, retention in care. Risk factors such as depression, poor social support, highly perceived stigma, and difficulties for HIV disclosure lead to a greater likelihood of LTFU. Detection and assessment of psychosocial variables are strongly recommended in people living with HIV, in order to both predict a potential loss of retention in care, and propose and establish intervention programs to ensure and optimize linkage to care.

Table 1. Psychosocial variables related to loss to follow-up.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>14%</td>
</tr>
<tr>
<td>Low social support</td>
<td>14%</td>
</tr>
<tr>
<td>Perceived stigma</td>
<td>14%</td>
</tr>
<tr>
<td>HIV nondisclosure</td>
<td>10%</td>
</tr>
</tbody>
</table>

THPEC232
Risk factors for loss to follow-up, transfer or death among people living with HIV on first ART regimen in Mali

A. Baldé1, L. Lièvre1, A.I. Maiga1, F. Díazlo1, I.A. Maiga1, D. Costagliola1, S. Abgrall1

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Background: Among 99,000 adults living with HIV in Mali in 2013, 27,000 were treated. Healthcare for people living with HIV (PLHIV) started in 1998 in Bamako (capital), extended to other regions from 2002 and became free from 2004. To assess the quality of follow-up according to the national programme (quarterly visits), risk factors for lost-to-follow-up (LTFU) were assessed using the ESPOE medical database from different outpatient clinics (care expertise level III) and hospitals (care expertise level III).

Methods: HIV-1 individuals, ≥18 years, starting ART in 2006–2013 and coming back for their 1-month visit were considered. LTFU was defined as had no visit in the 6 months previous to database endpoint. Risk factors for LTFU psycho-social variables, 5 years on ART using Cox model, taking into account the competitive risks of transfer to another centre and death. Potential risk factors at start of ART were age, sex and pregnancy, WHO stage and CD4, period of ART, type of ART, marital status, education level, professional activity, and a variable combining region of care, care level and distance from home. We used multiple imputations to deal with missing values. Last database update was 31/03/2015.

Results: We included 9,307 PLHIV starting ART in 9 outpatient clinics and 7 hospitals (29 in Bamako region). 33% male, median (IQR) age 36 (29-43), CD4 count 157/µL (58-273) and duration (months) on ART 32 (13-61). At 5 years, 37.1%, 7.5% and 4.3% were LTFU, transferred or dead respectively. Compared to Bamako outpatient clinics, people in Bamako hospitals living >5 kilometers (kms) apart, in Regions hospitals, or in Regions outpatient clinics living < 5 kms apart were at higher risk for LTFU, whereas people in Regions outpatient clinics living 5-50 kms apart were at lower risk for LTFU. Other adjusted risk factors for being LTFU were male sex, recent periods, lower education, farmers/fishers and WHO stage 3-4 with lower immunity.

Conclusions: Care expertise level, distance to care and economic insecurity were associated with LTFU. Political crisis since 2012 have impacted the quality of follow-up. Stigmatization might play a role for low distances in the Regions.

THPEC233
Online MiS database to improve HIV case detection and case management tracking in Central Asia

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Background: PSI Central Asia (PSI/CA) previously used the MS Access database for project management. Although the tool was useful for management, it did not allow reviews until the end of a quarter, when partners sent their data. This hindered ongoing data quality checks and real-time data-driven decision-making. Under USAID Central Asia HIV Flagship Project, PSI/CA decided to move to a web-based database that would eliminate these delays. This transition was intended to inform programmatic decision-making, and increase the use of high-quality HIV prevention, testing, and treatment services.

Description: PSI/CA engaged a local web developer. Prioritizing flexibility of design and responsiveness to project changes, PSI/CA management relied on the developer’s ability to create a new database that would remain adaptable and help achieve all project goals. The database development was an iterative process with multiple meetings between M&E and program teams to refine the system features. The architecture of the database and improved usability have been developed within very strict time constraints. The regional nature of the project exposed the system to various operational and technical challenges, leading to a complex database design addressed in multiple layers. It is built into the new system, including tracking of coupon distribution to initial contacts and recruitment management. The database generates coupons for recruitment, tracks the recruitment chains and has a sophisticated tool to manage the number of coupons and waves across chains. The system is extremely responsive to program design changes, and able track at individual client, target group, and NGO levels. It also captures different variables of case management for PLHIV, including clients’ socio-demographic information. This cascade starts with case detection, and follows clients through to enrolment in case management and linkage to care at AIDS Centers.

Conclusions/Next steps: In just a year, the database has enabled PSI/CA to conduct ongoing monitoring and evaluation of the project activities and provide improved, comprehensive support to clients. The next step is to roll-out the use of mobile devices for data collection.
THPEC234
Treatment for all implementation for most: heterogeneous roll out of test and treat by clinics near Agincourt, South Africa

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Background: South Africa officially implemented universal access to antiretroviral therapy (ART) for all diagnosed with HIV, treatment for all (TFA), in September 2016. However, successful implementation of this policy may vary both across South Africa, and even within regions. We estimated heterogeneity in the time from linkage to care to ART initiation across clinics near rural Agincourt, South Africa.

Methods: We utilized data from the Agincourt heath and socio-demographic surveillance system, which combines data from the annual population census and electronic clinical record systems for the 10 clinics with HIV services in the region. These data include the dates on which HIV-positive individuals entered the clinical system and first initiated ART. Kaplan-Meier (KM) survival curves were generated to estimate time from linkage to care (LTC), defined as first CD4, viral load test, or follow-up visit after diagnosis, to ART initiation, stratified by the quarter/year of LTC and by clinic, from Q2 of 2015 to Q2 of 2017, censored by end of data collection and/or out-migration. Heterogeneity of curves was measured using a log-rank test of survival functions. The proportion of participants initiating ART within 90 days of LTC was estimated for each quarter and clinic from the KM survival curves.

Results: Between Q2 of 2015 and Q2 of 2017, 1,169 individuals were recorded as having been linked to care for the first time in the Agincourt clinical dataset. The proportion of individuals who initiated ART within 90 days of linking to care changed from 31% (95% CI 28%-34%) in Q2 of 2015, 31% (95% CI 24%-37%) in Q2 of 2016, and 48% (95% CI 41%-57%) in Q2 of 2017 over all 10 clinics. However, treatment initiation times appear to be highly heterogeneous, with highly significant log-rank heterogeneity test (p < 0.01) for all years, including for 2017.

Conclusions: TFA resulted in increased ART initiation once individuals entered into the clinical setting. However, successful implementation of this policy was highly heterogeneous between clinics, even within a single sub-district. Monitoring and additional assistance for clinics which have fallen behind on TFA implementation is needed to ensure the population has universal and immediate access to ART.

THPEC235
Service utilization along the prevention of mother-to-child transmission of HIV cascade and determinants of child HIV positivity in Nigeria

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Background: Nigeria expanded its prevention of mother-to-child transmission of HIV (PMTCT) program threefold from 2012-2014. We examined the cascade of PMTCT services for HIV-positive women and their HIV-exposed infants (HEIs) post expansion to assess program effectiveness.

Methods: A retrospective study was conducted in a stratified cluster sample of HIV-positive women presenting for antenatal, delivery, and/or postpartum services in 2014-2015, followed through 2017. We randomly selected 114 facilities within 12 states (two high HIV prevalence states per region) and three levels of care. Weighted frequencies and 95% confidence intervals (CI) adjusted for within-facility correlation were calculated for steps along the cascade. Factors associated with child HIV positivity were determined using multiple logistic regression.

Results: Overall, 8,996 HIV-positive women were enrolled, of whom 6,991 (74.0%, 95% CI 68.2-79.7) received antiretroviral drugs (ARVs) for PMTCT and 2,981 (35.4%, 95% CI 30.6-40.3) delivered in facility. We found records for infants of 3,650 (40.4%, 95% CI 35.4-45.4) HIV-positive women. Including multiple births, 3,716 HEIs were identified, of whom 3,423 (91.7%, 95% CI 88.1-95.2) received ARVs. Final HIV status was defined by rapid test at 18 months or positive virologic test at any age. Of 910 (26.3%, 95% CI 18.3-36.1) HEIs with a final HIV status, 39 (3.8%, 95% CI 1.1-6.5) were positive. Children of women <25 years and primiparous women were less likely to be HIV-positive compared with children of women 25-34 and women who gave birth 2-3 times, respectively (adjusted odds ratio (AOR) 0.24, 95% CI 0.08-0.71; AOR 0.15, 95% CI 0.04-0.59). Children who did not receive ARVs after birth were more likely to be HIV-positive (AOR 4.88, 95% CI 1.27-18.71). Timing of women’s HIV diagnosis was not significantly associated with child positivity.

Conclusions: One in four women eligible for PMTCT did not receive ARVs to reduce HIV transmission risk. Although 3.8% positivity among HEIs with final HIV status is within the elimination of mother-to-child transmission target of <5%, most HEIs did not have a final status due to tests not being done or documented. Poor linkage between mother and child highlights the need to improve recordkeeping and patient follow-up.
**THPEC236**

Progress towards UNAIDS goals by 2020 in Ukraine at 01.01.2017

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**Background:** Ukraine has adopted the UNAIDS goals to achieve 90/90/90 by 2020. 90% of people living with HIV (PLWH) will be tested, 90% of those tested will receive antiretroviral treatment (ART), and 90% of ART-treated patients will have viral suppression (VL).

**Methods:** The cascade of HIV services plays a key role in achieving the goals. It is the crucial factor for assessing the progress in the implementation of national programs related to reducing the HIV incidence and mortality rate, as well as for tailoring the measures in place and planning for the future periods.

**Results:** As of January 1, 2017, the estimated number of PLWH in Ukraine was 238,000. 127,620 of HIV patients received ART (36% of the estimated PLWH number is 1.86:1, that is, each second HIV person in Ukraine was reported from 25 regions of Ukraine, except for the non-government controlled area (Donbass region, the Autonomous Republic of Crimea, and the city of Sevastopol). The proportion of people with VL remains low. Analysis data are used as arguments for resource allocation, in strategic decisions to strengthen preventive programs, medical services, as well as care and support services. Data also enable programs to be expanded further in those areas that are most in need in order to achieve UNAIDS goals.

**Conclusions:** Cascade analysis reflects systemic failures in achieving all three 90%. The cascade demonstrates the gap between the coverage of HIV testing and the involvement of people with HIV in the ART programs. The proportion of people with VL remains low. Analysis data are used as arguments for resource allocation, in strategic decisions to strengthen preventive programs, medical services, as well as care and support services. Data also enable programs to be expanded further in those areas that are most in need in order to achieve UNAIDS goals.

**THPEC237**

Higher CD4 count at ART initiation predicts increased viral suppression during universal test and treat in a South African clinic

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**Background:** In the context of universal test and treat (UTT) there is little data on viral outcomes amongst patients newly eligible for antiretroviral therapy (ART) at higher CD4 counts. We assessed the relationship between initiation CD4 count and subsequent viral load (VL) suppression, in a South African public sector clinic which implemented national UTT guidelines in September 2015.

**Methods:** This was an analysis of baseline data at enrolment into a randomised trial of point-of-care VL testing. Eligible participants were non-pregnant, HIV-positive adults who were enrolled six months after first-line ART initiation, at which point VL testing was performed. Association between a suppressed six month VL < 40 copies/ml and CD4 count at ART initiation, and potential sociodemographic and clinical confounders, were assessed using logistic regression, adjusted for study arm.

**Results:** Of 390 participants enrolled between February to August 2017, 60% were female and median age was 32 years (interquartile range (IQR) 27-38). At ART initiation, median CD4 count was 356 cells/mm² (IQR 204-546), and 30% had a CD4 > 500 cells/mm², with 99% receiving tenofovir, emtricitabine and efavirenz. Amongst 388 participants with VL available for analysis, 86% (95% confidence interval 83-89%) had a VL < 40 copies/ml six months after ART initiation. In univariable analysis, age, gender, time from HIV diagnosis to ART initiation, previous ART exposure, intimate partner violence (women participants only), positive depression screen or alcohol use were not associated with VL results (p-values > 0.1). An association between previous TB and a detectable VL was partially confounded by initiation CD4 count. In both univariable and multivariable analyses patients with initiation CD4 count >500 cells/mm² had over 6 times higher odds of achieving VL suppression compared to those initiated at ≤200 cells/mm² (Table).

**Conclusions:** After introduction of UTT in a South African clinic, less than 90% of patients achieved VL suppression after six months on ART. While VL suppression was high amongst those who initiated with greater CD4 counts, suppression rates were much lower amongst more immunocompromised patients and those with a history of TB. As UTT implementation continues, these patients may require increased VL monitoring and adherence support to achieve 90-90-90.
THPEC238
Evaluation of attrition between HIV testing and initiation of antiretroviral therapy among the newly diagnosed people living in the "test and treat" strategy
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Background: 2015 WHO guidelines recommended immediate HIV treatment for individuals diagnosed HIV positive, "test and treat" strategy. These were widely adopted across countries aiming to reduce progression of disease and risk of HIV transmission. Linking PLHIV to care and treatment is a key bottleneck to achieving desired outcomes. Attrition was often attributed to lengthy and complicated processes where treatment eligibility was based on specific thresholds of HIV disease progression, e.g. CD4< 350 cells/µl. The objective of the assessment was to quantify attrition along the new HIV cascade of "test and treat" strategy.

Methods: Purposively sampled 13 health facilities in six districts through collaboration between facility-based and community-based Zimbabwe HIV Care and Treatment programs supporting MOHCC HIV care and treatment program. Secondary program data for newly diagnosed HIV positives between September-December 2016 in Manicaland and December 2016 to March 2017 in Midlands province when "test and treat" was adopted were abstracted and analysed. We examined documented access to HIV services at least three months after positive diagnosis.

Results: 2297 PLHIV were newly diagnosed and comprised of 101 (4%) children <15 years and 2196 (95%) adults 15+ years. Attrition was highest between testing and HIV care, 35% (798/2297) and 27% (403/1493) between HIV care services and ART initiation. While there was no significant difference in the losses of PLHIV from testing to enrolment into care by gender, a significantly higher proportion of men were lost between enrolment into care and ART initiation compared to women, 35% vs 26%, p=0.0007.

Conclusions: Although the "test and treat" strategy simplified and shortened processes of getting HIV treatment, the evaluation demonstrated pervasive attrition along the HIV cascade. As HIV treatment program expands, it is imperative that linkages be strengthened specifically between testing and enrolment in care, as this initial step into HIV treatment is crucial for second and third 90s.

THPEC239
Progress in achievement 90-90-90 in Armenia
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Background: Creation of prerequisites for achieving the UN 90-90-90 and ending the AIDS epidemic by 2030 are implied by the overall goal of the National AIDS Programme for 2017-2021. Existing level of outbound migration, gaps in reaching key populations by testing, late diagnosis of HIV remain significant challenges today. Calculation of HIV Treatment Cascade, comparative analysis of its changes occurred over the recent years allow assessing possible influence of the implemented activities at different stages of the treatment cascade, identifying weaknesses and gaps in the sequential steps starting from HIV-positive diagnosis to provision of effective ART.

Methods: The HIV treatment cascade was built using the data on estimated number of PLHIV, programmatic data on number of people with HIV knowing their status, on those linked to HIV care, those received ART and those achieved viral suppression. The cascade indicators for 2014-2016 were compared to show the trends.

Results: The treatment cascade analysis showed that percentage of PLHIV who know their status increased from 38.3% in 2014 to 60% in 2016, of those linked to HIV care - from 85.8% in 2014 to 93% in 2016, percentage of PLHIV on ART - from 48.4% in 2014 to 57.3% in 2016. In 2016 number of PLHIV on ART increased sharply due to change in criteria of eligibility for ART initiating from CD4 count <350 cells/mm³ to ≤500 cells/mm³. Indicator of ART efficacy, viral load suppression, remained at high level, making up more than 80% in 2014-2016.

Conclusions: There is a significant increase in indicator of PLHIV who know their status, but for attaining the first 90s there is need to enlarging coverage of targeted testing, increasing number of those seeking HIV services, including extension of routinely offered HIV testing in health care facilities, as well as scaling up testing among outbound labour migrants and other key populations.

In July 2017 Armenia adopted new HIV/AIDS Treatment Guidelines comprising the «Treat All» strategy. However, prospective impact the outbound migration high level on treatment and adherence causes difficulties in reaching the UN 90-90-90 targets, which could be addressed by coordinated actions of host and originating countries.

THPEC240
Nepal's progress towards 90-90-90 targets by 2020: The case of HIV care cascade
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Background: Measuring progress towards the HIV care cascade provides an opportunity for modifying the response to achieve UNAIDS 90-90-90 targets by 2020. This study assesses progress in the HIV care cascade among people living with HIV (PLHIV) in Nepal and subgroups analyses by sex. We also conducted a cohort analysis of mortality, retention and loss to follow-up (LTFU) over time.

Methods: We estimated the number of PLHIV in the country using mathematical modelling (Estimation and Projection Package/Spectrum). Routine program data of 2016 from 68 antiretroviral therapy (ART) centres were used to calculate progression in different steps of the cascade. For cohort analysis, we analysed data between 2012 and 2016. Retention in treatment was defined as the percentage of PLHIV alive and on ART at 12, 24, 36 and 60 months following ART initiation. LTFU was defined as those who have not visited the ART centre for at least 90 days.

Results: Of the total estimated number of PLHIV (37755) in 2016, 62% were men, and 38% were women. Almost 55% of the total estimated PLHIV (men: 56% (11241/20232) and women: 55% (6889/12503) were alive and linked to HIV care by the end of 2016. Only 40% PLHIV were on ART and significantly fewer men (34% (7090/20232)) than women (50% (6289/12503)). Of the total estimated PLHIV, only 35% had been tested for viral load, and 17% remained virologically suppressed. Retention on ART was 88%, 85%, 76% and 73% at 12, 24, 36 and 60 months respectively, and higher among women than among men (at 12 months: 90% vs 78% and at 60 months: 82% vs 66%). The LTFU rate increased from 5% at 12 months to 12% at 60 months. Similarly, the mortality rates sharply rose from 7% at 12 months to 15% at 60 months.
Conclusions: To achieve the 90-90-90 targets by 2020, more efforts are needed to identify PLHIV who are not aware of their status, link them to treatment and improving access to viral load testing. Interventions to address gender differences in the engagement of the HIV care cascade, mortality rates and LTFU need to be prioritized and implemented in Napoleon.

THPEC241
HIV treatment cascade among MSM in Brazil

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Background: Brazil ratified UNAIDS 2030 Agenda for Sustainable Development. However, data about HIV among MSM appear to be moving in the opposite direction, and it is imperative to identify gaps in the MSM HIV continuum of care. We analyzed the cascade among MSM in Brazil and estimated factors associated with two stages: previous diagnosis (HIV Awareness) and viral suppression.

Methods: Cross sectional study of 4,176 MSM, conducted in 12 Brazilian cities in 2016, using respondent driven sampling. Participants were interviewed and tested for HIV. The cascade was defined as:
1) diagnosis (HIV test results in the study, and self-reported HIV positive status);
2) self-reported ART use;
3) viral suppression (viral load ≤ 50 copies/mL).

Statistical analysis was carried out using complex sampling design procedures. Poisson regression was used to estimate factors associated with “HIV awareness” and “Viral Suppression”. Prevalence rate ratio (PRR) with 95% confidence interval (CI) was calculated.

Results: Overall HIV prevalence was 18% and 44% of the participants were unaware of their positive serostatus before the study, representing the biggest gap in the care continuum. Only 18% of HIV positive young men (18-20 years) were previously diagnosed, while older MSM (51-67 years) had higher HIV infection awareness (87%), (PRR 1.9 [95%CI 1.1-3.4]). MSM self-identified as Black had the lowest HIV awareness (50%). Among the participants testing positive before the study, 98% were taking ART, and in this group the proportion of viral suppression was 74%. Only 8.6% of the participants with the lowest education level were virally suppressed, while 90% of those with college education had viral load < 50 copies/mL (PRR 8.6 [95%CI 1.4-50.9]).

Conclusions: The biggest challenge for the HIV continuum of care for MSM in Brazil was testing for HIV, suggesting deficits in promotion and potential barriers to access. In contrast, use of ART among HIV positive MSM and its effectiveness was high. The association between level of education and viral suppression may reflect the extreme inequalities prevailing in the country, emphasizing the importance of the structural interventions in UNAIDS Agenda to end the epidemic.

(THPEC242
Patterns of retention of mothers and their children in an HIV/ART clinic in Southern Mozambique: Evidence to support a family-centered care model

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Background: For HIV infected children, adherence to care is determined largely by their caregivers. It is often assumed those children and their caregivers either stay in care together or abandon together, but few studies have actually evaluated this. We sought to describe the patterns of care among a cohort of HIV infected children and mothers enrolled in care at the Manhiça District Hospital (MDH), Southern Mozambique.

Methods: This was a retrospective review of routine HIV clinical data collected for children enrolled in an open prospective HIV cohort at the MDH. Children initiating HIV care from February 2013 to November 2015 who had been followed up for at least 12 months at the time of the study were included and their mother’s clinical data extracted. Retention in care was estimated 12 months after first consultation for children (baseline). We used Kaplan-Meier estimates and Fine and Grey competing risks models to estimate the effect of mother’s pattern of care in their child’s LTFU.

Results: A total of 395 children initiated HIV care during the study period. At baseline, 34.6% of the mothers had never enrolled in care, 15% had initiated care at the same time as their child and 50.4% had initiated care before their child, of whom 57% were lost to follow-up (LTFU). Fifty-four percent of children were female and the median age was 3.0 years (IQR:1.0-9.0). Median CD4 was lower for children born to mothers LTFU (676 cells/mm3) as compared to mothers retained or initiating at the same time (850 and 864, respectively p=0.034). One year after baseline, 71.1% of children were retained in care (95%CI 71.9-81.5). LTFU was less likely among children of mothers initiating care at the same time as compared to children whose mothers had never initiated care (sub-distribution hazard ratio 0.57, 95% CI 0.33-0.99, p=0.045).

Conclusions: The overall low retention rates suggest the need for family-centered care models that facilitate enrolment and re-engagement in care of both mothers and children in order to improve their health outcomes.

(Figure: Cumulative incidence of children’s LTFU in the first 12 months of HIV care according to mother’s engagement in care at baseline)
Expansion the HIV care cascade

Thepec245
Durability of viral suppression in the Eastern European country of Georgia

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Background: HIV care continuum provides cross-sectional snapshot of population level viral suppression and does not capture changes in viral load dynamics. Proportion of persons with viral suppression may substantially fluctuate even in short period of time. We assessed durability of viral suppression over one year among persons diagnosed with HIV in the Eastern European country of Georgia.

Methods: Standard of HIV care in Georgia includes antiretroviral therapy (ART) regardless of CD4 cell count and 4-6-monthly viral load monitoring. We calculated number and percentage of persons with viral suppression from the end of 2016 through the end of 2017. Viral suppression was defined as viral load < 1000 copies/mL. Analysis included all adult (age ≥18 years) cases of HIV diagnosed through the end of 2016, who were known to be alive by the end of 2017. Data were extracted from the national AIDS health information system.

Results: Among 4312 persons with diagnosed HIV, 3044 (71%) had viral load suppressed at the end of 2016 and 3046 (71%) at the end of 2017. Over 2017, 269 (6%) persons reverted from suppressed to detectable and 271 (6%) improved from undetectable to suppressible. A total of 2775 (62%) persons maintained viral suppression through the end of 2017 translating into 10% relative difference compared to a single viral load measure. Analysis by transmission categories showed that heterosexually infected women had the highest rates of viral suppression (figure). Of 1537 persons without durable viral suppression, 326 (21%) had at least one episode of viral suppression in 2017, 415 (27%) were in care, but did not achieve viral suppression in 2017 and 776 (52%) were fully disengaged from care.

Thepec243
Second line ART switching in Mozambique: Coverage and time line

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Background: For HIV patients failing on first line treatment, switching to second line ART can be crucial for treatment success. In Mozambique, during the time of this study, all second line ART switching of suspected therapeutic failure cases had to be approved by the National or an autonomous Provincial ART Committee. The purpose of this analyzes is to determine the percentage of patients with virological failure (two viral loads ≥ 1000 cp/mL) who were submitted to the ART committee, approved to switch and that effectively switched to 2nd line ART, and the time it took for each one of these steps to occur.

Methods: A retrospective cohort study design with routine program data was used. The study was conducted between October 2013 and March 2016 in 18 MSF supported health centers of Maputo and Tete, including a referral center for HIV treatment - CRAM in Maputo, where routine VL was implemented. All eligible patients with 2 high viral loads (≥ 1000 cp/mL) were included in the study. Standard descriptive statistics were used to report all results.

Results: Among 1934 ART patients with two high viral loads, only 37% were referred to the ART Committee. Of these, 96% were approved for switching to a 2nd line ART and 71% switched regimens. Effectively, 27% of all patients with virologic failure switched to 2nd line ART. The median of days between: the 2nd high VL sample collection date and referral to the ART Committee was 183 days, referral to the ART Committee and approval was 5 days and approval by the ART Committee and switch to 2nd line was 28 days. The whole cascade of 2nd line switch lasted a median of 216 days. Results differ between health centers of Maputo, Tete and CRAM.

Conclusions: These results highlight the complexity and delay in switching patients with 1st line treatment failure to 2nd line regimens. The referral of patients to the ART Committee is challenging and access to second-line ART is low. Factors contributing towards these values include a resistance of the clinician to switch patients, stock out of 2nd line drugs and lost to follow up, among others.

Estimating the need for ART and other clinical services

Thepec244
Occupational blood exposure (OBE), seroconversion and coinfection HIV/ HBV in CAR

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Background: CAR has been heavily affected by HIV (4.3%) hepatitis B (15.0%) and C (8.1%), but has not yet developed a prevention plan against OBE, even though its health care staff, already low in numbers, is overwhelmed by a massive patient load. This study aims to assess the current OBE situation and develop a national plan for the management of these accidents.

Methods: A study was conducted in 2017 amongst health care facilities groups in Bangui. The parameters being studied were collected using a standard form including serological status for HIV, HBV and HCV, vaccination against hepatitis B. Incidents of OBE and their subsequent management

Results: Three hundred members of the health care staff were included in the study. 18.4% had been vaccinated against hepatitis B. Thirty six percent (36%) had already been tested for HIV with 7.3% of the tests performed within the last three months. Fifty four percent (54%) cited an incident of OBE within the last six months. Sixty eight percent (68%) of these were from accidental needle stick injuries. At the time of the accident, 39.9% knew their HIV serological status, and 22% their HBV status. Three percent had been vaccinated against hepatitis B. Three per cent (3%) of the accidents received subsequent care. The post-OBE care management did not cover hepatitis B. Among them one showed documented seroconversion for HIV despite post exposure treatment. The victim was a carrier of HBV before the accident, which placed her directly in the category of HBV-infected persons and HIV, which makes treatment more difficult.

Conclusions: There is a high prevalence of OBEs in the sites studied. The number of health care staff receiving subsequent care is low. Five years after the introduction of OBE surveil, we are facing the first documented seroconversion. How many other occupational seroconversions are ignored. In addition, this observation highlights the protection of health care workers and the establishment of mechanisms for compensating and managing staff against OBE.
Conclusions: 91% of persons with initial viral suppression maintained it over 2017. Single viral load measure overestimated durable viral suppression by 10%. Majority of unsuppressed cases are due to disengagement from care. Efforts are needed to achieve high retention and treatment uptake.

THPEC246
The role of access to HIV services at opioid antagonist treatment sites in reaching 90–90–90 in people who inject drugs in Ukraine: Country-level data

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Background: Opioid antagonist treatment (OAT) is an effective means to prevent HIV transmission. Recently, Ukraine started integrating HIV services into OAT sites to improve PWID access to treatment.

Methods: National register of OAT patients (n=10,053) managed by the Alliance for Public Health was analyzed. These data are quarterly collected from all 179 OAT sites throughout Ukraine and entered into SYREX database. For building the cascade, HIV-positive OAT patients (n=4,084) were stratified into two categories: ‘OAT alone’ site (those who receive their OAT medication at one site and ART at different location) n=1,1592 and ‘integrated care site’ (patients who receive both OAT medication and ART at one location, n=2,486) for comparison. The HIV cascade categories were: (1) proportion of HIV-positive OAT patients linked to HIV care; (2) proportion of them receiving ART; and (3) proportion of them virally suppressed (viral load<75 copies) stratified by the type of site.

Results: Majority of HIV-positive OAT patients in Ukraine are male (74.1%); mean age is 40 years old (range: 23–64); mean length of injecting before OAT-18 years (range: 1-47); mean length on OAT 2.9 years (range: 1-47); mean age is 40 years old (range: 23–64); mean length of injecting before OAT-18 years (range: 1-47)

Conclusions: The analyses clearly demonstrate much better results in reaching the 90-90-90 goals among those OAT patients who receive integrated care services (both OAT and ART) at one site at each stage of HIV cascade. Thus, there is an urgent need for further expansion of integrating OAT and HIV services in Ukraine.

THPEC247
HIV care cascade among adolescents in a ‘best and treat’ community based intervention in Zambia and South Africa: HPTN071 (PopART) for Youth study

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Background: Adolescents have worse outcomes across the HIV care cascade compared to adults. Dropouts at each stage of the cascade lead to poor individual health outcomes and pose challenges for ‘best and treat’ efforts. The PopART for Youth (P-ART-Y) study is nested within the HPTN071 (PopART) trial, a 3-arm community randomized study in 21 communities in Zambia and South Africa (SA).

The P-ART-Y study aims to evaluate the acceptability and uptake of an HIV prevention package, including universal HIV testing and treatment (UTT), among young people. We report the HIV care cascade for adolescents aged 10-19 years from 7 Arm A intervention communities in Zambia and SA.

Methods: Using a door-to-door approach that included systematically visiting and re-visiting households, across entire communities, all adolescents enumerated were offered participation in the intervention and verbal consent was obtained. Data analysed were collected from September 2016 to December 2017, covering the third round (R3) of the PopART intervention.

Results: Overall, we enumerated 60,515 adolescents (Zambia: 45,271, SA: 15,244). Participation was lower among males. Of all offered HIV testing, 78.8% accepted in Zambia and 70.1% in SA. Knowledge of HIV status was associated with age and increased from 30.6% to 87.5% after the intervention in Zambia and from 29.5% to 81.6% in SA. The intervention closed the gap in HIV status knowledge between males and females (figure 1). Overall, 774 adolescents were HIV-positive (222 new diagnoses and 552 self-reported); the majority of new diagnoses (144) being females aged 17-19 years. Among the 774 HIV-positives, 64.6% (62.7% in Zambia and 70.3% in SA) reported being on ART at the time they were first seen in R3. Among newly diagnosed and self-reported HIV-positive, median time to initiate ART was 5 months in Zambia and 3 months in SA. At the last follow-up, ART coverage had increased to 78.5% and 85.1% in Zambia and SA respectively, with differences observed by sex (figure 1). Self-reported ART retention was high (approximately 95%).

Conclusions: Despite increased attention to adolescent HIV, gaps remain in the HIV care cascade by age and sex. Differentiated models of care and UTT can help close identified gaps.

THPEC248
Prior incarceration associated with missed HIV care visits among young people living with HIV in the US

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Background: Maintenance in HIV care is important to achieve optimal personal health and HIV viral load suppression for young people living with HIV (PLWH). Prior studies have identified incarceration as a risk factor for poor long-term HIV outcomes. We assessed the relationship between incarceration and missed visits among young PLWH in the US.

Methods: Longitudinal data were collected on a cohort of PLWH in-aged 12-24 from 14 adolescent trial network sites across the US. Incarceration histories were self-reported, missed HIV care appointments and viral load measurements were ascertained by records review. The time from study entry to missed visits was modeled using Cox proportional hazards models.

(Figure 1: Proportion of adolescents who know their HIV status pre and post intervention & proportion of known positives on ART stratified by sex)
Results: The cohort was mostly male (78%) and African American (75%) with a median age of 22 (IQR: 20-23). Prior incarceration (i.e., being put in jail, prison, or juvenile detention, or held overnight after an arrest) had been experienced by 40% of the cohort, with a median number of times incarcerated of 2 (IQR: 1-2). The hazard ratio for missed HIV care visits comparing those with incarceration histories to those without was 1.28 (95% CI: 1.06, 1.54). Adjusted for study site, age, gender, and race the hazard ratio was 1.45 (95% CI: 1.39, 1.57). While time to re-connection to care after a missed visit did not differ between the two groups, HIV viral loads upon returning to care differed comparing those with incarceration history to those without (43% unsuppressed viral load (≥200 copies/mL) versus 29%, p=0.03).

Conclusions: One mechanism by which incarceration may affect HIV viral load suppression is through missed HIV care visits. To achieve the goal of retaining young PLWH with incarceration histories in the HIV care cascade, programs to maintain regular HIV care through and following incarceration periods are needed.

**THPEC249**

HIV care cascade among transwomen living with HIV in São Paulo-Brazil


Background: Transwomen bear a large burden of HIV worldwide and are a key population in the HIV epidemic whose prevention and care needs have largely been ignored. In Brazil, estimates suggest at least 30% of transwomen are living with HIV. Testing and treatment access are essential to reducing the impact of HIV on transwomen. This study was conducted to examine the HIV care cascade among transwomen in the most populous city in South America, São Paulo-Brazil.

Methods: Divas Project was a cross-sectional study conducted from November 2016 to May 2017 in São Paulo-City. Respondent driven sampling was used to recruit 386 transgender women (i.e., transwomen and travestis) who participated in a HIV risk survey and were tested for HIV. A multivariable Poisson regression model with robust variance was conducted to identify associations between socio-demographic factors (gender identity, race/ethnicity, education level, income, age, housing situation, health care service registration, and hormone use) and HIV treatment utilization.

Results: In total, 148 (38.34%) participants tested positive for HIV. Almost all had previously been tested for HIV (N=139/148, 93.92%) and knew they were HIV positive at the time of the survey (N=119/138, 85.61%). The majority of transwomen living with HIV had been prescribed ART (N=98,82.35%), of which 84 (85.71%) took the medication. Those who were not registered in primary health care had a lower adjusted prevalence of being on ART compared to those who were registered (adjusted prevalence ratio, aPR-0.56;95%CI:0.32-0.98). Those who identified as transwomen had a higher adjusted prevalence of being on ART compared to women (aPR-1.31;95%CI:1.02-1.68). Transwomen who were between 31-40 years old and those above 40 had a higher adjusted prevalence of being on ART (aPR-2.22;95%CI:1.23-4.00) and aPR-2.15;95%CI:1.22-3.19, respectively) compared to younger transwomen.

Conclusions: Over a third of transwomen in our sample were living with HIV, but most knew they were HIV-positive, were engaged in HIV care and taking ART. These data suggest successful testing and treatment policy implementation among transwomen in São Paulo-City. However, young transwomen and those not registered in health care service may benefit from multi-level efforts to engage this part of the population in care to improve HIV treatment and care outcomes.

**THPEC250**

Community initiated treatment intervention (CITI) improves linkage to art for key populations

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Background: For many KPs knowing their HIV positive test result is not leading to ART initiation. Multiple barriers on personal and health system side delay life-saving treatment despite its availability.

Methods: Community initiated treatment intervention (CITI) facilitate immediate treatment access for active drug users and other KPs. This intervention is aimed to locate HIV positive clients, and their sexual partners and link them to HIV treatment using intensive need-based case management approach. CITI supports HIV positive clients up to 6 months into ART if no support was granted through other projects during CITI implementation (care and support, ST, integrated services). The case manager responsibilities include assessment of the clients’ status, their needs and motivation; eliciting information on specific client’s barriers to ART access; perform analysis of available resources and services; creating individual assistance plan; coordination of social and health services, representation of client’s interests in health care institutions, monitoring of implementation of client progress through cascade. Program data are routinely collected for each HIV positive case on its progress through the cascade despite participation in the CITI. We have analyzed data from 2016 to 2018, HIV positive cases detected in outreach. Out of them 2,034 received CITI support. We compared program data for clients who received CITI support and those who had standard referral to AIDS clinics.

Results: During 2016 out of all who received HIV positive test in outreach: 75% visited health facility, 53% have registered in care and 30% initiated ART. Participants who received CITI had significantly higher odds to visit health facility (OR=16.7, 95%CI:13.4-20.8), register in care (OR=5.4, 95%CI:4.7-6.2), initiate ART (OR=4.2, 95%CI:3.6-4.9). CITI group represented slightly older age group with mean age 37 (SD:7.7) in comparison with referral group mean age of 35 (SD:8.1). There was no difference between group in gender.

Conclusions: Based on program data CITI improves linkage to ART for HIV positive KPs and should be introduced as a standard practice to HIV programs among KPs to ensure 90-90-90 strategy.

**THPEC251**

Enhanced Peer Outreach Approach (EPOA): A quick way of reaching out to key populations, linkages project, Malawi

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Background: The Centre for the Development of People (CEDEP), with support from DFID, has been implementing the USAID-funded LINKAGES project since 2015. In Malawi, the project reaches men who have sex with men (MSM) with HIV prevention, care, and treatment. At CEDEP, we noted that we were getting a lower HIV-positive yield than the na-
HIV testing yield and estimated subset linked to treatment for General vs. Key Population: PEPFAR-supported Program Data Oct 2016 - Oct 2017

(Figure 1. HIV positive testing yield (hashed bars), and the subset of which are estimated to be linked to HIV treatment initiation (solid bars), across PEPFAR-supported countries with mixed HIV epidemics among the general population, female sex workers (purple), and/or men who have sex with men (blue)).

SUMMARY

1. Introduction

   a. Background
   b. Methods
   c. Results
   d. Conclusions

   EPOA is a time-limited approach for improving access to HIV services for MSM never reached by the program. It uses existing social networks among MSM in the community, in which peers reach out to fellow MSM using coupons. Trained peer educators (PEs) identify other influential helpers called peer mobilizers (PMs), who facilitate the identification of fellow MSM and engage them to be tested for HIV and enrolled in antiretroviral therapy (ART). If found HIV positive, Treatment defaulters are also brought in for ART. The peers identified by the PMs are requested to also become mobilizers, who help quickly expand reach to other eligible peers.

   Lessons learned: Within two weeks of implementing EPOA, we broke into new MSM networks and identified more HIV-positive MSM. We distributed 881 coupons through 58 PMs, with 286 MSM returning their coupons and getting screened for eligibility. Ninety-three were tested for HIV for the first time; fourteen (15 percent) tested HIV positive and were linked to treatment (whereas the routine HIV-positive yield trend since the inception of the program has been between 4 and 6 percent). Among 180 repeat testers, three (1.7 percent) tested HIV positive. All recruited participants were also screened for STI and gender-based violence. Previously, using the peer educators model, it was not possible to reach such a large number of MSM in a two-week period, except during social events. Additionally, MSM diagnosed HIV positive took much longer to be initiated on treatment.

   Conclusions/Next steps: EPOA is playing a significant role in increasing the identification of new MSM, case detection, treatment initiation, STI screening, violence screening, and linkage to services.

   THPEC252

   Higher HIV testing yield and lower linkage to treatment among selected key populations compared to general population in mixed epidemics: Evidence from PEPFAR program data Oct 2016 - Sep 2017

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   Background: Mixed epidemics are the confluence of elevated HIV prevalence among key populations (KP), including female sex workers (FSW) and men who have sex with men (MSM), within a generalized HIV epidemic. HIV programs may disproportionately target the general population (GP), even if HIV prevalence and barriers to services are much higher among KPs. This study assessed the extent of this disparity in the HIV treatment and prevention cascade has not been globally quantified across KP. PEPFAR is the largest bilateral funder of HIV programs globally and began collecting KP-disaggregated testing and treatment data in October 2016.

   Methods: Program data on HIV testing and treatment are reported on a quarterly basis as site-level totals by all PEPFAR-supported partners. Standardized program indicators for HIV tests performed, HIV positive test results returned, and treatment naïve patients newly initiated on ART are each disaggregated by KP type. For each country with a GP prevalence ≥1% and prevalence ≥5% in at least one KP, we calculated HIV testing yield as total positive tests divided by total tests performed. We estimated linkage to treatment as new patients initiated on ART divided by total positive tests for each population.

   Results: In the countries that met inclusion criteria (n=22), 31% of testing partners and 37% of treatment partners, respectively, reported KP type disaggregates. Median GP testing yield was 4.0% (FSW had higher HIV testing yield in 25/22 countries (median 4.8% absolute higher yield overall) and MSM in 16/20 countries (median 2.5% absolute higher yield overall)). Median GP linkage was 86.7% (FSW had lower linkage to treatment in 16/22 countries (median linkage 39.6%) and MSM in 15/18 countries (median linkage 57.0%).

   Conclusions: The elevated HIV testing yield for KP is consistent with findings of higher prevalence among KP and highlights need for targeted testing strategies. The lower linkage to treatment in PEPFAR programs could be due to underreporting of KP status disaggregation in treatment results, at sites where stigma may discourage disclosure of KP status or treatment initiation altogether. PEPFAR should continue to improve reporting of KP-specific data to highlight and respond to service delivery gaps for KPs.

   THPEC253

   Data from large electronic medical record dataset reveal significant improvements and gaps in HIV treatment cascade in Ukraine

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   Background: Rapid expansion of ART, including implementation of ‘Test-and-Start’ approach, is a top priority for national HIV programs in Ukraine and globally. Key national stakeholders and international donors have set ambitious fast track goals to increase the number of patients from 88,270 on 01/01/2018 to 140,000 by the end of the year. This study was commenced to obtain reliable data on key treatment quality indicators, contributing factors and trends to inform program planning.

   Methods: Data from medical charts of all patients who received care at HIV facilities in 2010-2016 in 18 out of 27 regions of Ukraine were entered into an electronic medical record system. After verification of data quality, depersonalized datasets linked by unique patient code were extracted at each facility and merged for analysis. Entire dataset, excluding children younger than 15 at diagnosis, was analyzed using time-to-event methods, including Kaplan-Meier and log-rank test to assess difference between sub-groups.

   Results: The cohort included 52,813 patients with HIV infection, approximately 40% of all patients receiving care in Ukraine in 2016. 48.5% were females. Median time from diagnosis to ART receipt decreased from 69 months (95%CI: 65.2-72.8) among patients diagnosed in 2010 to 3 months (95%CI: 2.6-3.4) in 2016 (p<0.001). Proportion of patients who had received ART within 12 months after diagnosis increased from 19.4% to 55.8%, with most notable increase among patients with CD4>350, from 7.8% to 70.2% (see Figure2, p<0.001 for all strata). Coverage with viral load testing within 12 months after ART initiation moderately increased from 53.8% in 2010 to 60.6% in 2012, then declined to 23.8% in 2016 (p<0.001). Among those tested, proportion reaching viral suppression (<100 copies/ml) within 12 months after treatment initiation declined from 87.9% to 83.5% (p<0.001).
Conclusions: First results of the analysis of the large national clinical dataset confirm rapid acceleration of ART uptake, especially among those with less severe immunosuppression, reflecting the change in national guidelines. On the other hand, access to viral load testing and level of suppression remains suboptimal, calling for urgent programmatic actions to improve clinical management of virologic failure and to ensure uninterrupted availability of laboratory services.

[ART coverage and viral suppression in Ukraine]

THPEC254
“A way of escaping”: Exploring reasons for silently transferring between clinics among HIV-infected women enrolled in Option B+ in Malawi

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Background: In order for Option B+ to improve HIV outcomes, women must remain engaged in HIV care. In Malawi, 25% of women default from Option B+ programs within 6 months. However, up to 30% of defaulting women may have unofficially or “silently” transferred to a new clinic and remain in care. Little is known about women’s reasons for silently transferring and its impact on clinical care.

Methods: We conducted a qualitative study among HIV-infected pregnant women enrolling in Option B+ and healthcare workers (HCWs) at two large ART clinics in Lilongwe, Malawi between October and December 2017. We conducted focus groups (n=8) among women and HCWs and in-depth interviews (n=5) among HCWs to examine key drivers of silent transfers.

Results: Both women and HCWs reported a high degree of silent transfers between clinics. Silent transfers were often brought on by a specific trigger, such as seeing a friend at the clinic and fearing their HIV status would be disclosed, moving for a husband’s job, or a marriage dissolving. HCWs reported that women silently transferring often presented as not knowing their HIV status and often repeated HIV testing and ART initiation procedures at the new clinic, leading to an inefficient use of resources and treatment disruptions.

Conclusions: Among women enrolled in Option B+ in Malawi, silent transfers were common and adversely affected clinical HIV care. More flexible systems that accommodate movement between clinics by monitoring engagement in care across clinics are urgently needed to streamline clinical care and optimize HIV treatment outcomes.

THPEC255
Syndemic factors and HIV risk among men who have sex with me in Taiwan

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Background: Multiple health problems occurring in a population simultaneously experiencing poor physical and social conditions comprise a syndemic. The current study aimed to examine a possible syndemic and its association with HIV risk among Taiwanese men who have sex with men (MSM). Understanding the phenomenon of the syndemic necessitates comprehensive assessment in order to offer comprehensive community services and curtail the epidemic for this key population.

Methods: From July-September 2017, a cross-sectional, on-line survey was implemented among a convenience sample of MSM recruited from five LGBTQ community-based organizations across Taiwan. Survey items included socio-demographic characteristics, syndemic factors, including childhood abuse (CA), intimate partner violence (IPV), recreational drug use, and discriminatory experiences, and HIV risk index (total score: HIV status, and condom use). Multivariate logistic regression was conducted with HIV risk index as dependent variables, adjusting for socio-demographic characteristics.

Results: Among participants (n = 1001), 81.6% identified as gay, 92.2% had a university degree or more, 55.6% had a full-time job, 71.4% had a monthly income < $39,999 TWD ($1360 USD), 61.0% were single. Regarding syndemic factors, 41.4% experienced CA, 33.8% experienced IPV, 13.2% used recreational drugs, and 73.2% had discriminatory experiences toward their sexual orientation. In multivariate logistic regression, identified as gay (AOR=1.63, 95% CI=1.13-2.36) and experienced more than two syndemics (AOR=2.47, 95% CI=1.63-3.73) were associated with higher HIV risk (total score). Participants who experienced more than two syndemics (AOR=4.45, 95% CI=2.01-9.37) were associated with HIV seropositive; moreover, participants who experienced more than two syndemics (AOR=1.87, 95% CI=1.28-2.74) were associated with inconsistent condom use.

Conclusions: The results of this study provide evidence that syndemic factor on HIV risk among MSM in Taiwan. Multivariable analyses suggest that increased syndemic is associated with HIV risk in total and HIV serostatus. Social and behavioral research among MSM in diverse cultural settings may support the syndemic theory, which may facilitate service providers in offering a comprehensive biopsychosocial perspective in working with MSM.
Surveillance of drug resistance

THPEC256
Patterns of HIV-1 acquired drug resistance in children and adolescents from Argentina in the period 2006-2015

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Background: HIV-1 infected children and adolescents have a higher risk of virologic failure and development of drug resistance than adults. In addition, subtype-specific variability can have implications for resistance monitoring, and for resistance development. Our aim was to investigate HIV-1 acquired drug resistance (ADR) in vertically infected children and adolescent from Argentina, and compare patterns of drug resistance mutations (DRMs) between the two major circulating subtypes (BF recombinant and subtype B).

Methods: DRMs and viral subtype were assessed in HIV-1 pol sequences obtained during routine genotypic testing of 247 children and adolescent with virologic failure between 2006 and 2015. Subtype along the PR-RT HIV-1 pol region was determined by phylogenetic inference and bootstrapping analysis using Simplot. DRMs were identified according to the guidelines of the International AIDS Society-USA. Chi square test with Bonferroni correction was used for pairwise comparisons, and linear regression for the analysis of longitudinal trends.

Results: Of the 247 patients, more than 90% showed >1 DRM. The level of ADR was: 76.1% to NNRTI, 93.1% to NNRTI and 80.2% to PI's. The frequency of NNRTI and PI-associated DRMs decreased between 2006 and 2015, since to 2012 (73% to 15% for NRTI, 0.00007; 70% to 30% for PIs, p<0.0027). For NNRTI-DRMs, levels remained high, with a median of 65%.

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THPEC257
Increasing levels of pre-treatment HIV drug resistance in South Africa, 2000 - 2016

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Background: HIV pretreatment drug resistance surveillance in eight sub-regions of Mexico: To change to first-line regimes without NNRTI?

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Methods: Trends in PDR were assessed through a meta-analysis of HIV-1 sequences from published and unpublished studies between 2000 and 2016. Pol gene sequences from studies on adult ART naive patients were obtained from GenBank and corresponding authors. The sequences were analyzed for surveillance drug resistance mutations. Overall and drug class-specific trends of PDR were assessed using a generalized linear mixed effects regression model.

Results: We obtained 6880 pol gene sequences from published and publicly available data. From the analysis, an overall increase in PDR mutations was observed from low (< 5%) to moderate (5-15%) levels of resistance, with a 1.11-fold (95% CI: 1.06-1.15) annual increase in PDR (p< 0.001). PDR was estimated as 11.3% (95% CI: 9.6-13.2) in 2014 and 11.9% (95% CI: 9.2-15.0) in 2015, and prevalence of non-nucleoside reverse-transcriptase inhibitor (NNRTI) PDR was 10.0% (95% CI 8.4-11.8) in 2014. Overall, the most prevalent mutation was the K103NS, observed in 278/6880 (4.0%) sequences. Mutations associated with reduced susceptibility to tenofovir (A62V, K65R, K70E and K70NT) were present at levels below 2%.

Conclusions: The high level NNRTI-PDR (≥10%) observed suggests a need to modify the standard first-line ART regimen, and to improve quality of HIV prevention, treatment and care. Although NNRTI and NNRTI resistance have both increased, there is no evidence of increasing tenofovir resistance. There is need to consider replacing NNRTIs in first-line regimens with drugs that have a higher genetic barrier to resistance.

THPEC258
HIV pretreatment drug resistance surveillance in eight regions of Mexico: Time to change to first-line regimens without NNRTI?

S. Ávila-Rios1, C. García-Morales1, M. Valenzuela-Lara2, D. Tapia-Trejo2, M. Pérez-García1, D.M. López-Sánchez2, L.C. Maza-Sánchez2, S.J. del Arenal-Sánchez1, E.A. León-Juárez1, C. Mágis-Rodríguez1, G. Reyes-Terán1, for the Mexico HIVDR Surveillance Network. 1National Institute of Respiratory Diseases, Mexico City, Mexico, 2National Center for the Prevention and Control of HIV and AIDS (CENSIDA), Mexico City, Mexico

Background: HIV pretreatment drug resistance surveillance (PDR) to non-nucleoside reverse transcriptase inhibitors (NNRTI) in persons initiating antiretroviral therapy (ART) is increasing in Mexico. We present results of a large PDR survey carried out in 2017 with sub-regional representativeness, following WHO recommendations, in eight regions of Mexico, and discuss the option of a regionalized public health response to rising HIVDR levels.

Methods: A large PDR survey was implemented in Mexico in 2017 with sub-regional representativeness, following WHO recommendations, in eight regions of Mexico, and discuss the option of a regionalized public health response to rising HIVDR levels.

Results: From September to December 2017, 2182 participants were enrolled in 71 clinics. For all eight regions, PDR to NNRTI was higher than to other drug classes (p<0.0001). We observed significantly higher levels of NNRTI PDR in the South-West region, including the three poorest states of Mexico, compared to the reference Centre-South region including Mexico City (p<0.03). NNRTI PDR was >10% in the Centre-North, North-West, East, South-East, and South-West, remaining under this threshold in the Centre-South, North-East, and West regions. The proportion of persons re-initiating ART varied significantly by region from 4% to 16%, with higher prevalence in the North-East, West, East, and South-West (compared to the Centre-South, p<0.01 in all cases). Nevertheless, the proportion of re-initiators did not correlate with NNRTI PDR level by region (r=0.3, p=0.5). As expected, PDR levels were significantly higher in re-initiators compared to ART-naive individuals for all drug classes (p<0.01 in all cases).
Conclusions: In large and complex countries such as Mexico, diversification of the public health response to HIVDR based on regional prevalence could be considered. Higher NNRTI PDR levels were associated with poorer regions, suggesting opportunities to strengthen local HIV programs. Price and licensing negotiations of drug regimens containing integrase inhibitors are warranted.

THPEC259
Emergence of the transmitted resistance of HIV-1 to antiretroviral drugs in Cuban patients during the period 2009-2016
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Background: The emergence of antiretroviral-resistant HIV-1 variants compromises the first-line treatment regimens and the achievement of worldwide 90-90-90 UNAIDS target. Since 2009, the surveillance of HIV-1 transmitted resistance to antiretroviral drugs in newly diagnosed patients was introduced in Cuba. The aim of the present study is to evaluate the behavior of transmitted resistance of HIV-1 in Cuban patients of recent diagnosis and without antiretroviral treatment.

Methods: A cross-sectional descriptive and retrospective study was carried out that included 499 samples of HIV-1 Cuban patients diagnosed in the 2009-2016 period. The viral subtype was determined by phylogenetic analysis. Transmitted drug resistance was determined using the CPR tool v8.0. Some clinical and epidemiological variables were evaluated. A possible association of viral variants with sexual preference, disease progression and resistance to antiretroviral drugs was determined. For statistical analysis, the software package R was used.

Results: The predominant HIV-1 genetic variants were subtype B (27%), CRF 20, 23, 24_BG (23.5%) and CRF19_cpx (20.7%). An increase of the URF in the newly diagnosed patients was described in the period 2015-2016 (24.5%, p < 0.05). The most frequent URFs presented the combinations CRF9_cpx/B, BF1, BC, and CRF19_cpx/CRF15_cpx. Overall, 19% of the patients presented viruses with any mutation associated with the transmitted resistance of HIV-1 to ARVs (10.4% to NRTI, 12.8% to NNRTI, 2.8% to PI). The most frequent mutations were K103N/S and Y181C in the family of NNRTI, and M46I/V1 and D67N in the family of NRTI, which decrease the susceptibility to NVP, EFV and FTC, AZT, respectively. The resistance to the NNRTI increased in the period 2015-2016 with respect to the 2009-2012 period (18.9% vs 11.9%). No significant differences were found between the genetic variants of HIV-1, the mutations associated with transmitted drug resistance, and the disease progression in the sample studied.

Conclusions: A high genetic diversity of HIV-1 and emergence of resistance transmitted to ARV in untreated population was described. These results demonstrate the need to continue epidemiological surveillance and search for new therapeutic strategies that contribute to accelerated compliance of worldwide 90-90-90 UNAIDS target.

Describing the spread of HIV through geographical information systems
THPEC260
Trend and spatial analysis of the HIV epidemic among female adults in China, 2010 - 2016
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Background: Previous studies have shown an increasing burden of the HIV epidemic due to heterosexual transmission in China. Due to their biological susceptibility and social and cultural inequality, women are more likely to be infected than men. There are gaps in knowledge on the geographical distribution and evolution of the HIV epidemic among women in China. The purpose of this analysis was to identify epidemic clustering and temporal trends among HIV/AIDS cases in female adults in China through temporal and spatial analysis in order to inform intervention planning and optimization of resource allocation.

Methods: Data on newly identified HIV/AIDS cases among women aged >15 years old from 2010 to 2016 were extracted from the HIV/AIDS Case Reporting System in China. Trends in demographic indicators were assessed using Cochran-Armitage trend tests. Spatial autocorrelation by year and age were evaluated to detect epidemic clustering at county level.

Results: From 2010 to 2016, 149,660 HIV/AIDS cases were identified among female adults in China (70.8% aged 15-49 years), which increased annually from 16,603 in 2010 to 26,196 in 2016. Differences in trends by age were detected with the proportion of cases among older women greatly increasing relative to decreasing cases among younger women (Z values –6.821, P < 0.001). Spatial analysis demonstrated a county-level clustered distribution of HIV/AIDS cases among female adults across the country. Hotspots were concentrated in western and southern regions, including 6 provinces (Yunnan, Sichuan, Guizhou, Guangdong, Henan and Hunan), 2 autonomous regions (Guangxi, Xinjiang) and 1 municipality (Chongqing). with the trend of epidemic among younger women shifting towards western border and southern coastal provinces, and that of elderly women spreading northward from southwestern provinces.

Conclusions: Findings indicate an increasing clustering of the HIV epidemic among female adults in China, particularly in western and southern regions. Prevention and intervention strategies targeted to women by age, particularly in regions of increasing HIV epidemic, are urgently needed.
Background: Epidemiological assessment of geographical heterogeneity of HIV among men who have sex with men (MSM) and people who inject drugs (PWIDs) is necessary to inform targeted HIV prevention and care strategies in Nigeria. This study aimed to measure HIV seroprevalence, identify the spatial clustering of HIV infection among MSM and PWIDs and detect hotspots to prioritize program resources towards control efforts in Nigeria.

Methods: This was an ecological descriptive design conducted between Oct 1, 2016 and Sept 30, 2017. Study population were MSMs and PWIDs assessing HIV testing services across seven prioritized states (Lagos, Nasarawa, Akwa Ibom, Cross Rivers, Rivers, Benue and the FCT) in three geographic regions (NC, SS, SW) in Nigeria. We georeferenced all HIV test results from 93 of 774 Local Government Areas (LGA). Seropositivity rate was calculated from data extracted from national testing registers.

Results: Of the 40,423 MSMs and 20,336 PWIDs, 4,410 MSM (10.9%) and 1,761 (8.7%) PWIDs tested HIV positive. Global spatial autocorrelation Moran’s I statistics revealed a clustered distribution pattern of HIV infection among MSM and PWIDs. Given the z-score of 2.29 [p = 0.021, Moran’s Index=0.162] for MSM and z-score of 4.03 [p=0.0000054, Moran’s Index=0.317] for PWIDs, there is a less than 5% and less than 1% likelihood that this clustered pattern could be the result of random chance respectively. Getis-Ord-Gi* statistics indicated significant clusters of HIV infection among MSM and PWIDs, there is a less than 5% and less than 1% likelihood of HIV infection among MSM and PWIDs. Given the z-score of 2.29 [p<0.021, Moran’s I statistics revealed a clustered distribution pattern of HIV infection among MSM and PWIDs]

Conclusions: The study showed the north-central, north-west and southern regions of the country are most likely endemic cluster region. This study identified geographical areas to prioritize for control of HIV infection, thus demonstrating that geographical information system technology is a useful tool to inform interventions for epidemic control of HIV infection.
Methods: Official vital statistics on mortality from CONAPO, and population estimates from INEGI, were used to calculate AIDS mortality standardized rates. HIV/AIDS mortality trends were analyzed by JointPoint regression model. GIS software were used to mapping.

Results: The 25 JS with higher rates of HIV/AIDS mortality has only 11% of the population of the country, but they account for 28.6% of the total deaths due to HIV/AIDS. They have a standardized mortality rate that is at least twice the national rate (3.7 per 100,000), and among them, seven JS have a rate three or more times higher. The highest average annual mortality rates, from 2010 to 2016, were observed in Tonalá, Chiapas (4.4 per 100,000 inhabitants), Veracruz, Veracruz (4.3 per 100,000), Carmen, Campeche (3.7 per 100,000), Cerralba, Tabasco (3.5 per 100,000 inhabitants), Cosamaloapan, Veracruz (3.3 per 100,000), Coatzacoalcos, Veracruz (3.3 per 100,000 inhabitants and Cárdenas, Tabasco (1.6 per 100,000 inhabitants). These 25 JS are located mainly in coastal areas, tourist sites, migration corridors or border areas of the country. The most recent trend shows that HIV/AIDS mortality rates were increased in 9/25 JS, decreased in 8/25 JS, and has not changed in 8/25 JS.

Conclusions: The 25 geographic and operational areas (JS) were identified, where the prevention, and HIV/AIDS health care services should be focused. Otherwise, will be difficult to continue reducing the HIV/AIDS mortality in Mexico. It is the first study that analyzes a health problem (HIV/AIDS mortality) in all JS of Mexico.

THPEC263
Towards UNAIDS 95-95-95 goal: Targeting priority geographic areas for HIV prevention and care in Zimbabwe

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Background: Zimbabwe has obtained substantial progress toward the UNAIDS targets of 95-95-95 by 2030, with 85% of PLHIV diagnosed, 87% of those diagnosed on antiretroviral therapy (ART), and 86% of those on ART virally suppressed. Despite this exceptional response, more effort is needed to completely achieve the UNAIDS targets and diminish the current HIV epidemic. Here, we conducted a detailed spatial analysis of the geographical structure the HIV epidemic in Zimbabwe to include geographical prioritization as a key component of their overall HIV intervention strategy.

Methods: Data were obtained from Zimbabwe Demographic and Health Survey (ZDHS) conducted in 2015, as well as estimations from the Zimbabwe Population-Based HIV Impact Assessment (ZIMPHIA) 2016 report, and the maps for population density generated by the WorldPop project. Associations between covariates and HIV prevalence for males and females were assessed using non-spatial logistic regression models. The prediction formula generated from the covariate analysis along with kriging interpolation techniques were used to produce high resolution continuous surface maps of HIV prevalence. Using these maps combined with the population density maps, we mapped HIV-infected, undiagnosed, and non-virally suppressed individuals.

Results: Behavioral and socio-economic factors such as lifetime number of sexual partners, age at first sex, and wealth index were associated with the spatial distribution of HIV prevalence for both males and females in Zimbabwe. HIV maps for both genders illustrated similar high-risk areas with high density of females and males in urban areas such as Bulawayo, Harare, Ruwa, and Chitungwiza (Figure B, D).

Conclusions: Our study showed an extensive local variation in HIV disease burden across Zimbabwe for both females and males. About 16% of the females, and 26% of the males in Zimbabwe are living in areas of intense HIV transmission. The high-resolution maps generated here identified the areas where high density of HIV-infected individuals that are still missing HIV care and treatment. These results suggest that there is need to tailor HIV programmes to address specific local needs to efficiently achieve epidemic control in Zimbabwe.

Optimizing vertical transmission prevention programs

THPEC264
Utilization of preconception care by HIV-infected women attending antenatal care in Kenya National Hospital

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Background: Preconception care is fundamental for women planning to conceive and especially for those with chronic illnesses like HIV to optimize obstetric outcomes. There is little information on evaluation of preconception care implementation among HIV infected women in Kenya. This study described preconception care utilization by HIV-infected women with knowledge of their HIV status prior to pregnancy.

Methods: This was a cross-sectional study of 280 HIV positive pregnant women seeking antenatal care in Kenya National Hospital between April 2015 to March 2016. Women who had tested sero-positive for HIV prior to conception were eligible for this study. Nurse counselors working in HIV care collected preconception care information from consenting women during routine antenatal care visits. Uptake of preconception care counseling was analyzed and presented as a percentage. The associated factors were tested using Chi square and Mann Whitney U tests. Statistical significance was set at a p value ≤ 0.05.
Results: The mean age of women was 30.7 years (SD 5.4 years), 62.5% had secondary or higher level of education and 43.1% were unemployed. Majority (85.7%) had sexual partners who had a lower unemployment rate (22.1%). HIV disclosure to the partner was at 91.3% and use of HAART before conception was at 89.3%. Pre-conception care counseling was reported among 35% (95% CI: 28.9-40.7%) of the women. Those who sought preconception care counseling were those in employment, for women (OR 1.9 (95% CI 1.2-3.2), p=0.011) and their partners (OR 2.7 (95% CI 1.3-6.2), p=0.009), had disclosed their HIV status to the partner (OR 2.4 (95% CI 1.2-4.8), p=0.010) and had known their status for a longer duration (median of 75.5 months), p<0.001.

Conclusions: There was low uptake of preconception care counseling services in HIV-infected women. Low socio-economic status is a likely barrier to access of the services. HIV disclosure has a positive influence on the preconception care uptake.

THPEC265
Sustained elimination of mother to child transmission of HIV and predictors of residual adverse outcomes at a large teaching and referral centre in Nairobi, Kenya

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Background: Elimination of new pediatric HIV infections is possible with existing public health and medical armamentarium. The global community has set as a target the virtual elimination of mother to child transmission (eMTCT) to < 5% in the breastfeeding and < 2% in the non-breastfeeding populations. We sought 1) to demonstrate that sustained virtual eMTCT to < 2% can be achieved in the breastfeeding populations, and 2) to explore the factors contributing to residual adverse outcomes; under programmatic conditions.

Methods: This was a retrospective cohort analysis of data on HIV exposed infants (HEI) and their mothers followed up at Kenyatta National Hospital, Nairobi, Kenya from 2013 to 2015. We extracted data from the electronic medical database. Mothers were categorized as adolescent girls and young women (AGYW) 15-24 years and adults ≥25. We calculated the MTCT rates by birth cohort. Chi-square was used to determine association between attrition and maternal characteristics, and Kaplan-Meier analysis to estimate time to attrition by age group.

Results: Among 507 HIV infected women with singleton live born infants, the mean age was 34.8 years (standard deviation (SD) 5.4), 15 (2.5%) being AGYW. The infant outcomes were: 484 (79.7%) HEI discharged as HIV uninfected, 14 (2.3%) transferred out, 101 (17%) lost to follow-up and 8 (1.3%) HIV infected. The MTCT rate remained < 2% during the follow-up period. Among the eight women with documented vertical transmission, the mean CD4 was 446 cells/ml (range 113-760), six (75%) had not attended antenatal care (ANC) and 5 (62%) were transfer-in postpartum. Women who were lost to follow-up were more likely to have a viral load >1,000 copies/ml (aOR = 5.011, CI = 1.02-25.49), be AGYW (aOR = 3.112, CI = 2.322-5.18) and be unmarried (aOR = 2.02, CI = 1.02-4.44). Attrition at 12 months was higher among AGYW compared to adults (p = 0.001).

Conclusions: Virtual eMTCT of HIV at < 2% can be achieved and sustained in the breastfeeding population. The likely factors for adverse outcomes such as delayed access to ANC and PMTCT interventions and attrition remarkably with AGYW are preventable through optimized and case-based facility and community level intervention.

THPEC266
Interactive Voice Response (IVR) messages and reminders increase completion of early infant diagnosis in a private sector PMTCT intervention in Southern India

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Background: Effective PMTCT interventions require that pregnant women living with HIV (PPW) and Mother-Baby (MB) pairs be retained in the care cascade. India’s national PMTCT program shows attrition at all stages, a problem exacerbated when women visit multiple sites e.g. private sector for maternity services, public sector for HIV treatment and early infant diagnosis. SAATHII is currently implementing Svetana, a 22-state Global Fund-supported PMTCT initiative in the private sector. m-Matri, an IVR initiative, was bundled with the intervention and piloted in Andhra Pradesh and Telangana, with support from Janssen Pharmaceutical Companies of Johnson and Johnson, and technology partner Mahiti.

Description: Over 250 IVR messages on maternal and child health, and HIV, are delivered to PPW and mothers of exposed infants via m-Matri, an adaptation of the Connect for Life™ platform developed by Janssen. From June-Nov 2016, content was developed, vetted, translated into Telugu, the platform was developed and User Tested in parallel. Beginning December 2016, consenting women were enrolled in m-Matri. They registered through a toll-free number, and received three health messages weekly on self-selected days and times. Additionally, m-Matri sent reminders for immunization, early infant diagnosis and confirmatory. As part of concurrent evaluation, timely completion of early infant diagnosis was compared between mothers receiving m-Matri and outreach (intervention group) and the non-intervention group, which only received outreach visits. Quantitative results were supplemented with in-depth interviews of 50 women receiving m-Matri messages.

Lessons learned: By end of Jan 2017, 527 of 723 eligible PPW mothers had registered, and 509 had received m-Matri messages as well as outreach. Completion of early infant diagnosis was higher (P < 0.05) in the intervention group for six (OR 1.63), 12 (OR 1.68) and 18 months (OR 2.22). In-depth interviews indicated that m-Matri messages and reminders motivated women to visit the doctor for timely antenatal consultations, prepare for institutional delivery, complete CJD, and follow recommended infant feeding practices.

Conclusions/Next steps: The intervention is being scaled up with requisite adaptation of content to local contexts and languages across the country. Further work will examine the role of m-Matri in enhancing other elements of retention such as maternal adherence to ART.

THPEC267
Formative research informs and guides intervention development for prevention of mother to child transmission of HIV: Barriers and strategies to improve adherence to Option B+ in urban and rural Uganda

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Background: Option B+ strategy is a recommendation by WHO to initiate all HIV-positive pregnant and breastfeeding women on antiretrovi-ral therapy (ART) for life. Our aim was to conduct formative research to assess knowledge and attitudes regarding Option B+ among individual...
HIV-positive PMTCT clients, community members and health workers and inform design of an enhanced group peer support intervention in a randomized controlled trial.

Methods: We conducted qualitative research at baseline using Focus Group Discussions (FGDs) to explore knowledge, beliefs, attitudes and challenges towards the Option B+ strategy for PMTCT among HIV infected pregnant and post-partum women enrolled on the Option B+ PMTCT programme (n=51 individuals). Key Informant Interviews (KII)s were conducted with health workers, policy makers and community leaders to document their perceptions about the new PMTCT Option B+ strategy (n=14). FGDs and KII)s were conducted in Luganda or English using a pre-designed, semi-structured, IRB-approved guide. Topics explored included PMTCT Option B+ understanding and benefits, program strategies, barriers and recommendations. We used content analysis to describe key emerging and existing themes and compared across participants using the social ecological framework to theoretically ground our analysis.

Results: Findings across both urban and rural sites indicated that participants had a good understanding of the benefits of the Option B+ program to the mother, baby, family and community including "restoring hope for the future". However, the barriers to adherence were clearly related to personal, relational and structural factors in a complex web of interactions. Key themes were: severe drug side effects both anticipated and experienced as well as non-disclosure at home and work and personal and community stigma. Structural drivers included health facility factors such as drug stock outs, human resource constraints, and nutritional limitations at home.

Conclusions: Our findings suggest that continuous education is needed on anticipated drug side effects, as well as ongoing psychosocial support at facility and community levels including use of peers, village health teams and political structures. Use of an innovative male involvement strategy (couple counseling and testing, home based testing), supply chain management to avoid stock outs, and ensuring that health workers are respectful to all clients are key.

**THPEC268**

**Evaluating the vertical HIV transmission risks among South African female sex workers. Have we forgotten PMTCT in FSW HIV programming?**


**Background:** Female sex workers (FSW) have a greater HIV burden compared to other reproductive-aged women and experience high incidence of pregnancies. However, there are limited data on mother-to-child transmission of HIV in the context of sex work. This study assessed the uptake of prevention of mother-to-child transmission (PMTCT) services to understand the vertical HIV transmission risks among FSW in South Africa.

**Methods:** FSW ≥18 years were recruited into a cross-sectional study using respondent-driven sampling (RDS) between October 2014-April 2015 in Port Elizabeth, South Africa. An interviewer-administered questionnaire captured information on demographics, reproductive health histories, and HIV care, including engagement in PMTCT care and ART. HIV and pregnancy testing were biologically assessed. This analysis characterizes FSW engagement in HIV prevention and treatment cascades of the four prongs of PMTCT.

**Results:** Overall, 410 FSW were enrolled. The RDS-weighted HIV prevalence was 63.5% (95% bootstrapped confidence interval 61.4-65.8%). A comprehensive assessment of the four PMTCT prongs showed gaps in cascades for each of the prongs. In Prongs 1 and 2, gaps of 42% in consistent condom use with clients among HIV-negative FSW and 43% in long-term high efficacy contraceptive method use among HIV-positive FSW were observed. The analyses for prongs three and four pertaining to 392 women with children < 5 years, 101/192 knew their HIV diagnosis prior to the study, of which 85% (165/192) had their children tested for HIV after birth, but only 36% (61/166) of those who breastfed retested their children post-breastfeeding. A substantial proportion (35%, 42/120) of all HIV-positive women with children < 5 years of age were HIV-negative at their last delivery and seroconverted after delivery. Less than half (45%) of mothers with children < 5 years (45/101) were on ART and 12% (7/61) reported at least one child under five living with HIV.

**Conclusions:** These findings show significant gaps in engagement in the PMTCT cascades for FSW, evidenced by sub-optimal uptake of HIV prevention and treatment in the peri/post-natal periods and insufficient prevention of unintended pregnancies among FSW living with HIV. These gaps result in elevated risks for vertical transmission among FSW and the need for PMTCT services within FSW programs.

**THPEC269**

**Virological suppression among pregnant and breastfeeding women in 105 clinics in Kinshasa:** A baseline assessment for a data driven continuous quality improvement intervention trial


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**Background:** Virological suppression is the central pillar of the UNAIDS strategy to end the AIDS epidemic. Despite being a priority population, limited attention has been given to viral load monitoring among pregnant and breastfeeding women. We assessed the prevalence of virological suppression (viral load < 1000 copies/mL) among pregnant and breastfeeding women in Kinshasa, Democratic Republic of Congo.

**Methods:** Data collection was done as part of a baseline assessment for an ongoing trial that will evaluate the use of data-driven continuous quality improvement to optimize PMTCT outcomes (NCT03488669). From November 2016 to December 2017, in each of the 35 Kinshasa province health zones, study teams visited the top (by number served) three maternal and child health (MCH) clinics and enrolled all HIV-infected pregnant or breastfeeding women (<1 year post-delivery). At enrollment, each participant provided a dry blood sample that was used for viral load testing at the national reference laboratory.

**Results:** At the end of December 2017, viral load results were available from 1160 (96%) of the 1214 women enrolled. Overall, 89% (1031/1160) of participants were virologically suppressed including 71% (411/576), 62% (165/272), and 71% (235/333) of those tested respectively during pregnancy, at delivery, or in the postpartum period. 64% (754/1187) of participants newly diagnosed during the current pregnancy were virologically suppressed as compared to 73% (485/661) among those diagnosed earlier (P=0.01). In multivariable logistic models stratified by time of HIV diagnosis, among participants diagnosed prior to current pregnancy, older age, being married, disclosure of HIV status to partner, receiving care in an urban health zone (figure) or one supported by PEPFAR were all strongly associated with higher odds of virological suppression (Table). Participants enrolled at delivery or in the postpartum period were less likely to be virologically suppressed compared to those enrolled during pregnancy. Similar associations though attenuated, were observed among newly diagnosed.

**Conclusions:** Despite full implementation of option B+ in Kinshasa since 2015, the proportion of HIV-infected pregnant and breastfeeding women receiving care in MCH clinics in Kinshasa, with virological suppression is far below the UNAIDS target of 90% even among those who were diagnosed prior to current pregnancy.
THPEC270

Pregnancy outcomes in women perinatally infected with HIV-1 (PHIV) in Argentina: An emerging population

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Background: Widely available antiretroviral therapy has allowed for HIV infected girls to grow into women of reproductive age. However, concerns exist regarding the impact of long term HIV infection, co-morbidities and extensive drug exposure on pregnancy outcomes. In this context, limited information is available to guide counseling and care of this particular population.

We analyze the obstetric and clinical characteristics and the perinatal outcomes of pregnancies in women with PHIV and their exposed newborns.

Methods: Prospective observational study that included all pregnant women (PW) with PHIV at two hospitals in the northern area of Buenos Aires, from 1/1/2014 to present.

Results: Of a total of 44 pregnant women infected with HIV, 7 (17%) were PHIV, 2 of them continue in care and 1 was lost to follow-up at week 36. Median age at presentation was 18 years (range 17-20); 5/7 (71%) had a history of one or more pregnancies, including one stillbirth. The median CD4 was 595 cells /μL (range 20-1030). All women were on ARVs at conception, 5 of them (71%) with irregular adherence. 3/7 (43%) had virological failure, with the K103N mutation in two and multidrug resistance in one. HIV viral load was < 50 copies/mL close to delivery in 40% and < 1000 copies/mL in 40%. Fifty percent had vaginal delivery. There was one preterm childbirth (week 36). All newborns remain alive and HIV negative at the time of this report. No major malformations were identified by clinical exam so far.

Conclusions: Pregnancy outcomes for women perinatally HIV-1 infected, seems to be able to carry a healthy pregnancy to term, despite long term HIV infection and massive exposure to antiretrovirals. Risk of lost to follow up and poor adherence resulting into ARV resistance is a serious concern. Further observations are needed to identify and to prevent potential complications in this particular population.

<table>
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<th>Patients</th>
<th>Age at conception (years)</th>
<th>AIDS</th>
<th>Initial HIV RNA</th>
<th>CD4 count (cells/mm3)</th>
<th>Sexual transmitted diseases</th>
<th>HIV-1 RNA</th>
<th>Mode of delivery</th>
<th>Infant prophylaxis</th>
<th>HIV Vertical transmission</th>
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<td>Zidovudine</td>
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<tr>
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<td>&lt;50</td>
<td>700</td>
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<td>Vaginal Delivery</td>
<td>Zidovudine</td>
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</tr>
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<td>Ongoing Pregnant</td>
<td>Zidovudine</td>
<td>Ongoing Pregnant</td>
</tr>
</tbody>
</table>

('Table 1 shows main characteristics from seven PW PHIV')

Conclusions: Pregnant women perinatally HIV-1 infected, seems to be able to carry a healthy pregnancy to term, despite long term HIV infection and massive exposure to antiretrovirals. Risk of lost to follow up and poor adherence resulting into ARV resistance is a serious concern. Further observations are needed to identify and to prevent potential complications in this particular population.

[Table 1 shows main characteristics from seven PW PHIV]
Background: An estimated 36% of women in sub-Saharan Africa have some form of disability. Identified factors such as susceptibility to sexual abuse, poor access to health care services and HIV prevention education, and discrimination related to the double burden of both gender and disability put them at increased risk of HIV. Despite policy and legal frameworks to support disability rights in Ekiti State, implementation of accessible PMTCT programs for women with disabilities remains limited. In 2014-2016, Ekiti State AIDS Control Agency designed and implemented EMTCT programmes targeting women with disabilities in the State.

Description: Baseline survey was conducted. 206 sign language experts were trained to implement ‘on-call’ sign language interpretation in ANC clinics providing information on EMTCT to women and their partners who were hearing impaired. 522 health workers were trained on PWD targeted health care in a supportive environment to encourage access to HIV services and eliminate discrimination. EMTCT IEC materials were printed in braille and distributed to those who were visually impaired while bill boards and braille door signs were produced and strategically located within the communities and at health facilities/ANC clinics for easy access. Radio and TV jingles targeting pregnant women with disabilities were produced and aired. Trained health workers were engaged to provide home visits to the physically impaired HIV positive pregnant women while helplines were provided for ambulance services in case of emergencies. The trained sign language experts were also engaged during community outreaches to create demand for HTS and EMTCT services within the community of people with disabilities. Disabled persons were employed in ANC clinics for sustainability.

Lessons learned: Women with physical, hearing and visual disabilities who attended maternal/child health services increased from 8% to 46%. HTS service uptake increased from 37% to 66% and out of 24 HIV positive pregnant women with disability identified, 19 of them accessed EMTCT services while 16 infants had accessed IED services.

Conclusions/Next steps: Strategies and interventions targeted at addressing inequities in health care for women with disabilities is needed to achieve the goal of eliminating pediatric HIV by 2020 and improving the health and wellbeing of women.
Results: For the period evaluated, 368 new pregnant women were screened HIV + and placed under option B. Nearly three quarters of pregnant women in the cohort are enrolled on ARV in WHO clinical stage I. The mean CD4 count at entry was 542 cells/µL (min: 15 max: 1337). The median interval day for enrollment of pregnant women under Option B is 0-15 days. Before delivery, 20.5% of pregnant women diagnosed with HIV + and enrolled in the PMTCT program are lost to follow-up in the median time interval of 0 to 1 month. Associated factors identified include the denial (27.5%), fear of stigma (35%), mobility (29%).

Conclusions: The low retention rate among pregnant women is very worrying. We need to find immediate strategies to improve patient retention, taking into account the major factors associated with loss to follow-up.

THPEC274
Stop Vertical Transmission (SvET) Program as an effective approach for Prevention of mother-to-child transmission (PMTCT)
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Background: The WHO determined a likelihood of HIV passing from a mother to a child as 15% to 45%. Antiretroviral therapy (ART) and other effective PMTCT interventions can reduce this risk below 5%. Success of PMTCT depends on adherence to the regimen. In 2014, a growth of HIV cases increased HIV rate in pregnant women in Tomsk, Russia. Some of them did not accept HIV diagnosis, refused taking ART, or did not visit AIDS center on time. In 2015, SvET Program was implemented by Partners In Health (PHI) in collaboration with the Tomsk AIDS Center to reduce HIV mother-to-child transmission among women with poor ART adherence or refusal of PMTCT.

Methods: A multidisciplinary team was created at the Tomsk AIDS Center. The project uses a patient-centered approach (PCA) to perform a set of comprehensive activities: searching for patients, building trustful patient-provider relationships, providing directly-observed ART for ful patient-provider relationships, providing directly-observed ART for.

The project uses a patient-centered approach (PCA) to perform a set of comprehensive activities: searching for patients, building trustful patient-provider relationships, providing directly-observed ART for.

The overall reported SMC success rate among participants was high, along with the safety of SMC services and friendly health workers as important factors among male students. There is a need for continuous sensitization campaigns and communication strategies to address beliefs about SMC, some related misconceptions, and barriers so as to increase its uptake.

Combination prevention strategies

THPEC275
Factors influencing the uptake of safe male circumcision among Makerere University undergraduate students, Kampala - Uganda
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Background: Safe male circumcision (SMC) is currently recognized as a preventive strategy in reducing the risk of HIV; however, the prevalence of circumcised men in Uganda is still quite low at 26%. This study aimed to determine the uptake of SMC and associated factors among Makerere University undergraduate students in Kampala Uganda.

Methods: We conducted a cross-sectional study in which we selected 602 participants with the multistage probability sampling strategy. Pre-tested semi-structured questionnaires and focus group discussions were used to collect data. Quantitative data were analyzed with Stata 12, where the prevalence ratio and p-values were calculated. Possible interactions and confounding variables were assessed with the Poisson regression model while qualitative data was analyzed with content analysis.

Results: The overall uptake of SMC among male undergraduates was 53.9% (95% CI: 54.57 - 62.42). Factors associated with SMC uptake included: safety of SMC procedure (PR = 1.13, 95% CI: 1.03 - 1.25) and friendly health workers (PR = 0.78, 95% CI: 0.74 - 0.83). The perceived benefits of SMC included hygiene (86.5%, n = 521), reduced risk of HIV transmission (45.7%, n = 261) and reduced risk of penile cancer (45.7%, n = 279) while the perceived barrier was pain (35.7%, n = 61). The general perception was that SMC recipient’s first sexual partner post-procedure would not be his girlfriend.

Conclusions: The overall reported SMC success rate among participants was high, along with the safety of SMC services and friendly health workers as important factors among male students. There is a need for continuous sensitization campaigns and communication strategies to address beliefs about SMC, some related misconceptions, and barriers so as to increase its uptake.

THPEC276
Dramatic reductions in time to ART initiation among HIV+ individuals referred to HIV care following home-based testing services: Experiences from the HPTN071(PopART) trial between 2014 and 2017
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Background: To reach zero AIDS deaths and zero new HIV infections, antiretroviral therapy (ART) must be delivered to all people living with HIV. As HIV testing is decentralized and community testing and self-testing become more widely available, identifying and implementing strategies that facilitate linkage to HIV care (LTC) from the community to the clinic to start ART is crucial.

Methods: In seven urban communities in Zambia and South Africa, randomised to receive the universal-testing-and-treatment intervention (UTT) within the HPTN071(PopART) trial, Community HIV-care Providers (CHIPS) offer home-based HIV testing, referral to government clinic services for HIV-positive individuals, support for LTC, and ART initiation. CHIPS deliver the intervention in “rounds”, during which they (re-)visit all
Households in their community. Round 1 (R1) was November 2013–June 2015, R2 June 2015–September 2016, and R3 was September 2016–December 2017, 19 and 15 months respectively. CHiPs record data on electronic registers, including dates of referral, LTC and ART initiation, and conduct follow-up visits to support LTC and retention. From R2, with intensified efforts in R3, various strategies were implemented to facilitate LTC, including targeted follow-up of individuals not yet LTC, extra counseling, more supervisory support to CHiPs, and increased coordination with the clinic. For each round, we estimated the time to ART initiation after first referral to care among individuals aged 15 years, using the Kaplan-Meier method and Cox regression for “time-to-event” analysis.

Results: In Zambia 6,197, 3,435, and 2,293 individuals were referred by CHiPs to HIV care in R1, R2, and R3 respectively (Table 1). The median time to ART initiation after CHiP referral to care was ~10 months, ~6 months, and ~3 months in R1, R2, and R3 respectively (Figure 1; p<0.001), with a reduction overall and for both men and women (Table 1).

Conclusions: More rapid ART initiation for HIV-positive individuals after referral to HIV care was achieved over three rounds of community-wide intervention. We believe that improvements came from a combination of better targeted community and clinic activities, expanded national HIV treatment guidelines, increasing understanding of universal ART, and enhanced community acceptance of UTT.

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**Table 1 - Time to ART initiation after CHIP referral in Rounds 1-3, by country and gender**

<table>
<thead>
<tr>
<th>Country</th>
<th>R1 N (%)</th>
<th>R1 (% 6 months)</th>
<th>R2 N (%)</th>
<th>R2 (% 6 months)</th>
<th>R3 N (%)</th>
<th>R3 (% 6 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambia</td>
<td>R1 6,197</td>
<td>32%</td>
<td>42%</td>
<td>55%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.37 (1.29-1.46)</td>
</tr>
<tr>
<td></td>
<td>R2 3,435</td>
<td>39%</td>
<td>50%</td>
<td>57%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.51 (1.35-1.68)</td>
</tr>
<tr>
<td></td>
<td>R3 2,293</td>
<td>50%</td>
<td>64%</td>
<td>54%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.32 (1.22-1.43)</td>
</tr>
<tr>
<td>Zambia</td>
<td>R1 2,053</td>
<td>33%</td>
<td>37%</td>
<td>54%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.46 (1.28-1.64)</td>
</tr>
<tr>
<td></td>
<td>R2 1,177</td>
<td>44%</td>
<td>48%</td>
<td>56%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.57 (1.42-1.74)</td>
</tr>
<tr>
<td></td>
<td>R3 698</td>
<td>51%</td>
<td>64%</td>
<td>51%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.42 (1.22-1.65)</td>
</tr>
<tr>
<td>South Africa</td>
<td>R1 1,444</td>
<td>31%</td>
<td>37%</td>
<td>54%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.46 (1.28-1.64)</td>
</tr>
<tr>
<td></td>
<td>R2 318</td>
<td>37%</td>
<td>44%</td>
<td>51%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.57 (1.42-1.74)</td>
</tr>
<tr>
<td></td>
<td>R3 598</td>
<td>50%</td>
<td>64%</td>
<td>51%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.42 (1.22-1.65)</td>
</tr>
<tr>
<td>South Africa</td>
<td>R1 1,375</td>
<td>25%</td>
<td>36%</td>
<td>44%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.46 (1.28-1.64)</td>
</tr>
<tr>
<td></td>
<td>R2 2,162</td>
<td>36%</td>
<td>47%</td>
<td>51%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.57 (1.42-1.74)</td>
</tr>
<tr>
<td></td>
<td>R3 754</td>
<td>54%</td>
<td>64%</td>
<td>54%</td>
<td>1 (Ref) (p&lt;0.001)</td>
<td>1.57 (1.42-1.74)</td>
</tr>
</tbody>
</table>

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**Figure 1**

The Core Package

- **Empower Girls & Young Women and reduce risk**
- **Ensure Girls and Young Women are reaching comprehensive services**
- **Support Girls and Young Women to be safe**

**DREAMS Ecosystem**

- **Enhanced Services**
- **Comprehensive Care Management**
- **Evidence-based interventions**
- **Conceptualization**
- **Determined, Resilient, Empowered, AIDS-Free, Mentored, Safe**

**The DREAMS Core Package**

- **Determined**
- **Resilient**
- **Empowered**
- **AIDS-Free**
- **Mentored**
- **Safe**

**Background:** In 2014, the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) partnered with the Bill & Melinda Gates Foundation. Girl Effect, Gilead Sciences, Johnson & Johnson, and ViiV Healthcare to create the DREAMS PUBLIC-PRIVATE PARTNERSHIP (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe). DREAMS was created to reduce the staggering rate of new HIV infections in adolescent girls and young women (AGYW) 15-24 in 10 high HIV burdened African countries.

**Description:** PEPFAR-supported DREAMS countries implemented a multi-faceted package of interventions in 83 high-burden districts to support AGYW, their families, and communities. DREAMS guidance examined contextual factors affecting HIV acquisition, such as sexual violence; limited access to education, and early pregnancy, and set out program requirements, including: engaging recipients and partners in conceptualization; recruiting the most vulnerable AGYW; utilizing evidence-based interventions; and ensuring layered programs so AGYW receive multiple interventions.

**Lessons learned:** DREAMS is a successful and vibrant public-private partnership. Since the launch of DREAMS, the DREAMS Innovation Challenge was created and country governments have embraced and expanded DREAMS. Given the deep inequalities AGYW experience in their communities, accessing the most vulnerable girls is challenging. Tools like The Girl Roster are pivotal in identifying them. Although combination prevention was emphasized in past PEPFAR programming, ensuring the practice and monitoring of layering has been challenging. In two years of DREAMS implementation, the five countries that have infrastructure to monitor layering provided three or more services to at least 50% of DREAMS-enrolled AGYW. Other DREAMS countries are developing systems to track layering.

Despite the challenges of such a massive effort, PEPFAR has reached over 2.5 million AGYW with comprehensive HIV prevention in DREAMS districts. In the 10 countries implementing DREAMS, a majority (65% or 41) of DREAMS districts achieved greater than a 25% decline in new diagnoses among AGYW 15-24 since 2015, including 14 districts that had a decline of greater than 40%. Importantly, new diagnoses declined in nearly all DREAMS districts.

**Conclusions/Next steps:** DREAMS showed the world a blueprint for evidence-based combination prevention among AGYW, and is showing success. Responding to lessons learned is critical to improve DREAMS and broader prevention programming for AGYW.
THPEC278
Service workers in group (SWING): Addressing multi-level HIV risks associated with male sex workers through key population-led comprehensive approach in Bangkok and Pattaya

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Service Workers in Group Foundation, Bangkok, Thailand. 2The Thal Red Cross AIDS Research Centre, Prevention, Bangkok, Thailand. 3FHI 360 and USAID LINKAGES Project, Bangkok, Thailand. 4Office of Public Health, U.S. Agency for International Development Regional Development Mission Asia, Bangkok, Thailand

Background: Criminalization and penalization of key populations in Thailand often result in continuous exposure to violence and discrimination from the society. Law enforcement officers and health care providers. In addition to biological risk from anal sex behavior, these multi-level social risks pose MSW at high level of vulnerability to HIV infection.

Description: Service Workers in Group (SWING) Foundation is the first MSW-led organization in Thailand. In order to address the multi-level risks of HIV among MSW, SWING uses a comprehensive approach which comprises i) Outreach through regular offline and online activities to empower MSW with HIV prevention and other life-saving skills; ii) Drop-in Centers (DiCs) in the heart of two major red-light districts in Bangkok and Pattaya to provide safe space for MSW; iii) HIV-related clinical services including HIV/STI testing and PrEP/PEP dispensing performed by trained community health workers who are members of MSW community, either at their DiCs or via a mobile clinic, as part of Key Population-Led Health Services (KPHLS) model; iv) Educational sessions for MSW including classes for non-formal education, English and other languages; and v) Human rights protection through legal consultation/assistance and serious engagement of police officers and business owners.

Lessons learned: From October 2015-December 2017, SWING reached 22,308 MSW (11,616 offline; 5 online) and tested 3,533 for HIV, with an overall HIV-positive yield of 12.6%. Among those tested positive, 47.3% were successfully linked to antiretroviral treatment (ART). Among HIV-negative, 5.2% were provided with PrEP and there was no seroconversion among those who took PrEP continuously. Of 276 MSW who attended non-formal education at SWING, 97.8% graduated secondary education, 1.8% achieved their bachelor’s degrees, and 0.36% master’s degrees. Engagement of police officers and business owners has been crucial for SWING to be able to continue their outreach and clinical services activities during the periods of heightened enforcement of laws against human-trafficking in Thailand.

Conclusions/Next steps: SWING successfully implemented a comprehensive approach to address multi-level risks for HIV among MSW. KPHLS demonstrated high HIV-positive testing yield and successful linkage to ART and PrEP. Sustainability in the country would need strong policy support and clear financing mechanism.

THPEC279
Differential trends in biomedical HIV prevention among younger and older men who have sex with men in a treatment as prevention environment: A 5-year prospective cohort study

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1YouthCO HIV & Hep C Society, Vancouver, Canada. 2University of Victoria, Victoria, Canada. 3YouthCO HIV & Hep C Society, Vancouver, Canada. 4University of British Columbia, Faculty of Medicine, Vancouver, Canada. 5Simon Fraser University, Burnaby, Canada

Background: Post-exposure prophylaxis (PEP), pre-exposure prophylaxis (PrEP), and viral load sorting (VLS) provide novel combination prevention strategies for men who have sex with men (MSM). Despite promotion of Treatment as Prevention as policy since 2010, new HIV diagnoses among MSM in British Columbia remain unchanged (58.9% of all new diagnoses in 2015). Younger MSM are a key priority population locally and globally. We sought to evaluate and compare trends in awareness and use of biomedical HIV prevention (PEP, PrEP, and VLS) between younger and older MSM in Vancouver, Canada from 2012-2017.

Methods: The Momentum Health Study is a prospective cohort study of sexually-active MSM aged at least 16 years in Vancouver, recruited using respondent-driven sampling from 02/2012-02/2015. Follow-up visits occurred every 6 months with data included to 02/2017. Visits included a computer-assisted self-interview on sexual behaviour, HIV prevention practices, attitudes, and demographics. Three-level mixed effects models (RDS recruitment chain: participant; visit; clustered longitudinal data. Multivariable trend analyses controlled for gender, sexual orientation, income, and HIV status (P<0.05 considered significant). We compared trends using statistical interactions between calendar time (6-month periods) and age (younger versus older).

Results: Of 698 cohort participants, median follow-up was 3.42 years (n=3722 visits). At baseline, 257 (36.8%) participants were aged under 30 years and 201 (28.8%) were living with HIV. Overall, there were significant increasing trends in having heard of PEP (64.1% to 85.2%, P<0.001), having heard of PrEP (29.3% to 81.0%, P<0.001), having used PrEP (10% to 42.4%, P<0.001), and practicing VLS (15.6% to 25.3%, P<0.001). Two significant statistical interactions indicated differential trends for younger and older MSM: First, PrEP awareness (interaction P<0.001) increased more for younger than older MSM. Second, VLS interaction (P<0.001) increased for younger MSM, but remained stable for older MSM. For both PrEP awareness and VLS, levels among younger MSM outstripped older MSM over time.

Conclusions: There have been marked increases in awareness and use of biomedical HIV prevention among MSM in this Treatment as Prevention environment. Differential trends by age group highlight particular success in health education among younger MSM.

THPEC280
School attendance and sexual behavior among adolescent girls and young women living in high-burden settings and receiving conditional cash transfer: Description of the MP3 youth cohort

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1Impact Research and Development Organization, Research, Kisumu, Kenya. 2University of Nairobi, Nairobi, Kenya. 3Rory Meyers College of Nursing, New York University, New York, United States. 4Interagency Collaboration for Program Improvement (ICPI), Atlanta, United States. 5Ministry of Health, Nairobi, Kenya. 6Yale University School of Nursing, Connecticut, United States

Background: Conditional cash transfer (CCT) can address some of the gender inequalities in school dropout rates and HIV risk perpetuated by poverty and economic dependence on older sexual partners. We assessed the effect of CCT on school attendance, sexual behavior and HIV incidence among school-going adolescent girls and young women (AGYW) in a high-burden setting of Homabay County, western Kenya.

Methods: Quarterly cash disbursements of $72 were offered to eligible HIV-negative school-going girls aged 15-24 years and their family as a component of gender-specific combination prevention packages in MP3 Youth study. The girls were required to attend school at least 80% of the time for her and family to receive the CCT. School attendance and sexual behavior was monitored every quarter for 12 months. Participants were retested for HIV after 12 months.

Results: We recruited 689 AGYW and enrolled 50 girls (mean age, 16.3 years) and their caregivers in the CCT cohort. During the intervention, 97.5% (646/660) of planned follow-ups were completed. In the first three quarters post-enrollment, 90% of the girls achieved the set mark (at least 80%) for school attendance; however, only 60% of the girls maintained the required school attendance in the final quarter, with 24% of girls across follow-ups reporting missing school due to inability to pay school fees. In terms of sexual behavior, the change in the percentage of girls who were sexually active was insignificant at all follow-ups, but
the proportion having sex without a condom was higher at months 9 (3/6; 50%) and 12 (3/6; 50%) compared to month 3 (1/12; 13.3%). Receiving money or gifts in exchange for sex was rare (< 10% of girls) at all follow-ups. Seven cases of pregnancy and 1 HIV seroconversion was reported.

**Conclusions:** Although overall school attendance was good in this cohort, a small proportion of girls missed school due to inability to pay fees, implying that either the amount was insufficient, or families did not prioritize using the funds to pay fees. Pregnancies and incident HIV suggest sexual risk remain for some girls despite CCF, which highlights the importance of combination prevention targeting AGYW in high-burden settings.

**THPEC282**

**HIV free testing services and distributions of incentives to indigent students in Orozo community, Nasarawa State Nigeria: Impact of incentives as a mobilization strategy**

E.A. Bondere

HIV/AIDS Medical CDS Team Group

National Agency for the Control of AIDS (NACA), Partnerships Coordination, FCT, Nigeria

**Background:** Nigeria has HIV prevalence of 3.4% and the second highest burden of HIV/AIDS globally. The National HIV & AIDS and Reproductive Health Survey, 2012, shows very low uptake of HIV testing in Nigeria. About 23% of males and 29% of females had tested in the year preceding the survey. The desire to test for HIV was 77%, among adults. This prompted a push to increase the number of testing sites and improve on testing strategies. To complement this effort, community outreach was organized in the Orozo community to fast track effort in making more Nigerians aware of their HIV status.

**Description:** The community testing model for HIV was adopted. A total of 6,000 adults (4230 female-70.5% and 1770 males-29.5%) turned out for HIV testing service. Free note books and insecticide treated nets distributed to indigent students and parents. The mobilization efforts promoted

**THPEC281**

**Mapping of key populations of Morocco: Empowering community**

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1ALCS, Casablanca, Morocco, Laboratoire de Recherche Communautaire Coalition +, Casablanca, Morocco, 2ALCS, Marrakech, Morocco, 3Independent Consultant of the Global Fund, Brussels, Belgium, 4Ministry of Health, Rabat, Morocco, 5ALCS, Agadir, Morocco

**Background:** Since 2013, mapping of key populations (KPs) in areas with higher HIV prevalence has been part of the identification of “Corridors of vulnerability” in Morocco. In 2017, in order to gain better understanding about distribution of KPs and KP-friendly services in the country, the mapping of the Greater Casablanca was launched by the Ministry of Health supported by Global Fund and UNAIDS. Mapping of hotspots was conducted by community peer educators (PE) and outreach workers (OW) from the “Association de Lutte Contre le Sida” (ALCS).

**Methods:** A team of 56 PE, from Female sex workers (FSWs) and men having sex with men (MSM) were mobilized and trained, beside 10 supervisors experienced in mapping.

The team received training on methodology and on using tools and smartphone Apps for GPS geolocation. The mapping followed a four steps planning: (1) sites and services identification, (2) a census of MSMs and FSWs, (3) a first capture describing tagging card to KPs included, (4) a recapitulating all KPs met, as well as those who received the card during the first visit and those who refused contact.

**Results:** While performing the census the teams discovered many new KP-sites as compared to those initially identified. This led the program to realize that the needs for combined prevention are much higher than expected highlighting that the coverage has to be improved. Most hidden categories of FSWs and MSMs were also found thanks to enhanced peer-outreach work, a total of 8768 FSWs and 3032 MSM have been estimated for Casablanca. Despite of the risk of violence during night exercises, the mapping of the Greater Casablanca was launched by the Ministry of Health supported by Global Fund and UNAIDS. Mapping of hotspots was conducted by community peer educators (PE) and outreach workers (OW) from the “Association de Lutte Contre le Sida” (ALCS).

**Conclusions:** Despite of the risk of violence during night exercises, the challenge of mapping of these KPs in a large city as Casablanca was met successfully. Thanks to mapping, peer-outreach work has been crucially enhanced. At the programmatic level, teams and KP were empowered as they have now the capacity to self-conduct mapping and to participate in the follow-up of strategic planning of comprehensive prevention over new corridors of vulnerability in the Country.
ed the availability of people tested. The incentives distributed only to those that took the test. The Rollback Malaria Programme (RFH) provided the insecticide treated net used for the outreach, while IHVN provided the testing venue, testers, test kits and consumable, partnering private school provided the exercise books that were distributed.

Lessons learned: There was increased service uptake as a result of the incentives. Out of 6000 adults aged 18 and above that came out for the test, 5986 were tested and received their results. About 20% tested positive. The result of the outreach proves that incentives added to the call for HIV test uptake increases yield. The community members were eager to take up HIV testing despite stigma and fear of test outcome that have always hindered service uptake.

Conclusions/Next steps: HIV testing services should be routine for every Nigerian. Community-based NGOs and other service providers should supplement HIV testing services with incentives to increase service uptake as this is the surest way to guarantee an HIV free generation. Due to increased number of people tested using this strategy, there is need to scale up to other communities to increase testing and general awareness on HIV/AIDS. Incentives can be leverage from other health implementing partners as a support for an intervention.

THPEC284
Combination Prevention among young people in key populations: A Brazilian experience through peer-to-peer education

Ministry of Health of Brazil, Department of STI, HIV/AIDS and Viral Hepatitis, Brasília, Brazil

Background: Young people represent 40% of new HIV infections worldwide. In Brazil, according to the 2017 Epidemiological Report, youngsters aged 15 to 19 accounted for 44.1% of new HIV cases. In order to understand the specific context of the HIV epidemics in this population, we need a focus on their specificities and vulnerability contexts. Combination Prevention Workshop with the participation of young key populations (YKP) was marked by an assertive strategy through peer-to-peer education, emphasizing approaches to enhance sexual health through the exchange of experiences. The purpose of this study is to provide a snapshot of Combination Prevention among YKP, based on the information collected through this strategy.

Description: The Combination Prevention Workshop with YKP is an initiative launched by the Ministry of Health of Brazil in 2017. Six workshops have been conducted, qualifying 380 young people all over the national territory, to act as peer educators for Combination Prevention in their communities. In this strategy, the MoH, in partnership with local STIs and HIV/AIDS managers, carries out the workshops and activities with the purpose of promoting prevention and building an atmosphere of empathy and belonging among these young people. This methodology has enabled the qualification of young peer educators while simultaneously strengthening the teams in charge of the strategy.

Lessons learned: This strategy has helped expanding knowledge and acceptance of Combination Prevention by YKP, paving the way for approaches that are coherent with their specificities and vulnerabilities. Besides sharing experiences, this strategy has also helped young people deconstructing biased ideas and discriminatory attitudes associated with sexual orientation, gender identity, use of alcohol and other drugs, sex work, skin color, race or culture, living with HIV, and people with disabilities, among others.

Conclusions/Next steps: Peer education has shown to improve quality of life of young people. Through this strategy, qualified youngsters have learned to use their knowledge on Combination Prevention and sexual health to develop interventions in their communities, take initiatives and commit themselves to their own health.

THPEC286
HIV-positive women’s perspectives on integrating a screening and brief intervention (sBI) for harmful alcohol use into HIV post-test counseling in Ugandan fishing villages: Assessing acceptability and barriers to implementation

A.P. Miller1, G. Kigozi2, E. Bonnevie1, N. Nakyanjo3, W. Dida4, C. Ssekyyera, J. Wagman1
1University of California San Diego, Medicine, La Jolla, United States, 2University of Washington, Department of Global Health, Seattle, United States, 3AIDS Healthcare Foundation, Durban, South Africa, 4University of KwaZulu-Natal, Department of Infectious Diseases, Durban, South Africa

Background: Women who consume alcohol have increased risk for HIV infection and alcohol use among people living with HIV (PLHIV) is associated with numerous adverse health outcomes. Alcohol prevention research is a global priority, particularly in Uganda’s fishing villages where HIV prevalence reaches 37% and more than half of women drinkers consume hazardous quantities. Evidence suggests reducing hazardous alcohol use can also reduce HIV risk behaviors and that integrating...
alcohol screening and brief interventions (ISB) into health services (e.g., HIV testing and counseling services. HTC) is both effective and low-cost. This study examined women PLHIV’s perceptions of: (1) alcohol’s role in HIV acquisition/ transmission, (2) how learning about HIV-positive status impacts drinking behaviors, and (3) the acceptability of integrating an alcohol reduction SBI into HTC among women in fishing communities in Uganda.

Methods: In-depth qualitative interviews were conducted in January 2017 with twenty female PLHIV (15-49 years) from three Rakai fishing villages. Participants were drawn from a subset of Rakai Community Cohort Study respondents who requested an HIV test and post-test counseling. Interviews were conducted in Luganda by trained female researchers.

Results: Participants felt alcohol contributes to HIV infection by decreasing inhibitions and increasing HIV risk behaviors (e.g., condomless sex). Most felt receiving an HIV-positive diagnosis catalyzes people to change their alcohol behaviors but the direction of change varies, with some placing an increased emphasis on preserving their health and other feeling a diminished incentive to invest in their health. Most felt it was acceptable to intervene on harmful alcohol use at the time of HIV diagnosis and that it would be beneficial to include sex partner(s) in the intervention. Several considerations were flagged as areas to be addressed when designing the SBI (Table 1).

Conclusions: Integrating an alcohol reduction SBI into HTC seems both acceptable and feasible in Rakai’s fishing areas. Our next steps are to tailor the World Health Organization’s alcohol risk reduction intervention, for scale up and evaluation - through a cluster randomized trial— in this setting. This combination prevention approach holds potential to improve the health of the population, the specific community members in fishing areas, and individuals in Rakai, Uganda.

**THPCE287**

High rates of linkage to care outside referral clinics in Botswana: Implications for accurate counting of PLHIV linked to care

P. Bachanani1, M.G. Alwano2, S. Behel1, R. Lebelonyane3, L. Block8, W. Sento6, W. Abrams2, M. Pretorius-Holme7, K. Manyake8, S. Lockman9, J. Moore1

1Centers for Disease Control and Prevention. Division of Global HIV/AIDS, Atlanta, United States. 2Centers for Disease Control - Botswana, Gaborone, Botswana. 3Centers for Disease Control and Prevention, Division of Global HIV/AIDS, Atlanta, United States. 4Centers for Disease Control - Botswana, Gaborone, Botswana. 5Harvard T.H. Chan School of Public Health, Boston, United States, 6Botswana Harvard Partnership, Gaborone, Botswana, 7Bingham and Women’s Hospital, Boston, United States

Background: Evidence indicates that a substantial percentage of persons identified as HIV positive do not link to care. Emerging evidence suggests that many HIV-positive persons enroll in care in clinics outside their local communities; however, the data are often not captured in existing medical records thus artificially lowering linkage to care estimates. We were able to track patients referred through the Botswana Combina- 

Combination Prevention Project (BCCPP) to determine the extent to which persons sought care at clinics outside their community of residence. Methods: BCCPP is a community-randomized trial evaluating the impact of a combination prevention package on population level HIV incidence in 30 communities. HIV testing in the 15 intervention communities included home-based and culturally appropriate methods:

<table>
<thead>
<tr>
<th>Themeatic Area</th>
<th>Supporting Quotes from Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving an HIV-diagnosis can serve as a catalyst for behavior change</td>
<td>&quot;Normally people change their drinking patterns by drinking less in terms of the amount of alcohol they are used to drinking before because alcohol is like poison, when some is diagnosed HIV + they do not need to drink alcohol because alcohol reduces on CD4 count, and yet they struggle to increase on their CD4 count.&quot; [Female, 23 yrs, Ddimo]</td>
</tr>
<tr>
<td>Assessing alcohol use at time of HIV diagnosis is appropriate</td>
<td>&quot;I think its good time because you get to learn how to live your life well.&quot; [Female, 40 yrs, Namirembe]</td>
</tr>
<tr>
<td>Having HTC counselors implement the SBI is acceptable and culturally appropriate</td>
<td>&quot;I perceived stigma around consuming alcohol. But about alcohol use, the counselor might feel that that is how you grew up. The person who drinks is taken to be in another group. I realized that when I drink they see me in a different image. Now that I no longer drink, I see myself in a different image and the people I associate with are respected compared to those I had before. I now sit with different people even though the other ones were my friends. People can now confide in me and tell me their secrets but before, they used to see me moving with people in groups. There are many things that I learnt and can compare them to when I used to drink and now that I am not drinking.&quot; [Female, 23 yrs, Malembo]</td>
</tr>
<tr>
<td>Partners should be included in the alcohol intervention</td>
<td>&quot;Because if they come and counsel me alone without counseling my partner, this will leave me confused when for him he is ignorant. If we are counseled together we all benefit together.&quot; [Female, 23 yrs, Malembo]</td>
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<td>Receiving an HIV-diagnosis can serve as a catalyst for behavior change</td>
<td>&quot;Those who can change. One says, I have been diagnosed with HIV let me reduce drinking alcohol,&quot; and there is one who decides to drink too much after being diagnosed with HIV. He says, ‘Why not drink alcohol? After all I am going to die.’ So he starts drinking [more] than before the diagnosis to the extent of sleeping in bars. He says, ‘Let me drink, I was diagnosed with HIV.’ [Female, 50 yrs, Namirembe]</td>
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<td>Assessing alcohol use at time of HIV diagnosis is appropriate</td>
<td>&quot;Yes, I think it would be good. If one has been going to the bar to drink, he or she can be counseled to stop drinking. A person may drink and then come back and swallow four tablets of ARVs instead on one or two tablets the health worker instructed him to swallow. He wrongly takes the medicine because of drinking alcohol. So I think it would be good for the counselor to talk about alcohol use during the time of diagnosis,&quot; [Female, 23 yrs, Malembo]</td>
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**Table 1: Linked to Referral Clinic vs Outside Clinic by Age and Sex in BCCPP Combination Prevention Communities 1-15**

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<td>375 (70%)</td>
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<td>TOTAL</td>
<td>2,772 (76%)</td>
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**Table 1: Linked to Referral Clinic vs Outside Clinic by Age and Sex in BCCPP Combination Prevention Communities 1-15**

Conclusions: A sizeable proportion of HIV-positive persons linked to clinics and received care and treatment outside their communities of residence. These data highlight the importance of tracking HIV-positive individuals referred for care beyond referral clinics, as estimates of linkage to care that do not account for linkage to outside clinics underestimate the number of PLHIV who enrolled in care. These findings also

**Table 1: Linked to Referral Clinic vs Outside Clinic by Age and Sex in BCCPP Combination Prevention Communities 1-15**

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**Table 1: Linked to Referral Clinic vs Outside Clinic by Age and Sex in BCCPP Combination Prevention Communities 1-15**

Conclusions: Integrating an alcohol reduction SBI into HTC seems both acceptable and feasible in Rakai’s fishing areas. Our next steps are to tailor the World Health Organization’s alcohol risk reduction intervention, for scale up and evaluation - through a cluster randomized trial— in this setting. This combination prevention approach holds potential to improve the health of the population, the specific community members in fishing areas, and individuals in Rakai, Uganda.
emphasize the importance of a national data system with individual identifiers that can track patient data to all clinics so rates of both linkage and retention in care estimates are accurate.

**THPEC288**

Implementing World Health Organization (WHO) recommended Linkage services: Methods, outcomes, and costs of the Bukoba Tanzania combination prevention evaluation peer-delivered linkage case management program. 2014-2017


In Tanzania, the proportion of PLHIV on ART is Increasing, but linkage to care and ART initiation rates could be further improved. Through the implementation of the HPTN 071 (PopART) Study, Tanzania had the opportunity to implement a peer-delivered, linkage case management (LCM) program providing WHO recommended linkage services.

**Background:** Despite improved access to antiretroviral therapy (ART), many people living with HIV (PLHIV) in sub-Saharan Africa, particularly those tested in community settings, continue to delay enrollment in care following HIV diagnosis. To enroll 90% of PLHIV within three months of diagnosis, we implemented a peer-delivered, linkage case-management (LCM) program providing WHO recommended linkage services.

**Description:** Conducted in Bukoba Municipality Tanzania (population: ~150,000) as part of a larger combination prevention evaluation. LCM was provided to clients who tested HIV-positive at 11 health facilities (facility clients), and at homes or community events in 14 urban and rural wards (community clients). LCM services were provided by HIV-positive, peer counselors for up to 90 days. During Test & Start, LCM was combined with same-day ART initiation for both facility and community clients.

**Lessons learned:** Of 4,805 eligible persons, 4,273 (89%) consented to LCM. Of 4,206 (98%) clients with complete indicator data, most received recommended services: counseling on early enrollment in care (90.5%), escort to HIV clinic (83%), treatment navigation (94%), telephone support (77%), and in two separate sessions, counseling on disclosure and partner/family testing (77%), and on real and perceived barriers to care (69%). Enrollment in HIV care and ART initiation within three months of diagnosis increased over time, exceeding 95% and 85% during Test & Start, respectively, for both facility and community clients (Table). During Test & Start, 98% and 97% of males (n=310) and females (n=442), and 96% and 98% of clients aged 15-24 (n=150) and 24-49 (n=535) years, respectively, enrolled in HIV care. Of 463 clients who participated in the last three months of the roll-out of Test & Start, 92% were initiated on ART. Per- client LCM service cost was $54 USD.

**Conclusions/Next steps:** WHO-recommended peer-delivered LCM services achieved early ART initiation for the majority of both facility and community clients in Tanzania at modest cost, and was more successful when combined with same-day ART: In Tanzania, peer-delivered LCM was approved by the Ministry of Health as a new service delivery model in 2017 and is being adopted for national implementation in 2018 by three PEPFAR-supported HIV-prevention and treatment organizations.

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**THPEC297**

Implementing a peer-delivered linkage case management program to improve linkage to care and ART initiation within three months of diagnosis: A three-year study in Tanzania.

B.J. Hayes1, S. Floyd2, A. Schaap1, K. Shanaube2, B. Yang3, S. Griffith1, P. Bock1, N. Beyers3, H. Ayles1, S. Fidler1

**Background:** Tanzania is a country with high rates of PLHIV, with 19,387 adults on ART (second-90) in 2017. However, 9,332 (9.0%) adults were identified as late presenters to care.

**Methods:** The study was a national, community-based, randomized trial conducted in Tanzania (population: ~150,000). The intervention was conducted in 14 urban and rural wards, and at homes or community events. The LCM program provided WHO-recommended linkage services, including counseling on early enrollment in care, and treatment navigation.

**Results:** Of 4,805 eligible persons, 4,273 (89%) consented to LCM. Of 4,206 (98%) clients with complete indicator data, most received recommended services: counseling on early enrollment in care (90.5%), escort to HIV clinic (83%), treatment navigation (94%), telephone support (77%), and in two separate sessions, counseling on disclosure and partner/family testing (77%), and on real and perceived barriers to care (69%). Enrollment in HIV care and ART initiation within three months of diagnosis increased over time, exceeding 95% and 85% during Test & Start, respectively, for both facility and community clients (Table). During Test & Start, 98% and 97% of males (n=310) and females (n=442), and 96% and 98% of clients aged 15-24 (n=150) and 24-49 (n=535) years, respectively, enrolled in HIV care. Of 463 clients who participated in the last three months of the roll-out of Test & Start, 92% were initiated on ART. Per-client LCM service cost was $54 USD.

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**THPEC289**

Achieving the first two UNAIDS 90-90-90 targets on completion of a three-year universal testing and treatment (UTT) intervention in the HPTN 071 (PopART) randomised trial in Zambia and South Africa

P.J. Hayes1, S. Floyd2, A. Schaap1, K. Shanaube2, B. Yang3, S. Griffith1, P. Bock1, N. Beyers3, H. Ayles1, S. Fidler1

**Background:** The 90-90-90 targets aim to substantially decrease HIV transmission but it is unknown whether they can be achieved in urban communities with severe HIV epidemics. We report data from HPTN 071 (PopART), the largest programme delivering universal testing and treatment (UTT) in sub-Saharan Africa, to determine whether the targets have been reached after the three-year intervention.

**Methods:** PopART is a combination prevention intervention comprising annual rounds of home-based HIV testing delivered by Community HIV-care Providers (CHiPs) who also support linkage to care. ART retention and other HIV-related services. CHiP data from four communities in Zambia and three in South Africa receiving the full PopART intervention (including universal ART) were extrapolated to estimate the overall numbers of HIV-positive (HIV+) adults aged 15 in these communities, the proportions who knew their HIV+ status (first-90) and the proportions of known HIV+ adults on ART (second-90) after the third annual round (R3: Sep 2015–Dec 2017).

**Results:** By the end of R3, 75,472 (~100%) households had been visited by CHiPs, and 1,097 adult residents were enumerated of whom 139,951(92%) were contacted and consented to the intervention. Estimated total numbers of HIV+ adults (Table) were 9,332 men and 17,861 women, of whom 87% of men and 94% of women knew their HIV+ status following R3 (first-90). Of these, 86% of men and 95% of women in South Africa.

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<table>
<thead>
<tr>
<th>Estimated number of HIV+ individuals/total population (%)</th>
<th>First 90: Immediately before R3 visit (%)</th>
<th>First 90: End of R3 (%)</th>
<th>Second 90: Immediately after R3 visit (%)</th>
<th>Second 90: End of R3 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ZAMBIA:</strong> Adults who participated Men:</td>
<td>3,736/41,312 (9.0%)</td>
<td>78</td>
<td>97</td>
<td>73</td>
</tr>
<tr>
<td>Women:</td>
<td>9,295/56,345 (16.7%)</td>
<td>82</td>
<td>97</td>
<td>77</td>
</tr>
<tr>
<td>Extrapolated to total population Men:</td>
<td>6,244/64,704 (9.7%)</td>
<td>75</td>
<td>87</td>
<td>79</td>
</tr>
<tr>
<td>Women:</td>
<td>11,418/69,436 (16.4%)</td>
<td>82</td>
<td>94</td>
<td>79</td>
</tr>
<tr>
<td><strong>S.AFRICA:</strong> Individuals who participated Men:</td>
<td>1,557/17,813 (8.7%)</td>
<td>77</td>
<td>93</td>
<td>70</td>
</tr>
<tr>
<td>Women:</td>
<td>4,366/24,461 (17.8%)</td>
<td>88</td>
<td>97</td>
<td>82</td>
</tr>
<tr>
<td>Extrapolated to total population:</td>
<td>3,088/34,245 (9.0%)</td>
<td>77</td>
<td>86</td>
<td>77</td>
</tr>
<tr>
<td>Women:</td>
<td>6,443/68,859 (17.5%)</td>
<td>88</td>
<td>95</td>
<td>84</td>
</tr>
</tbody>
</table>

**Note:** 90-90-90 estimates before/after R3 among individuals (age 15+) who participated in intervention and extrapolated to total adult population.

Among these, 88% of men and 89% of women were estimated to be on ART (second-90) by the end of R3 in Zambia, and 85% of men and 92% of women in South Africa. Estimates displayed by gender and age (Figure) illustrated for Zambia show that both indicators were achieved or exceeded in older adults, but gaps remained in men aged 18-34 years and women aged 15-29 years.
**Conclusions:** After three rounds of intervention in these urban communities with high mobility and migration, we estimated that the first and second go-to targets were reached overall among women and almost reached among men. Continuing efforts are needed to reach the remaining HIV adults not yet diagnosed or on ART, particularly among younger adults where important gaps remain.

**Background:** Few communities in sub-Saharan Africa have achieved the UNAIDS goal of diagnosing ≥90% of people with HIV, particularly for men and persons aged 15-24 years (young adults). To increase diagnostic coverage in Bukoba, Tanzania (population ~1.5 million) and three ministry-supported private health facilities in Bukoba. In each clinic, one of two lay counselors routinely screened patients in waiting areas and referred them for testing conducted by one dedicated nurse. In all 14 urban and rural wards of Bukoba, five-six teams, each with four lay counselors and one nurse, offered HTC to persons encountered at 31,329 testing, and referred them for testing conducted by one dedicated nurse. In all 14

**Methods:** Approaches to engage unreached KPs. Hence, the USAID- and PEPFAR-supported LINKAGES project, led by FHI 360, sought to adapt and integrate surveillance-inspired strategies into outreach programming to reach and engage KPs. 

**Description:** LINKAGES in India piloted enhanced peer outreach approach (EPOA), which adapts respondent-driven sampling from surveillance to reach hidden KP networks at high HIV risk. The referral chain starts with the primary seeds, who in turn refer the peers in their social and sexual networks to HIV testing services, through a coupon-based referral system. These clients, if willing, were recruited as peer mobilizers (PM) and were provided coupons with unique identifiers to refer their peers. In 2017, EPOA was rolled out among female sex workers (FSWs) and transgender women (TG) in Mumbai, Ahmedabad, and Surat, and transgender women and sex workers (SMW) in Chennai and Coimbatore. 

**Outcomes of a 2.5 year comprehensive facility-and community-based HIV testing intervention in Bukoba, Tanzania, United Republic of, lessons learned:**

1. **Lessons learned:** Of 138,259 client encounters during which HTC was recommended, 133,695 tests were conducted (66% PITC, 21% HBHTC, 13% VBHTC), including 56,304 and 43,427 tests among men and young adults, respectively. Compared with other HTC models, PITC had proportionally more female testers (65%), while it was 34% in Mum-...
THPEC292
Community-based interventions as an entry point for men to access HIV testing services

A. Malama-Mananga1, T. Mmusa2, L. Legoaabe1, S. Benyera1, B. Pearce1, E. Azibuike3, L. Kamidzhi4
1Centre for Communication Impact, Community Responses Programme, Pretoria, South Africa. 2Centre for Communication Impact, Community Responses Programme M&E, Pretoria, South Africa. 3Project Support Association of Southern Africa, Monitoring and Evaluation, Bethel, South Africa. 4Project Support Association of Southern Africa, Programmes, Bethel, South Africa

Background: According to a recent study by Sharma et al. 2017 in Sub-Saharan Africa, uptake of HIV testing services by men remains a challenge. HSRC 2017 shows HIV prevalence in South Africa was 21.17% among female compared to men. Many men do not know their HIV status, and this lack of information hinders prevention efforts and attainment of the first 90 of the UNAIDS 90-90-90 strategy. The Community Responses (CR) programme is a USAID/PEPFAR funded community-based HIV prevention partnership with the South African government. It is implemented by the Centre for Communication Impact and Project Support Association of Southern Africa (PSASA).

Description: Using the participatory communication model for dialogue, reflection and action (IDRA), we implemented the CR Programme in informal settlements in high burden sub-districts in Mpumalanga Province, South Africa. Community mobilizers and facilitators use evidence-based HIV Prevention and gender norms curriculum Stepping Stones and One-Man Can to engage both men and women to explore and address the drivers of HIV and Sexual and Gender-Based Violence (SGBV), challenge harmful gender norms in their community and to protect themselves from HIV. An added component is referral to and provision of HIV testing and treatment services. 300 SMS, 150 WhatsApp messages, targeted messages through HOYMAS Facebook and Twitter accounts with more than 5,000 followers. Messages are sent every week to MSM and MSWs based in Nairobi to visit HOYMAS community led clinic in order to access HIV services. In 2016/2017, HOYMAS reached 1,440 new MSM/MSW through ICT based mobilization and 75% of those mobilised visited the clinic for tests. Out of these 202 individuals received HIV positive results and 93% were put on treatment with a 95% adherence level. The PrEP service launched at the clinic has within one year achieved 69% of the two-year target period.

Lessons learned:
- The use of technology based interventions implementation is crucial in enabling key populations led organisations achieve quality health outcomes in HIV programming
- Combining the virtual with the physical while mobilizing MSM/MSW for HIV services is more effective than the use of ICT alone
- Privacy and confidentiality remain crucial issues but they are non-detering concerns

Conclusions/Next steps:
- As an organisation, we will increase our monitoring and evaluation of our ICT based mobilization approaches.
- The evidence from our experience lay a strong emphasis on the utilization of ICT in better implementation of HIV services thus the need to expand it
- HOYMAS to champion for the inclusion of ICT platforms in HIV programming into the national guidelines

THPEC293
Achieving HIV programming goals with male sex workers (MSW) and men who have sex with other men (MSM) through the innovative application of information, communication and technology platforms

P. Njoroge
Health Options For Young Men on HIV/AIDS/STIs, Communications, Nairobi, Kenya

Background: In Kenya, men who have sex with men and male sex workers are responsible for 18.2% of HIV prevalence against the 5.5% prevalence in the general population. Overall rates of HIV continue to decline within the general population while it continues to rapidly increase between MSM and MSW. Since 2015, the Health Options for Young Men on HIV/AIDS and STIs (HOYMAS) has taken advantage of the exponentially growing access to information and communication technology (ICT) to leverage its HIV and AIDS programming enabling it to achieve significant HIV and AIDS prevention and treatment health outcomes.

Description: HOYMAS uses ICT platforms such as Short Messaging Services (SMS), WhatsApp, Facebook, Twitter, and Website to mobilize MSMs and MSWs to access various HIV and AIDS prevention, care and treatment services. 300 SMS, 150 WhatsApp messages, targeted messages through HOYMAS Facebook and Twitter accounts with more than 5,000 followers. Messages are sent every week to MSM and MSWs based in Nairobi to visit HOYMAS community led clinic in order to access HIV services. In 2016/2017, HOYMAS reached 1,440 new MSM/MSW through ICT based mobilization and 75% of those mobilised visited the clinic for tests. Out of these 202 individuals received HIV positive results and 93% were put on treatment with a 95% adherence level. The PrEP service launched at the clinic has within one year achieved 69% of the two-year target period.

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- HOYMAS to champion for the inclusion of ICT platforms in HIV programming into the key national guidelines
tive to contraception, “it’s like a contraceptive pill. Take that pill before having sex but with the risk that... they are not going to catch infection, that is, they are preventing the infection.” Each of the three gender-identity categories (male, female or trans-women) clients framed PrEP along birth control lines.

Conclusions: While birth control may be an efficient way of explaining PrEP to individuals, there is a risk that some may understand PrEP as a contraceptive pill rather than one that decreases chances of sero-converting. Strengthening health education on the effectiveness of PrEP may lead to more accurate dissemination of PrEP information. Carefully discerning between PrEP, birth control and STI prophylactics may decrease risky sexual behavior, STI rates, and unintended pregnancies.

THPEC295
Optimizing the HIV yield through targeted community-based HIV testing strategies: Experience of resources towards elimination of child vulnerability in Côte d’Ivoire

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Background: Community-based HIV testing is one of the flagship interventions of the PEPFAR/USAID funded project. Resources towards Elimination of Child Vulnerability (REVE) in Côte d’Ivoire. After 14 months of implementing HIV testing services (HTS), project data analysis in April 2017 revealed a yield of 0.6%. Although 20,731 individuals (14,913 adults and 5,818 children) were reached by the project with HTS and received their results (75% of the target), only 134 people including 96 adults and 38 children were found HIV positive. This low yield indicated that the project needed to revise the HTS strategy to reach the right people with HTS.

Description: The revision of the HTS strategy early in May 2017 led to a more aggressive approach in the search for sexual partners, and the development of new tools for identification of sexual partners and a HIV risk assessment tool for children, adolescents and adults. Community counselors (CCs) received intensive training on the revised HTS strategy followed by close mentoring and supervision of REVE staff in collaboration with health district officials.

Lessons learned: The deployment of the revised strategy led to the expansion of HIV testing service delivery in the community beyond beneficiary households through HIV screening of other households where sexual partners were found. Individuals identified using the new tools received counseling and testing by CCs. From July to September 2017, 1,254 individuals including 942 adults and 312 children were identified, tested and advised of their HIV status. Sexual partners accounted for 70% of those reached with HTS. Out of the 1,254 individuals tested, 591 (47% adults and 61 children) were found HIV positive recording 19.5% and 56.20% respectively for children and adults HIV yield. This low yield indicated that the project needed to revise the HTS strategy to reach the right people with HTS.

Conclusions/Next steps: As a result of the revised HTS strategy, REVE not only achieved a significant increase in the HIV yield, but also increased the number of individuals reached with HTS, from 75% of the target to 95% of the target.

THPEC296
HIV testing patterns in two community-based approaches to universal test and treat in the HPTN 071 (PopART) intervention in South Africa

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Background: HPTN 071 (PopART) is a community-randomised trial conducted in 21 communities in Zambia and South Africa (SA) with a population of over 1 million, to measure the impact of a combination HIV prevention intervention on population-level HIV incidence, delivered in annual rounds by Community HIV-care Providers (CHiPs), who provide home-based HIV testing services (HTS) door-to-door in the community. In response to a lower proportion of men being reached during home-based HTS (HBHTS), CHiPs offered HTS in tents in areas of high foot traffic. We analysed HTS data to determine whether more men were tested through tent-HTS as compared to HBHTS, and compared other demographic characteristics between HBHTS and tent-HTS to understand HIV testing patterns.

Methods: During annual round three from April 2017-December 2017, when both HBHTS and tent-HTS were offered by CHiPs in six SA communities, tent-HTS was conducted at public transport hubs (4 days), shopping centres (3 days), schools/libraries (6 days), and a community event (1 day). 3-5 tent-HTS events were conducted in each community. HTS was offered through a finger-prick rapid test using the SA National HTS serial testing algorithm. CHiPs collected data on an electronic register. Multivariable logistic regression analysis was used to compare the population reached through HBHTS versus tent-HTS on gender, age, history of prior HIV testing, status as a presumptive TB case, and community.

| Table 1. Characteristics of individuals tested for HIV by lay HIV counsellors at home and in tents in high traffic areas |
**Results:** 32,032 HIV tests were done through HBHTS and 402 during tent-HTS (Table 1 shows characteristics of the population tested). Those testing through tent-HTS were more likely than those testing through HBHTS to be men (aOR 1.9, 95%CI 1.5-2.3), more likely to be from the older age-groups of 25-29/30-39/40-49/50+ (p-values of all aOR's < 0.01), and more likely to be residents of communities SA5/SA6 (agricultural communities further from Cape Town). HIV positivity was slightly higher during HBHTS as compared to tent-HTS but was not significant (2.1% vs 1.7%).

**Conclusions:** Tent-HTS in high traffic areas proved successful in reaching a higher proportion of men, although the absolute number of additional tests was relatively small. Tent-HTS was relatively more successful in agricultural areas. Studies with larger sample size are required to understand differences in HIV testing patterns between HBHTS and tent-HTS.

**THPEC297**

**Integration of PrEP as combination prevention among lesbian, gay, bisexual, transgender and intersex (LGBTI) in public health facilities in Kenya. A case of Mombasa County**

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**Background:** High levels of self-stigma coupled with negative attitude, discrimination and lack of adequate skills among health care workers to handle LGBTI continue to be a hindrance to LGBTI in accessing HIV services. HIV services to LGBTI are predominantly offered by non-governmental organization in most part of Kenya. Since May 2017, LVCT Health a non-governmental organization has been implementing “Towards Universal Comprehensive Health Services for LGBTI (TOUCH Plus)” project in collaboration with the County government of Mombasa to integrate HIV services for LGBTI in public health facilities. The main aim of this paper is to demonstrate integration and uptake of PrEP among LGBTI in public health facilities model in Kenya.

**Description:** A baseline need assessment was conducted targeting LGBTI community based organizations, peer educators and health care workers in public health facilities. Health care workers were trained on delivery of PrEP to the LGBTI. LGBTI peer educators were also trained as mobilizers and attached to the public health facilities. A mentorship, supervision and stakeholders engagement plan was developed and implemented. Data collection and reporting tools were piloted in the facilities from the national system.

**Lessons learned:** A total of 8 facilities were selected in phase 1 for integration of PrEP from May 2017-December 2017. A total of 67, 59 gay men, 8 bisexual male and female were initiated on PrEP. By December 50 (84.7%) of gay men were active on PrEP, and 5 (62.5%) of bisexual men and women. Cumulatively 56 (82.1%) were actively enrolled on PrEP program in public health facilities.

**Conclusions/Next steps:** Integration of PrEP in combination prevention for LGBTI is important to achieve the goal of zero new infections. There is need to for the public health care system to fully integrate PrEP in comprehensives HIV services for LGBTI through creating link with the community, capacity building of providers, provision of PrEP, and strengthening of national and county LGBTI health data management.

**THPEC298**

**Reaching more key and vulnerable population with HIV services through combination prevention campaign**

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**Background:** In Tanzania, ten regions with highest HIV prevalence covered 38% of the general population and constituted to 65% of HIV infections in the country. The nation recognized the need to target these regions with high impact prevention, care and support treatment interventions in order to achieve higher impact. The 2007 national HTC campaigns showed evidence of increased uptake of new testers. However, there was expressed need for other preventive services including VMMC, STI diagnosis and treatment, condoms and social behaviour change communication (SBCC). Combination prevention is an evidence-based approach focusing on provision of structural, behavioural and biomedical interventions at once. We adopted this approach to target key and vulnerable populations, adolescents and adults.

**Methods:** To guide implementation of the combination campaign, standard operating guide was developed for ten diverse regions in 200 wards. The package was not a “one size that fits all” but an ideal menus tailored for specific behaviors within the targeted communities, regions, and risk categories/ drivers of the epidemic. Consideration were made to meet prevention needs of targeted population. A minimum package services included HTS, STI, SBCC, condom programming (public and social marketed), family planning services and provision of VMMC where applicable. Community leader’s were involved from the planning including identification of hot spots wards and sensitization. The campaigns and follow up activities were implemented from July 2016 to December 2017.

**Results:** A significant increased up-take of HIV testing to 739,944 first time testers (M = 324,461 and F = 355,483) HIV positive 4,736 (Male 2080 & Female 2656), 7,429 women screened for cancer; Family planning services were offered to 2,654 women; TB screening 21,166; VMMC 3,594; STI services-727 and GBV 229. Other services offered were Prostate cancer screening 252. Formulation of 200 income- generating groups in each ward.

**Conclusions:** Community mobilization and empowerment during planning including identification of the drivers of the epidemic and location of the hotspots was crucial for a successful Campaign. Follow up activities post campaign promoted linkage and referral to other services.

**THPEC299**

**HIV testing rates among young women aged 15 - 24 years in Nigeria: A situation analysis**

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**Background:** National data suggests that 4.2% of young people aged 15-24 years are living with HIV. (Nigeria GAPR 2015). Over the last few years, a number of prevention interventions aimed at improving access to HIV testing and care programmes have been implemented for these young people aged 15-24 years. The objective of this paper is to ascertain the HIV testing rates among young women aged 15-24 years in Nigeria, identify gaps in prevention interventions and proffer solutions.

**Methods:** Data used in this paper was derived from the nationally representative Multiple Indicator Cluster Survey conducted between September 2015 to January 2017, in the 6 geopolitical zones of Nigeria. A household pre-tested questionnaire was used to collect data in the field.
Innovative behavioural interventions

THPEC300
Sheroes: Feasibility and acceptability of a community-driven, group-level HIV intervention program for transgender women

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Background: Transgender women, especially those of color, experience high risk of HIV acquisition and transmission. To meet the unique needs of transgender women with a focus on those of color and in close collaboration with community, we developed ‘Sheroes,’ a peer-led group-level intervention with 5 weekly sessions addressing the unifying lived experiences of HIV-positive, HIV-negative, and unknown status transition experiences of HIV-positive, HIV-negative, and unknown status trans women.

Methods: We conducted a feasibility and acceptability pilot randomized controlled trial implementation of Sheroes. Participants in the intervention group received 5 weekly sessions of Sheroes; topics included healthy sexuality, communication, transition-related health information, and coping skills. Participants in the control group attended 5 weekly sessions of a group movie night (time and attention control). Preliminary outcome analyses were performed using generalized linear mixed models (GLMMs) stratified by HIV serostatus containing fixed effects for group (control, intervention), time (baseline, 3 month followup, 6 month followup), and their interaction. Pre-specified simple main effects comparisons were made and the time x intervention interaction was examined.

Results: Participants were 45% Black/African-American, 10% Latina, 17% White, 19% Multiracial, 3% Native American, and 2% Asian/Pacific Islander. We found high levels of feasibility and acceptability. 82% of those randomized to intervention attended at least one session and 92% rated their overall experience with Sheroes as ‘excellent’.

Regarding outcomes (see Table 1), for HIV-negative participants in Sheroes we observed reductions in the number of sex partners; the change was sustained at the 6-month follow-up for the Sheroes group (p=.04), but not for the control group (p=.269) relative to baseline.

Conclusions: Sheroes was found to be highly feasible and acceptable to transgender women. Both groups reduced risky sexual behavior, which may indicate a high need for social support among transgender women; however, the control group did not change. Further research is needed to evaluate the innovative strategy for reducing sexual risk among transgender women at risk for acquisition or transmission of HIV.

THPEC301
Outcome evaluation of HIV prevention interventions for people who use drugs in Ukraine based on a bottom-up common factors approach

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Background: Current models of HIV prevention intervention dissemination involve packaging interventions developed in one context and training providers to implement that specific intervention with fidelity. Research shows that providers rarely implement these programs with fidelity due to perceived incompatibility, resource constraints, and preference for locally-generated solutions. In this study, we used the concept of “common factors,” or broad constructs shared by most evidence-based HIV prevention interventions, to train service providers to develop their own programs. Our study examined whether the provider-developed and implemented interventions based on common factors of effective behavioral interventions led to reduction in drug-related HIV risk behavior.

Methods: This study took place in Ukraine between 2012 and 2016. We trained service providers from eight nongovernmental organizations (NGOs) to develop interventions based on a “common factors” approach. Four NGOs’ interventions were selected for effectiveness evaluation. Each NGO conducted its intervention with at least N=130 participants (total N=520). Participants completed a baseline and a 90-day follow-up assessment. The assessment included sociodemographic characteristics and injection and sex-related risk behaviors. Our analysis focuses on injection-related HIV risk behaviors associated with drug acquisition (buying drugs in a preloaded syringe or giving one’s syringe to someone to fill it) and injection common drug container, sharing drug preparation equipment, and front/backloading. We analyzed the prevalence of any risky behavior in drug acquisition and drug injection at baseline and 3-month follow-up.

Results: In three sites, prevalence of both any risk in drug acquisition and any risk in drug injection decreased. In the fourth site, the prevalence of any risk in drug injection decreased substantially; however, the prevalence of any risk in drug acquisition did not change. Injection-related risks decreased between 27 and 30 percent, with baseline prevalences ranging from 53 to 81 percent. Acquisition risks decreased between 14 and 35 percent, with baseline prevalences ranging from 56 to 89 percent.

Conclusions: Our findings suggest that a common factors approach may provide an alternative model to current intervention development and dissemination methods that aim to reduce HIV risk. However, more rigorous assessment is needed such as through a randomized controlled trial and with different target populations in other contexts.
THPEC303
Leveraging social networks and technology for HIV prevention and treatment with transgender women

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Background: In the United States, transgender (‘trans’) women are among the groups most disproportionately impacted by HIV/AIDS. Trans women use social networking sites (SNS) gain access to trans-specific resources and develop social networks. Five focus groups were conducted to better understand how trans women’s social networks and technology-based networking platforms may be leveraged in developing health promotion strategies to prevent HIV acquisition and transmission.

Methods: Between January and February 2015, potential participants were recruited from community-based organizations, through street outreach, and through word-of-mouth (N=39). Each focus group lasted approximately 60 minutes and was audio recorded, transcribed verbatim, and analyzed using Atlas.ti. Prior to the focus group, a brief assessment was administered to each participant to obtain sociodemographic and technology use data (i.e., age; race/ethnicity; sexual identity; HIV status; educational attainment; living situation; main source of income; and frequency of using technology; social network sites and apps). During the focus groups, open-ended questions focused on social network composition, and the use of technology for socialization, partner seeking, and health information.

Results: Participants were racially and ethnically diverse and ranged in age from 20 to 72 years old, with a mean age of 37; 28% were African American/Black, 28% Latina, 26% Caucasian/White, 6% API, and 13% mixed/other. Nearly three-quarters of participants owned a smartphone. The structure and composition of trans women’s online networks were diverse with several participants describing robust and interconnected social networks comprised of many other trans people. Participants relied on technology to establish affiliations and support networks, find and exchange health information and advice, create and share media content, and connect with sexual partners and relationships. Many participants preferred trans-specific or inclusive SNS sites due to experiences of objectification and harassment on mainstream platforms.

Conclusions: In order to reduce risk for acquisition and transmission of HIV among low income trans women, culturally relevant prevention and intervention strategies are needed. The knowledge and expertise of HIV among low income trans women, culturally relevant prevention and intervention strategies are needed. The knowledge and expertise of practitioners and policymakers to inform HIV prevention and care interventions.

THPEC304
Repurposed technology: The process of integrating location-based alerts into an HIV testing app for young men who have sex with men

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Background: In order to reduce risk for acquisition and transmission of HIV among low income trans women, culturally relevant prevention and intervention strategies are needed. The knowledge and expertise of practitioners and policymakers to inform HIV prevention and care interventions.

Methods: Location-based alerts that use real-time geo-data from a mobile application (Sabrang) were adopted for health promotion apps. We describe the development and integration of a location-based alert system for HIV testing into “MyChoices”—an app to increase HIV testing among young men who have sex with men (YMSM).

Results: In initial focus groups with 33 YMSM in 3 U.S. cities, participants expressed interest in location-based alerts for HIV testing but wanted to be able to customize the alert frequency based on individual testing needs or preferences. Using available online resources, local expert consultation and calls to clinics and community-based organizations, we constructed a comprehensive database of HIV testing sites (including hours, cost, type of testing offered) in Boston, MA and Bronx, NY—our initial field-testing sites. This database was integrated into the app along with a location-based alert system that “pings” users with a pop-up notification when geographically near (e.g. within ½ mile) an HIV testing site and due for a test based on their personalized, app-facilitated testing plan.

Conclusions: Acceptability and efficacy testing of the MyChoices app and the location-based alert system is ongoing. If acceptable and efficacious, location-based alerts could be further customized (e.g., set “favorite” locations), expanded to include notification for other services (e.g., pharmacy refills, care appointments), and applied to a broad range of health promotion apps.
A qualitative study of perceived barriers and facilitators to the implementation of social network testing for HIV among MSM with a non-Western migration background

**Methods:**
- **Participants:** 137 MSM-NW, recruited through STI clinics in Rotterdam and Amsterdam.
- **Intervention:** A mobile-optimized online intervention designed to reduce sexual risk behaviors through interactive features including a forum.
- **Results:** Among participants who interacted with the doctor/counselor had correct health knowledge and counseling. Feasibility was demonstrated as participants who interacted with the doctor/counselor had correct knowledge on all methods of HIV transmission as compared to those who did not (p < 0.001). Around two-third respondents felt the ease of usage of app due to privacy and availability of GPS enabled health facility (p < 0.001). Most respondents were satisfied as they received response within 24 hours and had interpersonal counseling. Qualitative investigation showed this application was accepted well since it provided safe and instant pocket information on safer-sex practices as well as ‘near by’ access to health services.

**Conclusions:**
- m-Health tools designed in consultation with community through careful planning of the user interface, results in high acceptability. The application provided an opportunity to express sexual orientation or gender identity to many hidden community members, especially those who interacted with the doctor/counselor had correct knowledge on all methods of HIV transmission as compared to those who did not (p < 0.001).
- Feasibility was demonstrated as participants who interacted with the doctor/counselor had correct knowledge on all methods of HIV transmission as compared to those who did not (p < 0.001).
- Around two-third respondents felt the ease of usage of app due to privacy and availability of GPS enabled health facility (p < 0.001). Most respondents were satisfied as they received response within 24 hours and had interpersonal counseling.
- Qualitative investigation showed this application was accepted well since it provided safe and instant pocket information on safer-sex practices as well as ‘near by’ access to health services.

**Background:**
- Peer-driven social network testing (SNT) for HIV is proposed as a method to promote HIV testing in hard-to-reach populations.
- This qualitative study explored perceived barriers and facilitators to SNT for HIV among men having sex with men with a non-Western migration background (MSM-NW) in the Netherlands. How is SNT best implemented to reach this vulnerable population, while respecting cultural differences and minimizing any negative impacts?

**Methods:**
- Thirteen MSM-NW, recruited through STI clinics in Rotterdam and Amsterdam, were interviewed about SNT from the perspective as a peer providing HIV self-tests to network associates (NAgs). The interviews were recorded, transcribed verbatim, and analysed by thematic content analysis.

**Results:**
- We identified four major barriers: fear, denial, time concerns, and being seen. For example, participants experienced fears that others will find out (either their HIV status or homosexuality) and although Prevent does not seem to be able to reduce fear, being able to test privately and get the result immediately seemed to alleviate some of the experienced fears. A major advantage of SNT is that it serves men who don't openly identify as homosexual, and those who are afraid of being seen at regular testing sites. For implementation, training of peers about HIV testing was also considered an important aspect of SNT, peers needed practical, informational, and emotional support. Finally, participants had very different opinions about sharing test results, while some saw it as an invasion of privacy, others considered it a natural consequence of SNT.

**Conclusions:**
- We expect that SNT will be most successful in networks with a certain level of trust between peers and NAgs, because of the experienced barriers. Peers should be trained in how to start the conversation, how to deal with possible negative reactions, and how to support them after taking the test. Prevent does this by offering support via an e-tool and a peer-coordinator, a person who will personally answer questions and help where necessary. Although fear for the test result will remain, SNT can be tailored to the personal situation of individual friendships, and thus remove general barriers to testing, and facilitate HIV testing among hard-to-reach MSM-NW.

**Background:**
- Young black men who have sex with men and transgender women (YBMSM/TW) are disproportionately burdened by human immunodeficiency virus (HIV). Poor social support and social isolation are associated with decreased viral suppression and risky sexual behaviors, particularly for persons of color. Technology-based interventions that facilitate peer interaction through online forums may improve perception of social support and reduce isolation.

**Methods:**
- HealthMpowerment (HMP) was a randomized controlled trial of a mobile-optimized online intervention designed to reduce sexual risk behaviors through interactive features including a forum. 474 YBMSM/TW aged 18-30 (HIV-negative/status unknown [n=275] and HIV-positive [n=199]) enrolled and completed surveys at baseline, 3, 6, and 12 months. Items included sociodemographics, the Medical Outcomes Study Social Support Survey (MOS-SSS), and the Lubben Social Network Scale (for social isolation). Linear mixed models and generalized linear mixed models explored differences in change over time by intervention group, general HMP site use, number of forum posts, and HIV status.

**Results:**
- Mean age was 24.3 (SD 3.2). Baseline mean score for all participants of perceived total social support was low at 72.0 (SD 27.3) out of 100, and 30% were socially isolated (score < 12). At each time-point, there were no differences in social support or social isolation by intervention group, HIV-positive participants had lower mean social support scores at baseline than HIV-negative participants total social support p=0.02, emotional p=0.03, tangible p=0.05, interaction p=0.002 and reported more isolation (40% vs 23%, p<0.001). Social support scores declined over time, for both HIV-negative and HIV-positive groups.

**Conclusions:**
- Perceived social support was low and social isolation was high in this sample of YBMSM/TW, especially among those living with HIV. Neither factor improved over time regardless of intervention group, intervention dosage, or use of HMP features that facilitated peer discussion. Future technology-based interventions that aim to impact these factors should consider how to optimize virtual spaces to foster peer-to-peer interactions. Additionally, measures that are more sensitive to changes in social support and isolation due to online intervention participation should be explored.
THPEC308
Coaching: Leveraging existing evidence-based interventions (EBI) to create a scalable, adaptable implementation model to increase uptake of the HIV prevention continuum among youth

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Background: The U.S. CDC’s portfolio of evidence-based interventions (EBI) has been broadly diffused with the intention to replicate intervention manuals with fidelity. Substantial evidence suggests that community and clinical agencies, even after extensive training, do not replicate these manuals. Coaching reflects an alternative strategy for synthesizing EBI into their shared theoretical model, foundational skills, common components, and targeted outcomes, and then training paraprofessionals to apply these to coaching young people to adhere to the HIV Prevention Continuum.

Methods: Ratings of five adolescent EBI for HIV and 800 child and family EBI for mental health have identified a common theory, set of skills and components, and a strategy for application to the HIV Prevention Continuum. Five B.A.-level coaches were recruited, each of whom had cultural similarities and sensitivities to youth at highest risk for HIV. After six weeks of training, 43 youth are receiving virtual/in-person coaching. Youth are 49% gay, bisexual, or transgender males (GBTM), 65% are African American, 15% Latino, 28% were previously hospitalized for mental health issues, 14% received substance abuse treatment, and 58% were previously homeless. Coaches track each contact with youth, including the content areas discussed, skills employed and the goals established. Thus far, youth have been followed for an average of four months, but will be followed for 24 months.

Results: To date, coaches have held an average of 2.5 coaching sessions per youth. Youth discussed problems related to daily living (housing, employment) most often (ranging 80% of sessions), with social relationships (48%), HIV-related behaviors (43%), substance abuse (25%) and mental health problems (31%) concurrently reviewed. Of the foundational skills that Coaches were trained to use, goal setting (61%), problem solving (62%), and praise (95%) were employed most often. Youth goals tended to focus on employment, school and transportation (about 15% each). Coaches provided referrals during 22% of sessions.

Conclusions: Coaching allows interventions to be customized to the risk profiles of youth; embraces diversity in the Coaches’ ethnic, gender, language and cultural styles; and, includes strategies for ongoing monitoring of intervention delivery.

THPEC309
Dance for hope, dance to the light: A school-based multimodal approach to address HIV epidemic among youth in Pasig City, Philippines

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Background: The precipitous rise in new HIV cases in the Philippines is alarming! In August 2017, the UN announced that we are now the fastest-growing HIV/AIDS epidemic in Asia-Pacific. DOH reports that two of every three new HIV infections were 15-24 year-old men. Insufficient awareness about HIV continue to be cited as one of the main reasons behind this problem. Systematic reviews on HIV prevention have shown that school-based approaches were efficacious, cost-effective and can produce the largest impact in changing HIV-related behaviors. This report describes a multimodal school-based public-private partnership strategy on HIV/AIDS prevention for Grade 10 students of Pasig City.

Description: This TMC IREACT-initiated outreach project was completed in coordination with the Office of the Mayor; Departments of Health and Education, principals and parents. The target vulnerable population reached were 1012 Grade 10 students. We introduced a multimodal educational strategy with a 2-hour lecture on HIV/AIDS prevention, and an interschool Black Light dance competition on artistic interpretation of HIV prevention. The lecture was based on the UNICEF guidance for HIV in youth and the DepEd K-12 Curriculum Guide Grade 10 and was jointly made by Kalusugang Patrolkap (PC) of the City Government and TMC I-REACT. At the end of each lecture students were invited to join the challenges of an interschool Black Light dance competition: Dance to the Light, Dance for Hope!

On January 2017, a school with over 100 students competed in Black Light theater showing off their original creative works on HIV prevention at TMC auditorium.

Lessons learned: Teaching HIV to the youth requires extensive planning for efficient and effective execution. Teachers themselves must be comfortable to teach HIV and sensitive to the needs of their students. A creative approach to teach complex as HIV to youth is recommended. Volunteers from both private or public groups are valuable. The positive comments of the distinguished judges of the contest inspired the fighting spirits of the performing students, and affirmed the dedication of the coaches, teachers, organizers and parents.

Conclusions/Next steps: An innovative strategy to engage youth into getting interested, fully understand and use the information to change behavior and prevent HIV is badly needed.

THPEC310
Radio as a tool used by girls in Gulu and Gomba-Uganda to broadcast their own created programs around gender roles and HIV prevention

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Background: Negative attitudes towards girl child education among rural communities of Uganda have led to high dropout rates in school among AGYW which has exposed them to the risk of contracting HIV. Observations from project work in Gulu and Gomba districts in Uganda indicate that when a girl has the opportunity to voice her thoughts, opinions, fears, experiences, dreams and aspirations on the radio there are two visible outcomes. Her confidence and sense of self-worth grows. Secondly, when her teachers, friends, parents and neighbors listen to her on the radio they develop a sense of pride towards her and are positive and supportive.

Description: In year 1 of this project funded by PEPFAR through the DREAMS Innovation Challenge through a grant managed by JSI, 518 AGYW ages 15-24 from 10 secondary schools in Gulu and Gomba participated in school meetings to develop radio shows. 279 AGYW received...
THPEC311
GayOK Bangkok: Increasing PrEP awareness among young gay men in Bangkok with a scripted web series

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Background: With support from EJAF and LINKAGES/Thailand—a network of NGOs that work with at-risk populations—APCOM (APCOM’s HIV testing campaign targeting young men who have sex with men [YMSM] in Bangkok) produced a scripted web series called GAYOK Bangkok (http://testbkk.org/GAYOKBangkok). GAYOK Bangkok follows fictional gay characters that represent different ages, body types, gender expression, and HIV status, and it provides a realistic and diverse portrayal of gay individuals of Bangkok. The sexual health messages, including PrEP, are threaded subtly into the storyline, which paints a picture of life drama among the characters. Partnering with Mahidol University of Thailand, APCOM conducted a study to assess the correlation between exposure to the web series and the trend of PrEP use among YMSM.

Methods: A serial cross-sectional survey was conducted with a closed cohort of 500 YMSM ages 15-24 years who reside, work, or attend college/university in central or suburban Bangkok for a baseline evaluation (first assessment) before the release of the web series’ first episode. The participants were then followed up for a second and third assessment at six-month intervals between September 2016 and April 2017. During that period, the web series had released five episodes for Season 1 and seven episodes for Season 2. The numbers of YMSM who participated in the second and third assessments are 270 and 207, respectively.

Results:

Although the first assessment was done before the launch of the web series’ pilot episode, awareness of the series among participants was caused by the pre-premiere promotional materials, such as the posters and teaser promoted through TestBKK’s social media channels. The study found that while the cohort’s exposure to the series increased by 20% between the first and second assessments and between second and third assessments, the awareness of PrEP increased by 23% (between the first and second assessments) and by 16% (between the second and third assessments). All increases were statistically significant (p < 0.01).

Conclusions: Including PrEP into a plot of a scripted gay-themed web series increased the awareness of the medication among YMSM audiences, and therefore, should be considered as an additional strategy for online outreach to this demographic.

THPEC312
Factors related to lack of HIV-screening in people attending French adult erotic industry shows

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Background: The current aim of the fight against the HIV epidemic is to reduce the proportion of missed opportunities for HIV diagnosis. French regional adult erotic industry shows (ES) were thought to be good places to organize awareness campaigns and to propose HIV-RDT to people potentially at risk, with quite an appetite for sex and unsafe practices. This study aimed to document the individual factors associated with HIV screening test approach, sexual behaviors and the proportion of HIV-positive-RDT results.

Methods: A cross-sectional study was conducted in 2015 during 4 ES in which prevention booths were set up with confidential spaces to offer HIV-screening to individuals < 18 years volunteers for HIV-RDT and for respond to a validated anonymous questionnaire.

Results: We tested 943 people, mainly men (64%), young (mean age 30 years), living as a couple (63.7%). A very large majority (95.1%) reported having sexual intercourse over the last year, with 48 mean number of sexual partners and 68.6% with unprotected sex at least once. 37.5% had never been tested and had their first test during this campaign. Drugs (cannabis, 42.6%) and alcohol (64.4%) use were significant. We found 3 (0.37%) HIV-positive RDT results. In multivariate analysis, the 430 participants who reported no previous HIV-testing in the last 5 years compared to the 434 without previous HIV-test, more frequently declared heterosexual intercourse (OR: 2.31) being a man (OR: 1.82), transactional sex (OR: 1.92), living as a couple (OR: 1.67) and having fewer sexual partners (OR: 1.06).

Conclusions: These data showed for the first time the usefulness of HIV-screening and awareness campaigns, in new locations as fun and commercial backdrop events. We were able to find individuals never been HIV-tested and who had no intention of doing so before this campaign. This innovative and original intervention in ES had also enhanced the mobilization of local screening services, both health professionals and associations, who gave HIV informations and talked about sexuality and sexual risk behaviors. However this new model of additional intervention did not prove to be more valuable but complementary of the previous existing HIV screening services in approaching at-risk individuals for targeted intervention.
THPEC313
Improvement in HIV care continuum outcomes among young Black men who have sex with men: Results from forum engagement in the HealthMpowerment intervention

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Background: HIV-related stigma impedes HIV prevention and care. HealthMpowerment.org (HMP) is an interactive online HIV prevention and care intervention for young Black men who have sex with men (YBMSM) in the United States. HMP included three forums where participants shared experiences. We explored whether engaging in stigma-related discussions was associated with changes in HIV-positive YBMSM care-related outcomes.

Methods: HIV-positive YBMSM (ages 18-30; N=107) in HMP completed surveys at baseline, three- (end of intervention) and six- (3 month post intervention) months that included HIV care continuum items (e.g. retention in care, disclosure to partners). We also coded instances when HIV-positive YBMSM posted HIV-related stigma content on the site. We employed growth curve modeling to examine whether changes in HIV-positive YBMSM’s care-related outcomes were associated with stigma-related discussions in the site.

Results: Twenty percent of HIV-positive YBMSM (N=21; 19.6%) composed posts with HIV-related stigma content. HIV-positive YBMSM whose posts challenged HIV stigma were more likely over the 6-month follow- up to report greater provider communication (Cohen’s d=0.51; p<.01), serostatus disclosure to partners (Cohen’s d=0.38; p<.05), easier access to antiretroviral therapy (ART) (Cohen’s d=0.42; p<.05), and more likely to be in care (Hazard Rate=2.92; [1.25,6.83]; p<.01). Conversely, participants whose posts reflected anticipated HIV stigma were less likely to be in care (Hazard Rate = 0.5; [0.1, 2.0]; p<.00) and to have a viral load test in the prior 3 months (Hazard Rate = 0.5; [0.1, 2.0]; p<.01). Participants whose posts reinforced HIV stigmatizing norms were less likely to report disclosing their serostatus to recent sexual partners over time (Cohen’s d=−0.35; p<.05). Participants who shared experiences of HIV stigma were more likely to report lower ART adherence over time (Cohen’s d=−0.57; p<.01).

Conclusions: Developing online strategies to combat stigma remains a key priority. HMP created a space where YBMSM could discuss HIV-related stigma. These discussions were associated with changes in the sample’s HIV care continuum outcomes over time. Online interventions (e.g., social media, apps) should consider the inclusion of forums to address stigma, including resources to overcome anticipated stigma and leverage online peer support within their sites to improve YBMSM’s HIV care outcomes.

THPEC314
A mobile app improves anti-retroviral therapy adherence in HIV-positive stimulant-using men who have sex with men

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Background: Among HIV-positive men who have sex with men (MSM), the use of stimulants such as methamphetamine is associated with elevated HIV viral load and amplified risk of onward HIV transmission. The aim of this study is to assess the feasibility, acceptability, and preliminary efficacy of a mobile app intervention (called “APP”) on anti-retroviral therapy (ART) adherence among stimulant-using MSM (SUMSM).

Methods: We enrolled 90 HIV-positive SUMSM on ART and randomized them to either the APP+ intervention (n=45) or a no treatment control (n=45). Grounded in the IMB model, APP+ intervention components included HIV/ART information, adherence motivational content, and adherence strategies and self-monitoring to improve behavioral skills. Participants randomized to the APP+ intervention were given access to the intervention for an average of 108 days (i.e., 35 months; range=80-120 days). Study assessments occurred every 2 months over a 6-month period, including time in which men no longer had access to the intervention. Data collected were the percentage of men retained, the System Usability Scale (SUS) to assess intervention acceptability, and self-reported percentage ART adherence in the past 30 days.

Results: Participants were a mean age of 37 years (sd=9.9) and living with HIV for 8 years (sd=7.1). Most (67%) men identified as a racial/ethnic minority, 82.2% reported recent stimulant use, and 71% reported condomless anal sex (<2 months). Retention at the 6-month assessment point was 81%. The mean SUS score was 68 (sd=16.9), which is considered average acceptability. Adjusting for baseline 30-day adherence, the APP+ intervention resulted in a 5.3 unit-increment in percent 30-day adherence over the 6-month follow-up period (p<.05; see Figure). Greatest differences were found at month 4, with higher 30-day adherence scores reported among intervention (85%) than control (77%; p<.05) participants. These improvements were not sustained once men lost access to the intervention.

Conclusions: Results provide proof of concept that a scalable mobile application can improve ART adherence in HIV-positive SUMSM. Findings support the need for a Phase II efficacy trial to examine the efficacy of APP+ for optimizing the benefits of HIV treatment as prevention with this high priority population of HIV-positive SUMSM.

Structural interventions

THPEC315
Impact of third party supports on increased access to condoms and outreach services amongst a community-based cohort of sex workers in Canada (2010-2016): Implications for HIV prevention and policy reform

B. McBride, S.M. Goldenberg, A. Murphy, S. Wu, M. Braschel, A. Krüsi, K. Shannon, AESHA Study Team
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Background: Despite growing evidence of the harms associated with criminalization, many countries continue to criminalize all/most aspects of the sex industry, including third party actors (e.g., receptionists, security), in large part due to misconceptions that assume third parties to be inherently exploitative (e.g., ‘pimps’). Given limited epidemiological research on how third party involvement shapes access to health and HIV/STI prevention, we draw on longitudinal community-based research to examine the impact of third parties supports on access to HIV prevention and community-led services amongst sex workers in a Canadian setting.

Methods: Prospective data (2010-2016) were drawn from AESHA, a community-based open cohort of 900+ cis and trans women sex workers working across diverse indoor, outdoor, and online spaces in Metro Vancouver, Canada. Despite growing evidence of the harms associated with criminalization, many countries continue to criminalize all/most aspects of the sex industry, including third party actors (e.g., receptionists, security), in large part due to misconceptions that assume third parties to be inherently exploitative (e.g., ‘pimps’). Given limited epidemiological research on how third party involvement shapes access to health and HIV/STI prevention, we draw on longitudinal community-based research to examine the impact of third parties supports on access to HIV prevention and community-led services amongst sex workers in a Canadian setting.

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Conclusions: Results provide proof of concept that a scalable mobile application can improve ART adherence in HIV-positive SUMSM. Findings support the need for a Phase II efficacy trial to examine the efficacy of APP+ for optimizing the benefits of HIV treatment as prevention with this high priority population of HIV-positive SUMSM.

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Methods: Prospective data (2010-2016) were drawn from AESHA, a community-based open cohort of 900+ cis and trans women sex workers working across diverse indoor, outdoor, and online spaces in Metro Vancouver, Canada.
Vancouver. Women with lived experience (sex workers) are represented across interviewer, nursing and coordinator teams. Women are invited through mobile outreach and complete interviewer-administered questionnaires on a semi-annual basis. Bivariate and multivariable logistic regression with generalized estimating equations were used to test the association between any means of violence (1) vs. no violence (0), with the following independent variables: sex workers' access to HIV/STI prevention and community-led services (aOR 1.61, 95%CI 1.15-2.24), and who experienced recent physical/sexual violence from clients (aOR 2.07, 95%CI 1.41-3.04) had higher odds of accessing third party supports. In separate multivariable GEE confounder models, accessing third party support was independently correlated with accessing condoms through mobile outreach (aOR 1.84, 95%CI 1.47-2.31) and accessing sex worker-specific/community-led services (aOR 1.61, 95%CI 1.15-2.24).

Conclusions: This research suggests that access to third party supports increases sex workers’ access to HIV/STI prevention and community-led outreach services. Given continued criminalization of third parties in Canada and globally, this evidence suggests health and safety needs for policy reforms to fully decriminalize sex work to ensure sex workers’ labour rights and protections, including access to third party supports.

THPEC316
'Community Squad' a vehicle to address violence against female of sex workers (FSWs)
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Background: Violence against women is very high in Bangladesh. A recent government survey revealed violence in any means against married women from common walk is very high (80%). [Bangladesh Bureau of Statistics, 2013]. This situation is worse for 102,206 (Mapping Estimates, 2015) FSW's in Bangladesh. These population is highly stigmatized and subjected to many forms of discrimination in the society and at the government facilities. Police and administrative entities also harass them. During July 2016 - November 2017, community squad got huge responses from the FSWs community under the coverage. 519cases of different merits were addressed by them. Analyzing the addressed cases 22 were violence victims 227 cases were discriminated. Victims were referred for treatment at public health facility and was linked for legal aid support. Different measures for gender sensitization and empowerment have been communicated by the Squad and the case studies have been documented for future references.

Lessons learned: During July 2016 - November 2017, community squad got huge responses from the FSWs community under the coverage. 519cases of different merits were addressed by them. Analyzing the addressed cases 22 were violence victims 227 cases were discriminated. Victims were referred for treatment at public health facility and was linked for legal aid support. Different measures for gender sensitization and empowerment have been communicated by the Squad and the case studies have been documented for future references.

Conclusions/Next steps: Community squad for FSWs has been proved as a sustainable services to address violence against FSWs. It helps to see the scale of violence in different times of the society and raise voice of the community. Presently the squad is operating only in the capital, Dhaka city, but soon the arena will be widened countrside.

THPEC317
Preventing HIV in Botswana through support networks of young women
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Background: One fifth of the population in Botswana is infected with HIV, and most new cases occur in young women. Poverty, poor education, and gender-based violence mean that many rely on transactional sex to provide for themselves and families. The INSTRUCT trial is a structural intervention that aims to help marginalized young women access existing government support programs to find work or return to education. The challenge is to figure out how to reach marginalized young women to include them in the intervention and ensure we are reaching those who will benefit most.

Methods: We carried out a social network analysis with 307 young women (16-29) not in work and not in school in 4 communities in Moshupa, Botswana in 2017. In a cross-sectional survey, we asked about their support networks, including who they turn to when socializing, for emotional support, and for information about jobs or school. Qualitative focus groups allowed for a contextualization of our findings. Our participatory approach involved community members, including young women, in recruitment and dissemination of results.

Results: Sociometric analysis found that marginalized young women were more connected to each other in rural rather than urban settings (see attached image). Participants sought a diversity of young women for support (in terms of age, education, and others), though the poorest young women were rarely the most central. Ego-centric analysis allowed us to explore the broader support networks of young women. When seeking information about work or about returning to school, they tended to seek support from family members (87%), rather than friends, and they turned to women (86%) more often than men. Multivariate analysis showed that the least educated participants were more likely to seek information from others that were poorly educated (OR = 2.36 (1.63-3.41), or that lived in the same community (OR = 1.89 (1.28-2.78)), findings that were corroborated during the focus groups.

Conclusions: Studying social networks can provide insight into reaching marginalized populations with interventions. Targeted outreach of the poorest and least educated young women may be necessary and outreach through young women’s networks seems more feasible in rural settings.
Measuring and enhancing retention and adherence in HIV prevention programs

**THPEC318**
Increasing trends in PrEP use in young men who have sex with men from 2014 - 2016: Interim findings from the P18 cohort study

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**Background:** There is substantial evidence supporting the use of pre-exposure prophylaxis (PrEP) to prevent HIV seroconversion in adult men who have sex with men (MSM). While awareness of PrEP has increased among both older adult and young/ emerging adult, MSM, information on PrEP uptake among young men who have sex with men (YMSM) is limited.

**Methods:** The P18 Study is on-going, prospective cohort study of young men who have sex with men residing in the New York City metropolitan area. The cohort study was initially launched in 2009 with enrollment re-opened in 2014. All participants were between the ages of 23-24 at re-enrollment. Participants were recruited via community- and venue- based recruitment efforts. All participants took part in semi-annual visits that included audio-computer based behavioral assessments. 

**Results:** In this sample of n=666 YMSM (26.1% White, 27.4% Black, 32.2% Hispanic/Latino, 27.7% Asian Pacific Islander, and 7.7% Multi-Ethnic or Other). n=274 were retained from the original cohort and n=391 were newly recruited. At baseline, 8.9% of participants reported ever using PrEP with increases in PrEP use across 4 waves of semi-annual visits (wave 2: 10.7%, wave 3: 12.8%, wave 4: 13.7%; p trend < 0.05). There were no racial/ethnic differences in PrEP uptake across all study waves. In multivari- able logistic regression analysis, ever use of PrEP was associated with an increased odds of condomless anal insertive sex in the last 30 days (OR=2.27, 95% CI 1.29, 3.98) and use of gamma hydroxybutyrate (GHG) in the last 30 days (OR=10.93, 95% CI 2.78, 43.02).

**Conclusions:** These interim findings suggest that, between 2014 - 2016, PrEP use increased among YMSM residing in the NYC metropolitan area. Also, based on these data, these increases in PrEP use did not differ by race/ethnicity. However, since engagement in sexual and drug use behaviors that may increase risk for HIV acquisition persist in this sample of YMSM, efforts to continue providing PrEP information and promoting PrEP uptake should be maintained. Targeted efforts to inform providers serving YMSM are warranted as well.

**THPEC320**
Daily or event-driven PrEP? Interim results of “Be-PrEP-ared”, a PrEP demonstration project among men who have sex with men in Belgium

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**Background:** “Be-PrEP-ared” aims to assess uptake, acceptability and feasibility of daily and event-driven Pre-Exposure Prophylaxis (PrEP) regimens among men who have sex with men (MSM) and transgender women at high risk for HIV. We present findings of regimen choices, sexual behaviour and adherence of the first 12 months of follow-up (FU).

**Methods:** In this prospective cohort study, participants choose between daily or event-driven Truvada (TDF/FTC). They are allowed to switch, discontinue or restart regimens at three-monthly visits. At each visit, participants receive preventative counselling, fill in a behavioural questionnaire, and provide samples for STI testing. Daily sexual behaviour and PrEP use are self-reported using a web-based diary. We performed an interim analysis on data from baseline (M0) to month 12 (M12).

**Results:** From 09/2015 - 12/2016, 197 MSM and 3 transgender women were enrolled in the study. Their median age was 18 years (range 22 - 70 years). Initially, 76.5% chose daily and 23.5% event-driven PrEP. Feeling able to anticipate HIV risk was the most frequent reason for preferring event-driven PrEP: During 12 months FU, 28 participants (14%) switched regimen and five discontinued PrEP. Main reasons for switching included changes of life/partner situations, frequency of sexual contacts, simplicity, travel and side effects of Truvada. Adherence, measured as the proportion of participants reporting 100% high risk sex acts covered by PrEP, was 77.7%, 80.5%, 85.6% and 79.8% at respectively M3, M6, M9 and M12. The reported median number of sexual partners in the past 3 months was 32, 6 and 3 for all, anonymous and occasional partners respectively. These numbers remained steady over the FU period of 12 months and were consistently higher when comparing daily with event-driven users. In total, 54.7% of the participants reported less condom use during receptive anal intercourse with occasional partners at M12 as compared with the baseline. The incidence of bacterial STI was 75% in persons-years, but no new HIV infections were observed.

**Conclusions:** Event-driven PrEP was chosen by 23% of the participants and adherence to PrEP was high. Despite high rates of receptive condomless sexual intercourse and STI during FU, no new HIV infections were observed.
THPEC321

HIV treatment outcomes among female sex workers and men who have sex with men in Cameroon

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Background: In Cameroon, there are significant numbers of female sex workers (FSW) and men who have sex with men (MSM) living with HIV. Specific strategies to diagnose and initiate treatment are integral to optimize health outcomes and decrease onward HIV transmission.

Methods: In 2016, FSW (sex work as principal source of income in past year) and MSM (anal sex with man in past year) aged 18+ years were recruited via respondent-driven sampling from five cities of Cameroon for a biobehavioral survey including HIV and viral load (VL) testing. Among participants living with HIV, indicators of the HIV treatment cascade were compared between FSW and MSM using t-test-of-proportions, 0.05 significance; viral suppression (VS) was defined as < 1000 copies/ml. Association between population and VS was assessed using Poisson regression, controlling for clustering by site and time since diagnosis.

Results: Overall, 2,265 FSW (median age:28; IQR:23-36) and 1,322 MSM (median age:23; IQR:21-26) were recruited. Prior HIV testing was reported by 2,029(90.1%) FSW and 568(72.5%) MSM (p<0.01). In the year prior, 1,391(55.3%) FSW and 728(55.1%) MSM (p=0.02) were previously diagnosed. Unadjusted-HIV prevalence was 24.2% among FSW and 20.7% among MSM (p=0.01; 290(5.2%) FSW and 115(8.1%) MSM were previously diagnosed (p=0.01). Of these, 23(8.2%) FSW and 76(6.1%) MSM reported initiating antiretroviral therapy (ART) (p<0.01).

Conclusions: Once diagnosed and enrolled into treatment services, both populations reported engaging in sustained treatment, but there were notable gaps and disparities in testing/treatment uptake. There is evident need to rapidly expand testing modalities-including HIV self-testing, consider novel strategies for ART delivery, and evaluate PEP as a means of reducing new diagnoses among key populations in Cameroon.

THPEC322

Dapivirine vaginal ring-004: Male partner perceptions and experiences

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Background: The dapivirine vaginal ring (DVR) demonstrated to be safe and effective in preventing HIV-1 infection in a Phase III trial (IPM 027/The Ring Study). Adherence to ring use may be influenced by multiple factors, including the perceptions and experiences of male sex partners.

Methods: The Ring Study was a phase III, randomized, double-blind, placebo-controlled trial using DVR, inserted monthly in healthy, sexually active HIV-negative women, 18 to 45 years of age. The trial was conducted at seven research centers in Sub Saharan Africa over 104 weeks.

Results: 1958/1999 women enrolled used the ring. The majority of those enrolled had a main sex partner (1924/1999, 98.2%). Results are provided according to the number of women who completed a questionnaire.

Most women reported that their male partner knew they participated in the trial (1295/1913, 67.7%). Some participants reported concern that their partner might not like the ring (1278/1820, 15.3%). At each post-enrollment assessment, -95% of participants self-reported they were 100% adherent to ring use. After 24 weeks, most women reported that their partner did not feel the ring during sex (1419/1790, 83.0%). Of those who reported that it was felt by the partner (289/1700, 16.9%), most participants did not mind the way it felt (189/289, 65.6%). After 104 weeks, most reported that their partner knew they were in the trial (686/813, 84.4%) and that their partner knew they were wearing the ring (654/686, 95.3%). By 104 weeks, few women were worried about their partner not liking the ring (3/819, 0.4%). Most participants reported that they could not imagine wearing the ring without telling their partner (472/808, 58.4%). HIV-1 risk reduction was higher when the participant reported that her partner was aware of ring use (53.8%, 95% CI: 21.1 - 73.0) than when not aware (41.1%, 95% CI: 57.5 - 41.6). Degrees of partner support differed, and partner resistance or lack of support was more common among young women.

Conclusions: Social and behavioral data from this trial suggest that partner perceptions and support could affect ring use. Male engagement in future trials should be considered.

[Development and overview of the HIV treatment cascade among FSW and MSM in Cameroon, 2016]

The median time since initiating ART was 51.5 months (IQR:15.7-98.4) among FSW and 8.0 months (IQR:3.9-27.3) among MSM. After initiation, 37.05% FSW and 21.28% MSM reported any treatment interruption (p<0.02), but the majority (99%) self-reported currently on ART. Among individuals who had initiated ART at least 6-months prior to survey and with VL result available, 159(81.1%) FSW and 37(92.5%) MSM were virally suppressed (p=0.08). When controlling for years since diagnosis, MSM were marginally more likely to be virally suppressed than FSW (IRR 1.13, 95%CI:1.00-1.28, p=0.04).

Conclusions: Once diagnosed and enrolled into treatment services, both populations reported engaging in sustained treatment, but there were notable gaps and disparities in testing/treatment uptake. There is evident need to rapidly expand testing modalities-including HIV self-testing, consider novel strategies for ART delivery, and evaluate PEP as a means of reducing new diagnoses among key populations in Cameroon.
THPEC323
Retention on ART within the HPTN 071 (PopART) universal testing and treatment programme in Zambia and South Africa

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Background: HPTN 071 (PopART) is a community-randomised trial of the impact of a combination HIV prevention intervention on population-level HIV incidence, conducted in Zambia and South Africa (SA). The PopART intervention is delivered in three annual rounds (R1-R3) by Community HIV-care Providers (CHiPs) who provide home-based HIV testing services, referral for HIV care and antiretroviral therapy (ART), and follow up HIV+ clients to provide adherence and retention support. The aim of this analysis was to provide estimates of retention on ART among individuals in seven communities randomised to receive the PopART intervention, where routine viral load testing was not readily available.

Methods: The analysis included individuals aged 18-69 from R3 (September 2016-December 2017) known to the CHiPs as HIV+ and had self-reported ever taking ART. A cross-sectional measure of retention during R3 was defined as the proportion who, on the date of the R3 visit, self-reported taking ART within the last month and had not missed pills in the last three days. Retention at 6-12 months was defined using an individual’s self-reported ART start date and the CHiP visit closest to 6/12 months after this date.

Results: In the four Zambian communities, on the date of the R3 visit 95.0% (4,339/4,651) were retained on ART. Restricting to those who initiated ART after the PopART intervention in 2015, 94.7% (4,882/5,186) were retained on ART. Corresponding proportions in the three SA communities were 94.6% (4,339/4,651) and 93.5% (2,700/2,427) (table 1).

In Zambia retention in care 6-12 months following ART start was 93.0%/94.5% compared with 90.9%/91.1% in SA. A difference was observed when an individual first participated in the PopART intervention in R3 or had participated previously in R1 and/or R2. Those participating previously had a lower proportion retained than those participating for the first time (e.g. 6 months retention in Zambia was 92.6% in previous participants compared to 98.5% in first time participants, with 89.4% vs. 96.0% in SA).

Conclusions: Overall self-reported retention was high. Estimates from individuals who participated in R1 and/or R2 are considered more reliable, as they use a history of CHiP follow-visits rather than a single self-report during R3.

<table>
<thead>
<tr>
<th>Time at which retention was measured</th>
<th>At time of R3 visit</th>
<th>At time of R3 visit</th>
<th>At time of R3 visit</th>
<th>At time of R3 visit</th>
<th>6 Months after ART start date</th>
<th>12 Months after ART start date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambia 9 Retained (All)</td>
<td>94.7% (4,339/4,651)</td>
<td>96.1% (4,339/4,651)</td>
<td>92.6% (4,339/4,651)</td>
<td>98.5% (4,339/4,651)</td>
<td>95.4% (4,237/4,382)</td>
<td></td>
</tr>
<tr>
<td>SA 9 Retained (All)</td>
<td>91.1% (2,700/2,427)</td>
<td>94.2% (2,700/2,427)</td>
<td>92.6% (2,700/2,427)</td>
<td>98.9% (2,700/2,427)</td>
<td>94.1% (2,700/2,427)</td>
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</table>

(Self-reported ART on the seven communities in Zambia and S Africa in the HPTN 071 (PopART) trial)

THPEC324
On feasibility and effect of extended Integrated next step counseling on subjects’ adherence to HIV pre-exposure prophylaxis in the Senegal PreP demonstration project

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Background: Prophylactic use of antiretroviral drugs among individuals at high risk of HIV infection constitutes a cornerstone for HIV eradication programs. The effectiveness of orally administered PrEP is however dependent on subjects’ adherence to the once daily dosing regimen. Demonstration projects in Senegal, Kenya and Nigeria have been implemented to test the feasibility, scalability and effect of measurement-guided adherence-enhancing interventions in resource-limited settings. This abstract focuses on the project conducted in Senegal.

Methods: The program has been conducted among female sex workers in 4 Ministry of Health (MoH)/run clinics in Dakar, Senegal. An Integrated Next Step Counseling (iNSC) was used for adherence counseling to optimize exposure to prophylaxis. The iNSC is a strengths-based discussion focused on PrEP adherence needs and tailored strategies to support individuals. The iNSC has been extended to rely on reliable and precise measure of medication adherence using Medication Event Monitoring System (MEMS). MEMS timestamped each opening of a medication package, providing a sound proxy for medication intake. Resulting dosing history data were used as individual feedback during the adherence counseling. The effect of this adherence-enhancing intervention is quantified and tested using longitudinal logistic regression models.

Results: Between July and November 2015, 350 individuals were identified, 321 (91.7%) were preliminarily eligible, and 267 (83.1%) were enrolled for up to 12-months of PrEP. 181 subjects were electronically monitored and entitled to receive extended iNSC counseling sessions. According to MEMS data, an estimated 63% of the subjects took their medication daily as prescribed during the month prior to the first intervention, with large disparities between centers ranging from 51% to 76%. The odds of taking the drug daily as prescribed after intervention was twice the odds pre-intervention (Odds Ratio 2.06, 95% CI 1.57-2.70, p < 0.001). Therefore, daily, the proportion of subject adherent to the prophylaxis was 17% higher after receiving extended iNSC counseling. Conclusion: These results suggest the feasibility of adherence counseling sessions using adherence data as feedback in resource-limited settings. They also show the effect of the extended iNSC intervention on adherence to PrEP prophylaxis. Further analyses on the effect of recurrent interventions and their effect over time are ongoing.

THPEC325
Bi-directional communication in a text-messaging intervention with pregnant and postpartum women living with HIV in Kenya

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Background: Text-messaging interventions can be an effective method for enhancing antiretroviral therapy (ART) adherence and retention in care. An important component of text-messaging interventions is a bi-directional aspect, in which recipients of messages can communicate with healthcare providers for additional information and support.
Methods: The MOTIVATE! Study (R01-DK080877) is a cluster-randomized trial of interventions to support adherence and retention in care among pregnant/postpartum women living with HIV in southwestern Kenya. Women in two arms of the study receive weekly text messages starting in pregnancy, up to 12 months postpartum. Calls from participants to the free call-back number are recorded in a log, including date, type of contact (SMS or call), caller, content of the call, and response made. Content analysis methods were used to code the log and multivariate logistic regression analysis was utilized to examine which types of participants were more likely to utilize this service.

Results: From May 2016-Nov 2017, out of 670 participants at text-messaging sites, 225 calls/messages were received from 202 participants (32.2%). Around half of calls (49.1%) were made during pregnancy. Content of calls included: asking help regarding a health problem (32.2%), asking for health-related information (27.3%), updating the study team (11.0%), general support requests (4.5%), questions/complaints about health services (2.6%), and questions/acknowledgement about text messages (11.0%).

Types of health problems reported included maternal symptoms during pregnancy, delivery, or postpartum; infant illnesses; and ART side effects. Health-related information requested included infant feeding options, risks of mother-to-child transmission, family planning choices, and labor/delivery preparations.

Between June-November 2017, effects of the national nurse’s strike were also reflected in the calls, with participants asking about the availability of basic health services. In multivariate analyses adjusted for study arm and parity, women who had been on ART for less than 24 months were 1.8 times more likely to use the bi-directional service, as compared to women who had been on ART longer (95% CI: 1.4-2.5).

Conclusions: The opportunity for bi-directional communication is well utilized by participants in this text-messaging study, especially by women with less time on ART. Bi-directional communication may help explain the effectiveness of text-messaging interventions.

**THPEC326**

**Randomized controlled trial of daily text messages to support adherence to pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) and transgender women (TGW): PrEP Brasil pilot study**


**Background:** Short-text-messaging (SMS) has emerged as an important communication tool in the health arena and may improve adherence to treatment. We evaluated the effectiveness of SMS in improving adherence to daily emtricitabine/tenofovir (FTC/TDF) for PrEP among MSM and TGW.

**Methods:** PrEP Brasil was a prospective, multicentre, open-label demonstration project assessing PrEP delivery in the context of the Brazilian Public Health System. A pilot sub-study of interactive SMS was offered to all participants at the screening visit. Individuals who agreed to participate were randomized 1:1 to intervention (SMS) or standard-of-care (SoC), which included adherence counseling. SMS was launched weekly to participants at a pre-determined time. Retention at week 48 was evaluated, as well as adherence, evaluated by tenofovir-diphosphate (TFV-DP) concentrations measured using LC-MS/MS. Adequate and optimal adherences were defined as TFV-DP ≥700 fmol/punch and ≥1250 fmol/punch, respectively. Medication-possession-rate (MPR) ≥1 was used to verify if participants had enough pills for daily PrEP since the last pharmacy refill. Chi-square test was used to compare study arms. Logistic regression was used to evaluate factors associated with MPR≥1.

**Results:** From 450 participants included on PrEP Brasil, 417(92.7%) were randomized to SMS or SoC, 6(1.3%) refused to participate. 0.4%/1250 fmol/punch were from São Paulo. 102(4%)/were from São Paulo. 29% of participants who were randomized to SMS or SoC; 6.9%(31/450) refused to participate, 0.4%/1250 fmol/punch were inelegible. Median age was 30 years(10.25-35) was used to 24(9.50%) were from São Paulo. 102(4%)/were aged 18-24 years. 25(0.1%)

**Table 1. Retention, adherence and MPR at week-48**

<table>
<thead>
<tr>
<th></th>
<th>SMS n=207</th>
<th>SoC n=210</th>
<th>Total n=417</th>
<th>p-value (chi-square)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention at week 48</td>
<td>117(56.5)</td>
<td>100(46.5)</td>
<td>217(52.3)</td>
<td>0.21</td>
</tr>
<tr>
<td>Adequate adherence (&gt;42500 samples/ week)</td>
<td>133(65.1)</td>
<td>125(59.5)</td>
<td>258(62.3)</td>
<td>0.73</td>
</tr>
<tr>
<td>Optimal adherence (&gt;74500 samples/ week)</td>
<td>44(21.6)</td>
<td>52(25.4)</td>
<td>96(23.7)</td>
<td>0.23</td>
</tr>
<tr>
<td>MPR≥1</td>
<td>134(65.1)</td>
<td>113(54.4)</td>
<td>247(59.2)</td>
<td>0.06</td>
</tr>
</tbody>
</table>

**Conclusions:** In PrEP Brasil, SMS was launched weekly to participants at a pre-determined time. Retention at week 48 was used to verify if participants had enough pills for daily PrEP since the last pharmacy refill. Chi-square test was used to compare study arms. Logistic regression was used to evaluate factors associated with MPR≥1.

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**THPEC327**

**Retention-in-care after implementation of a phone-call tracing strategy, in HIV-infected individuals on antiretroviral treatment in Guinea**

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**Background:** Retention in care at 12 months remains below 90% in HIV cohorts followed by MSF in Conakry, Guinea. MSF has implemented differentiated-models-of-care to serve the needs of people leaving with HIV/AIDS, among them the phone-call tracing strategy directed at patients who missed a follow-up visit. We describe the impact of this strategy on long-term retention in care.

**Methods:** This is a retrospective study based on routinely collected MSF program data. The eligible population was HIV patients on ART enrolled at Matam clinic, who missed a scheduled appointment between 2014-16. Cox proportional hazards models were used to assess the association between the phone call strategy and attrition from care following missed visit after adjusting for other demographic and clinical factors.

**Results:** 2153 patients with a median of 3.7 years (IQR 1.4 - 5.9) on ARVs among those with a contact on file and 2.8 years IQR 0.6 -5.7) among those without a phone contact; with a total of 3261 missed appointments were included in the analysis. In 37% (n=1203) of the missed appointments the patient was successfully reached by telephone. Amongst those in the other 63% (n=2058) missed appointments, 41% (n=834) could not be reached because there was no contact number in the patients file. 33% (n=718) patients returned to care after being telephoned. Thirty-nine percent (n=864) of patients had 6 month spacing between visits. As compared to individuals reached by telephone, the risk of attrition was significantly higher amongst those that could not be telephoned, but had a telephone (HR=2.05, 95%CI: 1.45-2.91 / AHR=1.86, 95%CI: 1.31-2.64), and those that had no available contact details (HR=1.40, 95%CI: 1.02-1.93/AHR=1.34, 95%CI: 0.97-1.84). Those that did not have 6 month spacing between appointments, had the highest risk of attrition after a missed appointment (HR=3.28, 95%CI: 2.29-4.68 / AHR=3.35, 95%CI:2.61-4.83).

**Conclusions:** Contacting patients via telephone and implementing six-month visit spacing for stable patients, both elements of differentiated care, are associated with decreased attrition from care. Nevertheless,
in order to maximize efficiency, it is important to ensure contact details are updated in the patient file regularly. Additional understanding of the profiles of patients needing more attention will help contextualize such interventions.

**THPEC328**
Acceptability of a mobile health intervention to improve retention in care among young adults living with HIV in Peru: A mixed-methods evaluation

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**Background:** Effective interventions tailored to meet the needs of young adults living with HIV are essential to meet UNAIDS’ 90-90-90 targets. Mobile Health (mHealth) interventions, including reminder and motivational short message services (SMS), are associated with improved attendance to health facilities. For this reason, we implemented a single-arm pilot mHealth intervention aimed towards improved retention in a public hospital in Peru, and conducted a mixed-methods evaluation of its acceptability among young adults.

**Methods:** For six months (November 2016-August 2017), young adults (18-29 years) with HIV received:
- (i) SMS reminders prior to their scheduled visits;
- (ii) motivational SMS after each visit; and
- (iii) phone call after missed visits.

End-of-study acceptability surveys included Likert scales to assess perceived clarity, utility and privacy, and open fields on positive and negative characteristics of the intervention. Participants were invited to focus group discussions (FGD) to share thoughts and experiences with the intervention, including suggestions for improvement. We analyzed qualitative data thematically to provide supplementary explanatory value to quantitative survey data.

**Results:** Among 80 intervention participants, 64 (80%) completed end-of-study surveys. Participants agreed that SMS messages were clear (100%), helped to remember appointments (100%), and motivated them towards continued attendance (92%). Participants agreed that privacy was maintained in messages (99%) and phone calls (95%). Reported positive characteristics of the intervention in open fields were effective reminders (n=40), feeling supported (n=32), and respect for their privacy (n=26). Negative characteristics included discomfort due to phone calls (n=7) and SMS being unidirectional (n=2). All participants agreed that they would recommend the intervention to others (100%). Eleven participants joined in three FGD: several reported receiving emotional and instrumental support from the intervention, including a perceived sense of care and timely reminders about visits. Suggestions for improvement included implementing a two-way messaging platform, as well as potentially using chat-based mobile applications.

**Conclusions:** A mHealth intervention to improve retention in HIV care was shown to be acceptable among young adults in Peru. As SMS may promote retention via discreet reminder prompts and supportive motivational messages, further interventions of this type may be a crucial component to meeting UNAIDS goals.

**THPEC329**
Sports betting centres and mobile health engagement: How to find, link, and retain men for HIV prevention or treatment

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**Background:** Finding men at high risk for Human Immunodeficiency Virus (HIV) infection is a top priority in sub-Saharan Africa. Mobile phone use offers new avenues for health information dissemination, long term engagement and mobile money reimbursements. We assessed the feasibility of using mobile platforms for HIV prevention messaging, participant reimbursement using mobile money and preliminary pilot assessment of impact on linkage to treatment.

**Methods:** Men at five sports betting and gaming centers in Uganda were consented for on-site HIV and syphilis tests between May and September 2017. Information on condom use, number of sexual partners, commercial sex and alcohol intake was collected using a structured questionnaire on the REDCap platform. Men were also consented to join a two-year mobile phone follow-up cohort using Short Message Service (SMS). Reimbursement for research participation was done using mobile money payment within seven days of their sign-up.

**Results:** We enrolled 516 men into the study; the median age was 28 years (interquartile range: 24, 34); 52.6% were married, and 83.3% were employed with an average monthly income of USD 120. A majority (96%) owned at least one mobile phone and everyone consented to mobile money reimbursement and two-year mobile health engagement. During the first sixty days of the study, 2,914 SMS messages were sent out with either service linkage information for those who were HIV/syphilis positive or prevention content for those with a negative test result. Although the number of patients that tested positive for HIV (4) and syphilis (18) was small, 25% of those that tested positive for HIV and 26% of those with syphilis sought treatment at a health facility within seven days. This increased to 50% at end of twenty eight days, with the rest promising to do so within the second month.

**Conclusions:** Mobile health engagement coupled with mobile money reimbursement is a feasible way to maintain contact with men for HIV prevention messaging and/or linkage to treatment. Additional qualitative work is needed to improve the impact on linkage to HIV care and behavioral messaging for HIV prevention practices.

**THPEC330**
Pre-exposure prophylaxis (PrEP) adherence in Black men who have sex with men (MSM) and transgender women (TGW) in a community setting in Harlem

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**Background:** PrEP is efficacious for HIV prevention; however, effectiveness needs to be evaluated in community settings and populations most vulnerable to HIV, including black MSM and TGW in the United States (US). We compared the effectiveness of enhanced PrEP (EPrEP) adherence support to standard of care (SC/PrEP) among black MSM and TGW attending a community clinic in New York City.

**Methods:** EPrEP included behavioral interventions (peer navigation, live and online support groups, and SMS text messages). Interviews at baseline and 6-months assessed potential correlates of adherence including depressive symptoms, substance use, and homelessness. Self-reported adherence over previous 30 days was collected using a validated, structured questionnaire. The sample was divided into quartiles, the top quartile (≥87% adherence) was considered ‘adherent.’ Those in other quartiles were considered non-adherent, along with those who missed interviews. Adherence was analyzed using intent-to-treat (ITT) and as-treated (ATI) methods. Crude and adjusted analyses examined factors associated with being adherent.
While PrEP has demonstrated efficacy, uptake and persistence have been low among YMSM. Demographic and psychosocial variables that may predict continued PrEP use were explored among YMSM who had participated in a randomized clinical trial of a text messaging PrEP adherence intervention.

Methods: HIV-uninfected YMSM aged 18-29 initiating PrEP within Chicago’s safety-net system were offered enrollment in the Enhancing PrEP in Community (EPIC) Study, which included provision of 36 weeks of free PrEP and randomization (2:1) to receive standard of care (counseling by health educator) only or standard of care plus PrEPmate (weekly text check-ins and daily reminders).

All participants were counseled about options to continue PrEP post-study. Participants were assessed up to 4 weeks post-study to assess barriers and facilitators to accessing PrEP via computer-assisted self-interview (CASI). Open-ended questions assessing self-reported barriers and facilitators to PrEP access post-study were reviewed by members of the study team and collapsed into thematic categories through consensus.

Results: A total of 79 participants completed the week 36/40 interviews (mean age = 24.2; 33% black, 38% Latino, 17% white). 80% had education beyond high school, and 72% were insured. Almost all respondents were very (85%) or somewhat (10%) interested in continuing PrEP after study completion, and 73.4% of participants reported taking PrEP since the end of the study. Participants with education beyond high school were significantly more likely to report taking PrEP post-study (p<0.05). Participants who were Black or unable to find a health care provider to prescribe PrEP were significantly less likely to have taken PrEP post-study (p<0.05).

Table: Associations between baseline demographic and psychosocial factors and PrEP adherence at 6 months (Intent-to-Treat population - N=204)

Table: Predictors of PrEP continuation among young men who have sex with men (YMSM) in the U.S. that participated in the EPIC study

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Background: While PrEP has demonstrated efficacy, uptake and persistence have been low among YMSM. Demographic and psychosocial variables that may predict continued PrEP use were explored among YMSM who had participated in a randomized clinical trial of a text messaging PrEP adherence intervention.

Methods: HIV-uninfected YMSM aged 18-29 initiating PrEP within Chicago’s safety-net system were offered enrollment in the Enhancing PrEP in Community (EPIC) Study, which included provision of 36 weeks of free PrEP and randomization (2:1) to receive standard of care (counseling by health educator) only or standard of care plus PrEPmate (weekly text check-ins and daily reminders).

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Reported barriers to continuing PrEP included lack of insurance (63%) no PrEP access/availability (31%), no PrEP-supportive provider (9%), and lack of self-motivation (7%). Facilitators to continuing PrEP included insurance or having financial resources (45%), more accessible clinic hours/locations (20%), PrEP-supportive provider (13%) and reminders (16%).
Conclusions: Shortly after completing a clinical PrEP trial, use of PrEP persisted for most participants. However, disparities in race and health care access are evident and will continue to inhibit the true potential of PrEP as an HIV prevention strategy for YMSM. Interventions addressing structural-level and provider-level barriers are urgently needed.

THPEC332
High postpartum retention in treatment among HIV positive women who were aware of their HIV status during pregnancy: Results from the Malawi population-based HIV Impact Assessment 2015-16

Results: Of the 369 HIV+ women who were aware of their HIV status during pregnancy, 87.7%, 47.4% and 33.2%, respectively, were VS as measured in MPHIA. Among women who reported testing HIV- during pregnancy, 93.6% were currently on ART, of whom 93.6% were VS. Among women who provided consent for participation in MPHIA were interviewed and tested for HIV using the national rapid test algorithm; positives were confirmed by Geenius™ (Bio-Rad). HIV RNA viral load suppression was defined as <1.000 copies/mL. Current antiretroviral treatment (ART) use was defined as self-reported or detectable ART in blood. HIV+ women aged 15-49 years who delivered in the 36 months prior to the survey, were included in this analysis. We used weighted percent- ages to describe current viral suppression by self-reported HIV status and ART use during the most recent pregnancy in the 36 months prior to the survey.

Background: Postpartum retention of women in HIV care is challenging but critical for achieving HIV epidemic control. We used 2015-16 Malawi population-based HIV Impact Assessment (MPHIA) survey data to describe postpartum viral suppression, as a measure of treatment retention, in HIV positive HIV+ women.

Methods: Women who provided consent for participation in MPHIA were interviewed and tested for HIV using the national rapid test algorithm; positives were confirmed by Geenius™ (Bio-Rad). HIV RNA viral load suppression was defined as <1,000 copies/mL. Current antiretroviral treatment (ART) use was defined as self-reported or detectable ART in blood. HIV+ women aged 15-49 years who delivered in the 36 months prior to the survey, were included in this analysis. We used weighted percentages to describe current viral suppression by self-reported HIV status and ART use during the most recent pregnancy in the 36 months prior to the survey.

Results: Of the 369 women who tested HIV+ in MPHIA and delivered in the last 36 months, 72.2% (95% confidence intervals (CI): 66.8% - 77.6%) self-reported being HIV+, 19.8% (95% CI: 14.8% - 24.8%) self-reported testing HIV- during most recent pregnancy in the 36 months prior to the survey, were included in this analysis. We used weighted percentages to describe current viral suppression by self-reported HIV status and ART use during the most recent pregnancy in the 36 months prior to the survey.

Viral suppression was high in women who received ART during pregnancy, indicating high retention on treatment. Our results indicate need to strengthen postpartum engagement in care for women who were unaware of their HIV status during pregnancy or were infected postpartum, through regular screening and re-testing.

THPEC334
A qualitative evaluation of women’s experience receiving drug feedback in MTN-025/HOPE - an HIV prevention open-label trial of the dapivirine vaginal ring

Results: Shortly after completing a clinical PrEP trial, use of PrEP persisted for most participants. However, disparities in race and health care access are evident and will continue to inhibit the true potential of PrEP as an HIV prevention strategy for YMSM. Interventions addressing structural-level and provider-level barriers are urgently needed.

Conclusions: Postpartum viral suppression was high in women who received ART during pregnancy, indicating high retention on treatment. Our results indicate need to strengthen postpartum engagement in care for women who were unaware of their HIV status during pregnancy or were infected postpartum, through regular screening and re-testing.

Conclusions: Self-reported ART use and viral suppression in HIV+ women, by self-reported awareness status during last pregnancy in the 36 months prior to the survey:

Viral suppression was high in women who received ART during pregnancy, indicating high retention on treatment. Our results indicate need to strengthen postpartum engagement in care for women who were unaware of their HIV status during pregnancy or were infected postpartum, through regular screening and re-testing.

Conclusions: Denominators are: Test positive in the last 36 months, 72.2% (95% confidence interval: 66.8% - 77.6%) self-reported being HIV+. Self-reported testing HIV- during pregnancy, 93.6% were currently on ART, of whom 93.6% were VS. Among women who provided consent for participation in MPHIA were interviewed and tested for HIV using the national rapid test algorithm; positives were confirmed by Geenius™ (Bio-Rad). HIV RNA viral load suppression was defined as <1,000 copies/mL. Current antiretroviral treatment (ART) use was defined as self-reported or detectable ART in blood. HIV+ women aged 15-49 years who delivered in the 36 months prior to the survey, were included in this analysis. We used weighted percentages to describe current viral suppression by self-reported HIV status and ART use during the most recent pregnancy in the 36 months prior to the survey.

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Background: Postpartum retention of women in HIV care is challenging but critical for achieving HIV epidemic control. We used 2015-16 Malawi population-based HIV Impact Assessment (MPHIA) survey data to describe postpartum viral suppression, as a measure of treatment retention, in HIV positive HIV+ women.

Methods: Women who provided consent for participation in MPHIA were interviewed and tested for HIV using the national rapid test algorithm; positives were confirmed by Geenius™ (Bio-Rad). HIV RNA viral load suppression was defined as <1,000 copies/mL. Current antiretroviral treatment (ART) use was defined as self-reported or detectable ART in blood. HIV+ women aged 15-49 years who delivered in the 36 months prior to the survey, were included in this analysis. We used weighted percentages to describe current viral suppression by self-reported HIV status and ART use during the most recent pregnancy in the 36 months prior to the survey.

Results: Of the 369 women who tested HIV+ in MPHIA and delivered in the last 36 months, 72.2% (95% confidence intervals (CI): 66.8% - 77.6%) self-reported being HIV+, 19.8% (95% CI: 14.8% - 24.8%) self-reported testing HIV- during most recent pregnancy in the 36 months prior to the survey, were included in this analysis. We used weighted percentages to describe current viral suppression by self-reported HIV status and ART use during the most recent pregnancy in the 36 months prior to the survey.

Viral suppression was high in women who received ART during pregnancy, indicating high retention on treatment. Our results indicate need to strengthen postpartum engagement in care for women who were unaware of their HIV status during pregnancy or were infected postpartum, through regular screening and re-testing.
Methods: The HOPE qualitative component took place at six sub-Saharan African sites. In-depth-Interviews (IDIs) were conducted with a subset of participants who, at enrollment, chose to use the ring. Interviews, conducted in local languages using semi-structured guides, were summarized in reports for rapid thematic analysis. RLD scores were calculated dividing residual dapivirine in ring by ring coverage period. RLD was discussed with participants approximately 2-3 months after the ring was returned. Counseling messages framed RLD adherence results in terms of HIV protection, from no protection (poor adherence: score=0) to high protection (high adherence: score=3).

Results: Among the 50 women interviewed (Malawi n=9; South Africa n=21; Uganda n=9; Zimbabwe n=11), reactions to RLD were often emotional. Participants with scores indicative of high protection usually responded with relief and happiness. However, for some, even a score of 2 created significant distress. Participants with lower scores who insistently reported high adherence often appeared upset, blaming laboratory errors or dysfunctional rings. However, many accepted their results and subsequently reported practices that could explain lower scores. Some participants remained perplexed by low scores in the context of consistent use. Test accuracy was often debated and most participants requested quicker RLD feedback. Participants acknowledged counselors’ instrumental role in affecting their post-feedback behaviors and feelings: dominant themes were enhanced motivation to maintain consistent use (those with score>3), or persistence and striving for improvement (those with lower scores). A minor theme was ‘wait and see’ if future scores improve or else choose another prevention approach (e.g. condoms only).

Conclusions: Participants valued the monitoring of protection level against HIV, but RLD was at times challenging and evoked strong reactions. Client-centered counseling helped to channel emotions and behavioral reactions positively. Emphasis on protection minimized confrontational interactions and facilitated alternative, but at times implausible, explanations. Participants recommended improved test accuracy to more precisely reflect product use.

THPEC335
Beyond the biomedical: PrEP failures in a cohort of young Black men who have sex with men in Atlanta, GA

D.P. Segele1, E.S. Rosenberg2, A.M. Lockard3, C.-P.M. Roller4, C. Del Rio5, N. Lusi6, S. Cella6, A.J. Siegle7, T.H. Sanchez8, P.S. Sullivan9, C.F. Kelley1
1Emory University School of Medicine, Department of Medicine, Division of Infectious Diseases, Atlanta, United States, 2Emory University School of Public Health, SUNY, Department of Epidemiology and Biostatistics, Rensselaer, United States, 3Emory University Rollins School of Public Health, Department of Epidemiology, Atlanta, United States, 4Emory University, Orlando, United States, 5Emory University Rollins School of Public Health, Hubert Department of Global Health, Atlanta, United States, 6Kaiser Permanente, Department of Infectious Diseases, Atlanta, United States

Background: HIV pre-exposure prophylaxis (PrEP) has high biomedical efficacy, however, awareness, uptake, and persistence on therapy remain low among black men who have sex with men (BMSM), who are at highest risk for HIV transmission in the US. We implemented an optional PrEP program as standard of HIV prevention care within a cohort of young BMSM; nonetheless, high HIV incidence continues to be observed.

Description: The EleMENt study is a prospective observational cohort of 300 young (aged 16-29), HIV-negative BMSM in Atlanta, USA. At each study visit over 24 months of follow-up, participants complete questionnaires and undergo HIV/STI testing and risk-reduction counseling. We offer non-incentivized PrEP to all participants and provide physician and laboratory services and assistance from a PrEP navigator to obtain the medication at low/no cost. Most studies to date have framed PrEP failure as a rare event of seroconversion despite adequate PrEP adherence (biomedical failure); however, a much larger number of seroconversions will likely occur among those with access to PrEP who either do not initiate or persist in care.

Lessons learned: PrEP was offered to all 300 men, and as of December 2017, 53% (158/300) started PrEP. Over the first half of the study, 14 participants acquired HIV. We identified four additional typologies of PrEP failure that expand beyond traditional biomedical failure: low PrEP adherence, PrEP discontinuation, PrEP contamination, and PrEP refusal. Among the HIV seroconversion cases, 5 participants reported no interest in PrEP (PrEP refusal). 5 expressed interest but never started PrEP (PrEP contamination), and 4 took PrEP at some time before seroconversion (PrEP discontinuation and low PrEP adherence). Only 1 participant could be considered a biomedical PrEP failure.

Conclusions / Next steps: The majority of PrEP failures resulting in HIV seroconversion in our study, where barriers to PrEP access are minimized, were not due to biomedical failure or lack of adherence, but due to not initiating PrEP. To fully realize PrEP effectiveness for high-risk populations, such as BMSM, a broader understanding of PrEP failure and solutions need to be developed. Using these lessons learned we are optimizing PrEP delivery in our study to avoid additional PrEP failures.

THPEC336
Predictors of self-reported adherence to pre-exposure prophylaxis (PrEP), including barriers and facilitators, among men who have sex with men (MSM) and transgender women (TGW): PrEP Brasil Demonstration Study

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1Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil, 2Fundação Osvaldo Cruz, Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro, Brazil, 3Universidade de São Paulo, School of Medicine, São Paulo, Brazil, 4Centro de Referência e Treinamento em DST/AIDS, São Paulo, Brazil, 5San Francisco Department of Public Health, Bridge HIV, San Francisco, United States

Background: Adherence is a critical factor for efficacy of emtricitabine/tenofovir (TDF/TDF) for PrEP. Strategies for improving, supporting, motivating and sustaining adherence to PrEP are of great importance in maximizing the impact of PrEP in high-risk populations. We evaluated self-reported PrEP adherence and its perceived barriers and facilitators among MSM and TGW retained though 48 weeks in the PrEP Brasil study.

Methods: PrEP Brasil was a prospective, open-label demonstration project with HIV-uninfected MSM and TGW from 3 referral centers in Rio de Janeiro (RJ) and São Paulo (SP). Participants were followed-up for 48
weeks and daily FTC/TDF was provided. PrEP adherence (30-days recall) facilitators and barriers were assessed by the pharmacist using a questionnaire upon study completion (week 48). Logistic regression was used to evaluate predictors for optimal (≥100%) adherence in the past 30-days.

Results: From April/2014 to July/2016, 450 participants initiated PrEP, 376(83.3%) participants were followed through 48 weeks. Of these, 354(94.4%) were dispensed FTC/TDF in the previous 3 months and 338 (92.1%) answered the questionnaire. Median age was 30 years (IQR: 25-37). A total of 278(77.5%) and 53(15.7%) reported not missing any dose of FTC/TDF in the past week, 1-2 weeks and 3-4 weeks, respectively. Main reasons reported by these participants were being from RJ, TGW, stimulant use and taking FTC/TDF and 81.3% (274/338) reported excellent or very good capacity to take FTC/TDF in the past 30-days. Barriers and facilitators were reported by 38.2%/273/338 and 98.5%/333/338, respectively. Main reasons reported by these participants are depicted in Figure 1. In multivariate analysis, being from RJ, TGW, stimulant use and taking FTC/TDF was associated with decreased odds of optimal adherence.

<table>
<thead>
<tr>
<th>Perceived barriers to adherence (%)</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
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<tbody>
<tr>
<td>Alcohol use</td>
<td>8</td>
<td>13</td>
<td>11</td>
<td>9</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>No or low perceived risk of HIV infection</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fear of stigma</td>
<td>11</td>
<td>16</td>
<td>19</td>
<td>25</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>Fear of side effects or toxic effects</td>
<td>9</td>
<td>12</td>
<td>16</td>
<td>23</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>Planned to use alcohol/drugs</td>
<td>13</td>
<td>22</td>
<td>30</td>
<td>38</td>
<td>45</td>
<td>53</td>
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<tr>
<td>Mood changes in daily schedule</td>
<td>17</td>
<td>26</td>
<td>37</td>
<td>43</td>
<td>47</td>
<td>49</td>
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<tr>
<td>No pills available at time of dose</td>
<td>14</td>
<td>22</td>
<td>31</td>
<td>40</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>No pills on file</td>
<td>11</td>
<td>17</td>
<td>22</td>
<td>29</td>
<td>35</td>
<td>40</td>
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<tr>
<td>Stopped pills</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>22</td>
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<td>Missed pills</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>22</td>
<td>29</td>
<td>35</td>
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<tr>
<td>Unable to remember pill</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>22</td>
<td>29</td>
<td>35</td>
</tr>
<tr>
<td>Unable to remember pill</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>22</td>
<td>29</td>
<td>35</td>
</tr>
</tbody>
</table>

Conclusions: High levels of self-reported adherence were reported among those retained through 48 weeks in the PrEP Brasil study. Our findings provide information for elaboration, reinforcement and/or up-date of strategies to improve adherence, especially among TGW and stimulant users, and for developing the best practices to promote PrEP adherence in our context. Interventions to reduce patient forgetfulness may be beneficial.

**THPEC337**

Predictors of loss to follow-up among HIV-infected children in rural Kenya: A retrospective cohort analysis

W.M. Saumu1, E. Obimbo2, G. Irimu1, C. Gichuhi1, R. Kumar2

1Ministry of Health, Government of Kenya, Paediatrics and Child Health, Chuka, Kenya. 2University of Nairobi, Paediatrics and Child Health, Nairobi, Kenya. 3University of Nairobi, Clinical Medicine and Therapeutics, Nairobi, Kenya

Background: Over the past decade, significant gains have been made in enrolment and care of HIV-infected children in Kenya. Their long-term survival depends on lifetime adherence to antiretroviral therapy. African studies have reported high rates of Loss to Follow up (LTFU) among children in HIV care and treatment centres. Factors associated with LTFU may vary across populations and countries. Few studies have been conducted among HIV-infected children in care in rural areas of Kenya.

Methods: This was a retrospective cohort study involving children aged less than 15 years on follow up at Kangundo Level 4 Hospital clinic from January 2010 to December 2015. We obtained sociodemographic and clinical information from patient files and electronic databases. We calculated period prevalence and incidence of LTFU over the 6 year period before and after physical tracing of those LTFU. Univariate and multivariate regression analyses were conducted to identify factors predictive of LTFU.

Results: 261 HIV-infected children were followed up (63.1% males). The mean age was 10.0 years and median CD4 count of 582. By December 2015, 171 children (65.1%) remained in active care. 32 (12.3%) transferred out, 13 (5%) died, while 45 (17.2%) were classified as LTFU giving a period prevalence of LTFU as 17.2% and incidence rate 44.9 per 1000 child years. Out of the 45 children presumed as LTFU, we successfully traced 44 out of the 45 children (98%), and found that their actual current status was as follows: 33 of the 44 children (75%) had dropped out of care, hence fulfilled the criteria for true LTFU.

Factors strongly predictive of LTFU included low caregiver level of education (HR 2.1, 95%CI 1.4-3.0, P <0.01), WHO stage I and II at enrolment (HR 1.6, 95%CI 1.2-2.1, P <0.01) and children not on ART at last contact with hospital (HR 2.4, 95%CI 1.4-4.0, P <0.05).

Conclusions: Over the 6 year period, LTFU of HIV infected children was common with a true incidence of 22.9 per 1000 child years and occurred early in treatment and risk factors included poverty, low caregiver education, male child, early HIV disease stage and not being on ART.

**THPEC338**

Missed clinic appointments in the first six months of care and long term retention of HIV positive adults at a large Urban HIV clinic in Uganda

F. Muhiny, R. Kuteesa Bisaso, B. Castelnuovo, J. Maweje, A. Kiragga

Infectious Diseases Institute, Research Department, Kampala, Uganda

Background: In sub-Saharan Africa, patients started on ART are usually seen monthly during the first year to ensure close clinical and adherence monitoring. However, many patients miss scheduled visits in their first months of treatment. We hypothesize that missed appointments early in HIV care are an indicator of low long term retention. We aim to describe the patterns of missed visit appointments in the first six months, and examine their association with long term retention in HIV care.

Methods: We included HIV positive patients registered into HIV care from January 2008 to December 2015 at the Infectious Diseases Institute clinic in Kampala, Uganda. Data included age, gender, WHO stage, and CD4 count. A missed appointment was defined as no visit to the clinic within 3 days of the scheduled appointment. Missed visits were classified as: Ever missed; (missed any visit in the first six months), and Percentage of all scheduled visits missed (0%, 1-10%, >10-25%, >25%). Long term retention was defined as retention within 3 years of enrolment and care of HIV-infected children in Kenya. Their long-term survival depends on lifetime adherence to antiretroviral therapy. African studies have reported high rates of Loss to Follow up (LTFU) among children in HIV care and treatment centres. Factors associated with LTFU may vary across populations and countries. Few studies have been conducted among HIV-infected children in care in rural areas of Kenya.

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

THPEC340
Predictors of 1-month retention on PrEP for the general population in the public sector: A longitudinal study in routine care in Swaziland

A. Hughey1,1, A. Hettema1, C. Oldenburg9, S. Kohler1,1, S. McMahon1, C. Lejeune1,1, S. Matse4, T. Barnighausen3

1Clinton Health Access Initiative, Mbabane, Swaziland. 2University of California, San Francisco, United States. 3Heidelberg University, Heidelberg, Germany. 4Swaziland Ministry of Health, Swaziland National AIDS Programme, Mbabane, Swaziland

Background: Daily oral HIV pre-exposure prophylaxis (PrEP) can dramatically reduce HIV infection among HIV-negative individuals. Therefore, PrEP holds great promise to help end the HIV epidemic but the success of PrEP is contingent upon retention while at risk for HIV. It is thus important to understand predictors of retention among existing PrEP clients for targeting and informing future designs of PrEP promotion and supporting interventions.

Methods: A PrEP demonstration study for the general population began on 1 August 2017 in Swaziland to assess the operationalization of PrEP as an additional HIV prevention method provided through the country’s public-sector primary-care clinics for all clients ≥16 years at risk for HIV infection. Data were collected electronically from clinic-based client records. An analysis of 6-month baseline data through 31 January 2018 is presented. The primary outcome was retention at 1-month after PrEP initiation defined as continued PrEP use during the first month and attendance at the clinic within 7 days of the scheduled one-month follow-up appointment. A total of 217 clients, including 167 (77%) females and 50 (23%) males who initiated PrEP were analyzed for predictors of retention using a generalized linear model with a binomial distribution family and log link function, controlling for clustering of outcomes at the clinic level.

Table. Univariate regression results for predictors of retention at 1 month following PrEP initiation

<table>
<thead>
<tr>
<th>Predictor</th>
<th>RR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex Male</td>
<td>1.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Age ≥16</td>
<td>0.96</td>
<td>0.015</td>
</tr>
<tr>
<td>Low Risk HIV Risk</td>
<td>2.10</td>
<td>0.001</td>
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<td>1.23</td>
<td>0.183</td>
</tr>
<tr>
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THPEC339
Why they get lost: Results of tracing of children lost to follow-up from an HIV programme in lower Eastern Kenya

P.B. Karau, W.M. Saumu, E. Obimbo, G. Irimu, C. Gichuki, R. Kumai

1Kenya Methodist University, Internal Medicine and Therapeutics, Meru, Kenya. 2Chuka Level 4 Hospital, Chuka, Kenya. 3University of Nairobi, Paediatrics and Child Health, Nairobi, Kenya. 4University of Nairobi, Clinical Medicine and Therapeutics, Nairobi, Kenya

Background: Loss to follow-up (LTFU) remains a major obstacle to the success of many HIV care programmes in Africa. Whereas many studies have focused on factors predictive of loss to follow-up, only a few have traced the children or their caregivers and elucidated the real reasons for dropping out of care. This aspect is important in tailoring interventions to increase retention in care.

Methods: A retrospective cohort study was conducted involving all children on follow up at Kangundo Hospital HIV clinic from 2010 to 2015. For those who satisfied the definition of LTFU, an attempt was made to trace the caregivers by phone calls. Those who responded to the calls were informed about the study and requested to come to the hospital or allow a home visit. For those with no phone contacts, physical tracing was conducted. Data was collected from the caregivers by administration of a structured pre-tested questionnaire. The status of the patient follow up was then reclassified as transfer out, dead or true LTFU.

Results: During the study period, 261 children were enrolled, with a mean age of 10 years. 45 children (17.2%) were lost to follow-up. Out of the 45 children who met the criteria for LTFU, 44 caregivers were successfully traced. 33 (75.0%) of the 44 had dropped out of care (True loss to follow up, while 6 (13.6%) were dead, and 5 (11.4%) had transferred to other facilities without referral. The true period prevalence of LTFU over the study period was found to be 12.6% (n= 261). The true incidence of Loss to Follow-up was 32.9 per 1000 child years. The mean age of the caregivers was 48.5 years, with 29 (87.9%) of them being females. The mean approximate distance from home to Kangundo Level 4 Hospital was 11.8km. Fear of disclosure, stigma, adolescent children rebellion, death of primary caregivers and poverty were the main reasons for LTFU.

Conclusions: This study sheds light on the reasons for LTFU. Health care workers should trace children who don’t honour clinic appointments. Interventions to reduce LTFU should focus on social, economic and healthcare related factors associated with LTFU.

THPEC340
Predictors of 1-month retention on PrEP for the general population in the public sector: A longitudinal study in routine care in Swaziland

A. Hughey1, A. Hettema1, C. Oldenburg9, S. Kohler1, S. McMahon1, C. Lejeune1, S. Matse4, T. Barnighausen3

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Conclusions: This study sheds light on the reasons for LTFU. Health care workers should trace children who don’t honour clinic appointments. Interventions to reduce LTFU should focus on social, economic and healthcare related factors associated with LTFU.
Results: Overall, 129 (99%) clients were retained at 1-month after PrEP initiation. Gender, pregnancy/lactation status and visiting the clinic specifically for PrEP services did not significantly predict retention. Clients with very high self-perceived risk of HIV infection (p<0.001), clients in middle age (p<0.05) and clients with a partner known to be living with HIV (p=0.02) were significantly more likely to be retained at 1-month after initiation than comparison groups (Table).

Conclusions: Women and men have approximately equal need for PrEP retention-supporting interventions. Interventions for PrEP retention should specifically target clients whose self-perceived HIV infection risk is relatively low, despite clear indications of high objective HIV acquisition risk. Increased support for risk self-assessment and enhanced PrEP counseling may have potential for improving PrEP retention. Younger clients and clients who do not know their partners' HIV status may need additional retention support.

**THPEC341**
Factors associated with loss to follow up among HIV patients with unsuppressed viral load in primary healthcare clinics

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Background: Retention of patients initiated on antiretroviral therapy (ART) and ensuring good adherence remain cornerstone to long term viral suppression. Patients with un-suppressed viral load are presumed to have poor adherence, hence, are taken through intensive adherence counseling before switching treatment. However, how well such patients remain connected to care after unsuppressed viral load is an important metric in the HIV care cascade but hasn’t been fully explored. We set out to determine loss to follow up LTFU and associated factors in patients with un-suppressed viral load in primary healthcare clinics.

Methods: We drew a sample of patients initiated on ART from January 2012 to December 2016 from two primary healthcare clinics. We analysed data for patients who had spent at least 6 months on ART, had viral load test results and presented with a most recent un-suppressed viral load. We defined LTFU as failure of a patient to return to the HIV clinic for at least 90 days from the date of their last appointment. We excluded deaths and transfers to other health facilities. We determined the proportion of patients LTFU and used logistic regression to assess factors associated with LTFU.

Results: We included 744 patients in our sample, with 55.7% females and median age at starting ART of 31.5(IQR= 22.5-38.5) years. The median CD4 cell count and median age at starting ART were 277 (IQR= 126-492.5) and 5149s (IQR=42-58) respectively whereas 22.0% were in WHO stage 3 or 4 at baseline. Overall, 8.7% were LTFU. At bivariate analysis, there was no difference in LTFU between men and women (Female cOR=0.99, 95% CI=0.89-1.11). Compared to patients with a CD4 cell count ≥ 350, those with CD4 cell count of 350-500 (IQR= 0.75, 95% CI=0.30-1.84) and ≥500 (IQR=0.50, 95% CI=0.20-1.22) were less likely to get LTFU. After adjusting for age, sex and baseline CD4 WHO stage 3 or 4 (IQR=2.1, 95% CI=1.1-4.2) was the only independent factor associated with LTFU.

Conclusions: Patients with a baseline WHO stage 3 or 4 had a higher likelihood of getting LTFU. This strengthens evidence for better treatment outcomes for initiating HIV positive patients in the infancy of disease progression.
Lessons learned: Data by subpopulation was analysed to determine the proportion of clients screening high risk and eligible for PrEP, the acceptance rate of PrEP and average retention by subpopulation. Clients with the highest proportions of clients at high risk include discordant male partner (99.2%), MSM and discordant female partner (98.3%), the lowest proportion at high risk were non-KP males (2.4%) and non-KP females (6.8%). The highest acceptance of PrEP was seen among non-KP females (95.2%) and discordant female partner (84.8%). The lowest acceptance rate was seen among MSM (37.2%) and non-KP males (39%). The highest average retention of 4.16 months was seen in female discordant partners.

Conclusions/Next steps: Understanding the various risk profiles by subpopulation of clients at substantial risk of HIV is important to help clients determine how long they need to be on PrEP whilst working on a risk reduction plan. Clients gave various reasons for not accepting PrEP, including the fear of perceived stigma that they are actually HIV-positive and taking ARVs for treatment rather than prevention of HIV. Clients who clearly understood their risk were more likely to stay on PrEP for longer.

Key population-led prevention programs (from reach, recruit, test, treat, prevent, and retain)

THPEC344

Which MSM are most at risk of becoming HIV-infected in West Africa? (CohMSM ANRS 12324 - Expertise France)


Background: Understanding the dynamics of HIV infection in men who have sex with men (MSM) can help improve the efficiency of existing prevention strategies. We aimed to describe the sexual behaviour evolutions of MSM most at risk of HIV infection in West Africa.

Methods: The community-based cohort CohMSM has recruited HIV-negative MSM in four West-African countries since 2015 (Mali, Côte d’Ivoire, Burkina Faso, Togo). MSM are followed quarterly for HIV testing and prevention. Socio-behavioural data are collected every 6 months using standardised face-to-face questionnaires. This sub-study used a baseline, 6- and 12-month data cluster analysis to determine sexual-behavioural profiles from data on risky sexual practices over the previous 6 months: condom use during anal and oral sex (systematic versus non-systematic); position during anal intercourse (excluding insertive versus receptive or both); multiple partners (< 2 versus ≥2). The number of HIV seroconversions over the first 12 months of follow-up was recorded for each profile. Factors associated with these profiles were estimated using a country-adjusted mixed-effects logistic regression model.

Results: For the 1,559 MSM included in this analysis, two sexual-behavioural profiles were identified: high-risk exposure (HRE) (61%) and moderate-risk exposure (MRE) (39%). HRE-MSM (versus MRE-MSM) reported greater non-systematic condom use during anal (55% versus 41%) and oral sex (85% versus 42%). The highest proportion of clients screening high risk and eligible for PrEP, the acceptance rate of PrEP and average retention by subpopulation. Clients with the highest proportions of clients at high risk include discordant male partner (99.2%), MSM and discordant female partner (98.3%), the lowest proportion at high risk were non-KP males (2.4%) and non-KP females (6.8%). The highest acceptance of PrEP was seen among non-KP females (95.2%) and discordant female partner (84.8%). The lowest acceptance rate was seen among MSM (37.2%) and non-KP males (39%). The highest average retention of 4.16 months was seen in female discordant partners.

Conclusions: HIV prevention services tailored to MSM should take into account age, financial difficulties, experienced stigmatisation and sexual attraction.

THPEC345

Health Messaging from by the people or FOR the people? A comparative visual content analysis of crowdsourced and government HIV posters

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Background: Visual mass media including posters have been shown to increase HIV testing, but suboptimal global HIV testing rates underscore the need for novel content and messaging. Crowdsourcing, or the outsourcing of tasks to a large group, has been shown by a randomized control trial to induce more HIV testing in audiences exposed to them as compared to conventional images. To better understand the key visual differences between these two types of images, we compared crowdsourced HIV testing posters to those created by local disease control centers (CDC) in China.

Methods: Crowdsourced posters included finalist submissions from a series of nationwide contests in China held between 2014 and 2016 in which teams competed for cash and other prizes. CDC posters were sampled from an online database of health promotional materials related to HIV testing maintained by the Chinese National Center for AIDS. Posters were triple coded according to established visual content criteria, summary measures of which were compared across poster type by assessing 95% confidence intervals (CI) overlap.

Results: CDC posters were more likely to use positive facial expressions (65% [95% CI: 40.9–83.7] versus 12.5% [95% CI: 2.2–44]), and to employ an educational messaging style (85% [95% CI: 61.1–96.6] versus 31.3% [95% CI: 12.1–58.5]). Crowdsourced posters were more likely to exhibit qualities of strong craftsmanship (design simplicity, image diversity, color choice, size).
design quality, and moderate text use) and use visual metaphors as part of their messaging strategy (56.3% [95% CI, 30.6-79.2] versus 5% [95% CI, 0.2-26.9%]). No differences in visual complexity were found across poster types.

**Conclusions:** Crowdsourced posters exhibited better craftsmanship than CDC posters, possibly due to diversity of design input of this strategy. CDC posters' use of positive visual reinforcement (smiling faces) and an educational messaging style may be a relic of modern Chinese visual traditions rooted in Socialist ideals of optimism and national well-being. Crowdsourcing posters' use of visual metaphors highlights their potential to embed coded references resonant with key hidden populations, a key factor in models of persuasion process. Further research is planned to assess the impact of CDC versus crowdsourced posters on motivational thoughts on HIV testing in target populations.

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**THPEC346**

**Social contexts as mediators of risks in Rwandan men who have sex with men (MSM): Implications for HIV infection and other STIs**

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**Background:** Men who have sex with men (MSM) are disproportionately impacted by HIV/AIDS resulting from risky sexual behaviors. Social and contextual factors are known mediators of risk behaviors, but there is limited information regarding the dynamics between practices that increase risk of Rwandan MSM and concomitant socio-contextual determinants. This makes it difficult to assess social determinants that are critical in reducing the vulnerability to HIV/STI transmission in this key population.

**Methods:** As part of an ongoing mixed methods study, we obtained qualitative data on the socio-contextual determinants of, and prevalence of risk behaviors for HIV/STIs transmission and preventive measures/coping strategies used by MSM to improve health and well-being. Thirty Kigali-based MSM recruited through respondent-driven sampling provided data through individual in-depth interviews. Data were analyzed using standard qualitative data analysis procedures.

**Results:** Respondents were 18-40 years old; all had completed primary education and were mostly low-socioeconomic status. Risky sexual practices were common but differed by individual and socio-contextual factors in which MSM live. Older respondents reported long-term relationships with women with whom they have sexual relations to avoid suspicion and stigma. Younger respondents were more likely to engage in transactional sex that was considered a necessity and mediated by the need for social acceptance and support from a strong peer network. Knowledge of HIV/STIs was poor, but prevalence was high. The perceived options for improving sexual wellbeing were limited and mostly clandestine.

**Conclusions:** Pervasive stigma, concern for personal safety, social isolation, conservative culture, lack of access to health services and perception of public policies appear to mediate behaviors that increase risk among Rwanda MSM and are barriers to obtaining health-promoting information and services. Effective interventions that address individual and socio-contextual determinants of risk and access to health services are urgently needed to facilitate attainment of Rwanda's national HIV strategic goals for key populations.

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**THPEC347**

**Micro-planning, an effective tool for building the bridge and breaking barriers in HIV programming for female sex worker - Ekiti State experience**

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**Background:** Sex workers face stigma, discrimination and violence across the globe hence, effective strategies towards sustainable delivery of Minimum Prevention Package Intervention (MPPI) to key populations in Ekiti State has been a challenge. Micro-planning is a process that decentralizes programme planning to grassroots-level workers for decisions on how to best reach the maximum number of community members. It is low cost, simple but effective approach for use in Community Based Interventions. In 2015, the project engaged 4 CSOs for a 2 year HIV prevention programme for Female Sex Workers (FSW) using micro-planning tools in 6 Local Governments Areas of the State.

**Description:** CSOs recruited and trained 420 FSWs as peer educators (PEs) to provide MPPI using micro-planning tools. Peer led mapping were used to validate and define 32 hotspots and 64 geographic clusters. Profiling of the identified hotspot/clusters informed the interventions and components of HIV prevention service delivered at the site, peer social network analyses were used to list all FSWs known to each PE within the cluster/hotspot. The PEs decided on who takes responsibility for what i.e outreach, education and monitoring of each individual FSW. Other relevant local service providers were identified and engaged. Micro-planning tools were utilized to plan and monitor service delivery.

**Lessons learned:** 9,334 FSWs were reached with MPPI. 2,020 brothel FSWs were reached with MPPI using micro-planning tools. Peer led mapping were used to validate and define 32 hotspots and 64 geographic clusters. Profiling of the identified hotspot/clusters informed the interventions and components of HIV prevention service delivered at the site, peer social network analyses were used to list all FSWs known to each PE within the cluster/hotspot. The PEs decided on who takes responsibility for what i.e outreach, education and monitoring of each individual FSW. Other relevant local service providers were identified and engaged. Micro-planning tools were utilized to plan and monitor service delivery.

**Conclusions/Next steps:** Clearly defined area of operation for each PE, improved data collection and reporting by tracking each individual FSW at a site and providing dashboard metrics, shifted the program from merely service delivery (push) by increasing demand generation for services from the community (pull) and created community ownership. It serves as a holistic and sustainable approach to effective service delivery to FSWs in Ekiti State and should be considered for programming for MARPs at national and global levels.
THPEC348
Social media for HIV/AIDS education among men who have sex with men with hearing impairment in Osogbo, Nigeria
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Background: Possession of accurate knowledge about HIV/AIDS is critical in limiting the spread of the infection. Various studies have shown that hearing impaired individuals lack access to HIV/AIDS information due to problems of communication. Globally, men who have sex with men (MSM) are 24 times more likely to be living with HIV than the general population and homosexual acts are illegal in more than a third of countries, preventing MSM from accessing HIV services. This social media intervention was therefore designed to prevent HIV/AIDS among MSM with hearing impairment in Osogbo, Nigeria.

Description: This intervention was carried out among 65 MSM with hearing impairment who are registered users of at least one social media. Participants’ were selected at the community level using snowball sampling technique. Semi-structured questionnaire was used to obtained baseline information and HIV/AIDS education, importance of HIV counselling and testing (HCT) and messages on risky sexual behaviour reduction were discussed with participants through Facebook, Twitter, BBM and Whatsapp. Participants’ were followed up for a year and the intervention was evaluated at 6 and 12 months. Data were analysed using descriptive statistics. Chi-square and t-test.

Lessons learned: Mean age of participants was 23 ± 8.9 years and 43.6% had secondary education. Almost all (97.5%) have a Facebook account, Twitter (56.1%), BBM (65.8%) and Whatsapp (98.1%). Respondents’ knowledge of HIV/AIDS increased from 5.6% to 38.6% within 6 months and 86.6% after 12 months. Utilization of HCT services increased from 5.8% to 20.7% within 6 months and 76.0% after 12 months. At baseline, 78.6% of the participants considered themselves at risk of contracting HIV infection and after 12 months only 12.8% considered themselves at risk of HIV. Respondents’ consistent use of condom for sexual intercourse increased from 5.6% to 43.3% within 6 months and 87.2% after 12 months.

Conclusions/Next steps: Social media was effective in educating hearing impaired people but internet subscription cost was a major barrier reported during this intervention. The study therefore recommends that service providers should, as their contribution to national development, reduce the cost of access to enable more people to register with and use social media.

THPEC349
Ensuring Linkage to care among key populations in high HIV burden towns in Myanmar
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Background: Myanmar implements HIV prevention programs in union with non-government organizations (NGOs) with the aim of achieving UNAIDS’s Fast Track Strategy 90-90-90 targets by 2020. Decentralization of HIV testing is a key component of this strategy; however, this may increase the risk of loss-to-follow up in the HIV cascade. This study assesses the factors influencing effective linkage to care after diagnosis.

Methods: Nine NGOs supporting HIV testing in mobile and drop-in centers without HIV care and treatment services across six high HIV burden towns in Myanmar are needs-based, demand-driven, and client-centered.

Results: A total of 690 PLHIV were included in this study. Males accounted for 66.2% and females 33.8%. The average age was 31.0 years. Key populations (KP) who have sex with men (MSM), female sex workers (FSW), and people who inject drugs (PWID) accounted for 62.8% and general population (GP) 37.2%.

Conclusions: This study indicates that the referral system of PLHIV in Myanmar is reasonably effective. Improvements are necessary, however, particularly to increase PWID linkage rates and generally to improve the overall rates toward achievement of the 90-90-90 targets. Further studies are required to explore the factors that facilitate linkage processes and to achieve the goals of Myanmar National Strategic Plan.
To end the AIDS epidemic, accreditation, legalization, and financing mechanisms are urgently needed for scale-up and sustainability of KPIs and KP-led organizations.

THPEC351

Mobile testing, ART enrollment and prescription refill may be linked to higher linkage to care and retention for men who have sex with men in Nigeria

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Background: Globally, men who have sex with men (MSM) are underserved by HIV testing services (HTS) and antiretroviral therapy (ART) compared to the general population: an estimated 51% of MSM did not have access to HTS and only 14% enrolled in ART in 2015. For nine years, Heartland Alliance International (HAI) has implemented large-scale programming offering the continuum of HIV prevention, care and treatment to MSM in Nigeria.

Description: From October 1, 2016 to September 31, 2017, HAI fixed-site “One Stop Shops” (OSS) provided comprehensive HIV medical and community services. Mobile teams also offered testing, ART initiation and prescription refill in safe field locations. HAI ensures that MSM are not lost to follow-up through active follow-up and data collection and analysis at every cascade step. Mobile teams were scaled up during the period in four states: Rivers, Akwa Ibom, Lagos and Cross Rivers but not in the Federal Capital (FCT), Nasarawa, and Benue.

Lessons learned: Out of the 3,295 MSM who tested HIV positive, 2,627 (79.7%) were enrolled in care either in the field or at the OSS while 668 (20.3%) declined because they were not prepared to commence ART. All 2,627 enrolled MSM (100%) commenced ART. Of these, 90 (3%) were transferred out to continue ART elsewhere due to relocation, and seven (0.3%) died. Confirmed transferred out and deaths were removed from and patients who transferred in (13) were added to the denominator when calculating retention. At the end of October 2017, 280 MSM (10.7%) who started treatment during the year were lost to follow-up, while 2,263 (89%) who started treatment during the year were still on ART, leaving a retention rate (0-12 months) of 89%. However, achievement varied by state. The percentage linked and retained in care was below 80% in FCT (52% n=220), Nasarawa (53% n=136) and Benue (66% n=247) and Lagos (77% n=233) 0-12-month retention was below 90% in Benue (51.6% n=268) and Lagos (64.6% n=176).

Conclusions/Next steps: The poorer linkage and retention results occurred in the states which had not scaled up mobile services, suggesting that the mobile approach is crucial for these steps. During the next program year, HAI will scale up this approach to the remaining states.

THPEC352

Effectiveness of key population led HIV programmes in achieving the 90-90-90 goals for most-at-risk-populations in Nigeria

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Background: Female sex workers, men who have sex with men, people who inject drugs and Transgender persons are among key populations in Nigeria. Laws that criminalize their behaviors plus fear of harassment from the public and legal agencies deter them from accessing health-care from public facilities; those that do refuse to revisit due to stigmatizing attitudes of staff. These sustain high HIV prevalence among KPs, like MSM with rate from 135% (2007) to 127% (2010) and 22.9% (2014) according to Nigeria’s Integrated Biological and Behavioral Surveillance Survey (IBBSS 2014). It therefore became necessary to deliver rights-based and sustainable programs for KPs, within safe spaces, using members of their social/sexual networks.

Description: Heartland Alliance International’s Integrated MARPS HIV Prevention Programme (IMHIPP) objective is to establish KP-led Community Based Organizations whose capacities would be built to provide HIV services to their groups with mentoring and support by HAI. Through green-housing, the CBOs gain technical capacity to function effectively and independently. Their trained personnel provide comprehensive HIV services (prevention messages, HIV testing services, condoms/lubricants distribution, STI screening/treatment, PEP, and referral of positive KPs to HAI’s ART clinic) to other KPs within safe spaces. HAI’s community ART team also enrolls positive clients into care within their milieu, thus, promoting Test and Treat. IMHIPP is implemented in seven high burden states of Nigeria from September 2009 to October 2018.

Lessons learned: HIV programmes are effective when beneficiaries occupy the forefront of implementation. This makes KPs active programme participants than passive beneficiaries. Across the IMHIPP states, the nascent organizations have reached the following KPs with HIV related services.

<table>
<thead>
<tr>
<th>Type of services</th>
<th>Number of program participants reached</th>
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<tbody>
<tr>
<td>FSW</td>
<td></td>
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<tr>
<td>HRM</td>
<td></td>
</tr>
<tr>
<td>PWID</td>
<td></td>
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<tr>
<td>Transgender</td>
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</table>

[Number of persons reached by KP group and type of service received from inception of HTS in October 2015 to September 2017]

Green-housing, as best practice, showed that KPs have capabilities which, when developed, can deliver outstanding results. Following capacities developed. IMHIPP CBOs are now able to access and implement donor grants independently and credibly.

Conclusions/Next steps: Meaningful involvement of KPs in KP programming is vital for increasing service uptake. As IMHIPP outcomes, more KPs now present for HIV testing services; more also practice safer sex. Treatment retention is 77% and viral suppression 82%. These contribute towards meeting 90-90-90 for Nigeria. Heartland Alliance plans to extend IMHIPP strategies to other states to multiply impact.

THPEC353

Low awareness of pre-exposure prophylaxis (PrEP) for protection against HIV transmission among HIV-infected women in HIV-serodiscordant couples in Kenya: Results from a nationwide survey

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Methods: Data from a cross-sectional survey of HIV-infected women enrolled at 109 HIV care programs with 1000 antiretroviral therapy (ART) clients across Kenya were analyzed to evaluate PrEP awareness. Data were collected from June-September 2016 by mobile teams. Participants were aged 15-49 years, not currently pregnant and had vaginal intercourse within the last 6 months. Clinical characteristics and male partner status were determined by women self-report. PrEP awareness
Network has realized an increase in the adherence rate for PWIDs on ART. Since the implementation of the UHRN program (January - December 2016), yet PWIDs have the lowest levels of HIV among PWIDs, only 350 PWIDs had tested for HIV and among PWIDs drugs in Uganda. Although there was a high prevalence of HIV among PWIDs, only 350 PWIDs had tested for HIV and among those tested positive, only 16% were enrolled on ART (UHRN programs data from January to December 2016). Yet PWIDs have the lowest levels of uptake to HIV services and have the highest dropout rate for HIV treatment standing at 33% according to UHRN program data. The low adherence rate for HIV treatment among PWIDs has been as a result of stigma that adversely affects how and when PWIDs should access HIV services.

**Description:** UHRN has adopted HRCM Model, a model that is used to link and distribute essential HIV services to PWIDs. The model uses fellow PWID peers and HIV positive living to track their fellow positive living PWIDs who have not attained HIV testing and ART. These PWID peers are trained as community health workers and representatives from different drug use hotspots. It is an innovative and efficient strategy for delivering HIV prevention, testing, and counseling on-site, including Syphilis-testing programs.

**Lessons learned:** The model has increased adherence rate for PWIDs on ART from 23% to 41%, enrolment rate on ART from 16% to 21%, number of PWIDs seeking HIV testing from 350 to 831, number of referrals on ART from 250 to 450 (UHRN program data January - December 2017).

**Conclusions/Next steps:** In Uganda health facilities are overcrowded leading to delay in service delivery, this discourages PWIDs from access to ART. Since the implementation of HRCM, Uganda Harm Reduction Network has realized an increase in the adherence rate for PWIDs on ART, an increase enrolment rate for PWID on ART, an increase in a number of PWIDs seeking HIV testing.

**THPEC355**

Escorted referral by peer navigators improved linkage to HIV care and treatment services for FSW in Mzuzu, Malawi

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**Background:** Since October 2015, FHI 360 has been implementing the PEPFAR-/USAID-funded LINKAGES project for key populations (KP) in six districts in Malawi. The project focuses on HIV prevention, care, and treatment for female sex workers (FSW), men who have sex with men (MSM), and transgender people.

**Description:** To achieve the project goal, FSW are being reached with HIV prevention messages and tested for HIV. Those who test HIV-positive are followed and initiated on treatment. Initially, there was a problem linking FSW who tested HIV positive to treatment. In September 2016, peer navigators (fellow HIV-positive FSW), along with HIV testing providers, were recruited and trained to assist with escorted referral to health facilities. We implemented the escorted referrals from October 2016 through June 2017.

**Lessons learned:** During this period, 905 FSW were tested for HIV, 144 newly tested HIV positive, of whom 141 (97 percent) were initiated on treatment, in addition to 115 FSW known to be HIV positive when reached. The project also returned to treatment 20 FSWs who had defaulted on treatment in other programs. Prior to implementation of escorted referrals (October 2014 to September 2016), 576 FSW were tested for HIV, 193 were HIV positive, only 74 (38 percent) were started on ART, and one treatment defaulter was brought back to treatment.

**Conclusions/Next steps:** Deployment of peer navigators to assist with referral for ART initiation resulted in a significant increase in identification of HIV-positive FSW for ART initiation. Introduction of escorted referrals by both peer navigators and HIV testing providers has had a great impact on follow-up of HIV positives to link them to antiretroviral treatment. LINKAGES plans to scale up peer navigation across its districts. The project will put in place ongoing mentorship for peer navigators to scale up the escorted referrals as the number of FSWs being reached and tested increases.
by end of 2017 comprised 12,82 (41.3%). Of the HIV positive active cohort, 81.8% (493/603) were on ART and of those newly diagnosed or not on ART at enrolment, 51.1% (116/225) were initiated in the site. Of the HIV negative SWs, 59% were seen and tested only once. 25% had two, 10% had three and only few had five or more tests. 32 SWs sero-converted during their follow-up with an overall incidence of 5.0 (95% CI 4.2-5.9) per 100 person years - for SWs 9-18 years 9.3 (5.0-17.3) and for women who were 18-66 years 5.0 (3.2-7.6) respectively.

Lessons learned: The program has succeeded in reaching and enrolling a large number of beneficiaries interested in the offered services. The high HIV prevalence and incidence demonstrate the extreme risk among this group and the importance of community strategies to improve access to re-testing, treatment and prevention, including oral HIV self-testing and PREP.

Conclusions/Next steps: Innovative strategies and further efforts are needed to reach this highly mobile population to enable access to prevention and retention in care.

**THPEC357**

**Does knowledge of HIV status affect sexual behaviors?** A longitudinal analysis of female sex workers in Uganda and Zambia

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Background: Routine HIV testing campaigns rely on the assumption that knowledge of HIV status, acquired through testing, affects individuals’ behaviors in ways that reduce HIV transmission. Female sex workers (FSWs) have strong economic incentives for having multiple sexual partners and providing condomless sex, behaviors associated with increased risk of HIV transmission. We measure the effect of knowledge of HIV status on FSWs’ sexual behaviors with clients in Uganda and Zambia.

Methods: We used longitudinal data from two FSWs cohorts: one in Kampala, Uganda, and one in three Zambian transit towns. The cohorts were formed as part of two cluster-randomized HIV self-testing trials. Participants in the cohorts had ample opportunity for HIV testing, using HIV self-tests and standard HIV testing services. We assessed knowledge of HIV status and sexual behavior outcomes at baseline, one month and four months. We used linear regression models with individual-level fixed effects to measure the effect of knowledge of HIV status on FSWs’ sexual behaviors.

Results: The majority of the 1925 FSWs enrolled in the two cohorts tested for HIV (95% of 960 in Uganda, 96% of 956 in Zambia) and experienced changes in knowledge of HIV status (71% in Uganda, 73% in Zambia). Knowledge of HIV status did not significantly affect FSWs’ number of clients, but knowledge of HIV-negative status significantly increased the probability that FSWs consistently used condoms in sex acts with clients: by 9.5 percentage points in Uganda (95%CI 5.2 to 13.5, p < 0.001) and 8.4 percentage points in Zambia (95%CI 3.0 to 13.9, p < 0.003). Knowledge of HIV-positive status did not significantly affect FSWs’ condom use with clients.

Conclusions: In both Uganda and Zambia, FSWs engage in safer sex with clients when they know they are not living with HIV. Even in communities with very high HIV prevalence, the majority of the population will be HIV-negative. Our results imply that expansion of HIV testing programs leading to increased knowledge of HIV status can serve as an HIV prevention measure among FSWs.

**THPEC358**

**Differentiated service delivery models for HIV testing among female sex workers: Lessons from the LINKAGES project in Blantyre, Malawi**

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Background: In Blantyre, Malawi, Pakachere Institute for Health and Development Communication is implementing the PEPFAR-/USAID-supported LINKAGES project, which aims to reduce HIV transmission among key populations (KPs). Including female sex workers (FSWs), men who have sex with men, and transgender people, and extend the lives of those who are HIV positive. Using the HIV cascade framework, Pakachere identifies FSWs, enrolls them in the program, and offers HIV testing and other HIV-related services. The project uses a differentiated service delivery (DSD) model for HIV testing services, which includes testing at drop-in centers (DICs), and moonlight and daylight outreach to complement services offered in traditional public health facilities.

Description: During the design phase of the project, a KP needs assessment was conducted to understand the service needs of FSWs. An intervention was then designed to address FSW preferences for the place, time, and process of accessing HIV testing services. Three DICs were set up in Blantyre, and their catchment areas were mapped and defined based on hot spot mapping. A referral system was established to link FSW who are in need of specialized services and live far from DICs to preferred public facilities. A mobile/outreach clinic plan was also developed based on preferred times to access services, the distance from hot spots to static facilities, and KP needs.

Lessons learned: From October 2016 to September 2017, 1,178 FSW were tested in the program through the three HIV testing services modalities: 636 (54 percent) at DICs, 339 (28.5 percent) through outreach, and 203 (17 percent) at public health facilities. Of the total tested, 370 (31 percent) tested HIV positive, and all were linked to antiretroviral therapy. The DSD model also enabled provision of other services at the outreach and DIC levels. A total of 2,910 FSWs accessed sexually transmitted infection screening services, of whom 1,106 (38 percent) were diagnosed and treated. Sixteen FSWs were linked to prevention of mother-to-child transmission services, and 11 FSWs accessed post-GBV services.

Conclusions/Next steps: The DSD model provides an opportunity for maximum linkage to treatment for difficult-to-serve populations such as FSWs because it offers convenience to service access.

**THPEC359**

Factors associated with HIV non-testing among female sex workers in India: A roadmap to achieve the UNAIDS first 90-90-90 target

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Background: Evidence shows that timely diagnosis and effective linkage to care are critical to reduce the HIV risk burden. India’s national HIV prevention guideline require Female Sex Workers (FSWs) to test for HIV in every six months. Given the UNAIDS call to achieve, 90-90-90 by 2020, this study examines the HIV testing scenario in FSWs in India and identify characteristics associated with non-testing of HIV in last six months.

Methods: Data from a cross-sectional survey conducted among 3689 FSWs using a three-stage cluster sampling approach during Nov-Dec 2017 in five states of India were used. Question on whether FSWs have had HIV testing in last two years and time when they took last HIV test was asked to all FSWs. Bivariate and multiple regression analyses were conducted to find the predictors of HIV non-testing in last six months.

Results: FSWs were, on average, 35 years old, 65% were currently married and 40% were soliciting from homes. Almost all FSWs underwent HIV testing in past two years. More than half (54%) of FSWs had not tested for HIV in past six months. FSWs not going for HIV test in past...
six months was more among young (< 25 year old) than those aged 25 years or older (60% vs 45%). Adjusted Odds Ratio (AOR): 1.55, 95% CI: 1.13 -2.13)., currently married than never married (55% vs 47%, AOR (95% CI) 1.93 (1.42-2.60)), soliciting from homes (60% vs 44%, AOR (95% CI) 1.53 (1.28-1.83)), and dependent on sex work than those having alternative income source (62% vs 43%, AOR (95% CI) 1.71 (1.45-2.02)). FSWs using condoms inconsistently with clients were more likely not to go for HIV test than others (75% vs 46%, AOR (95% CI) 3.93 (3.24-4.77)).

Conclusions: While majority of FSWs were ever tested, more than half are not going for HIV testing as per national guideline. Given FSWs are at the core of HIV prevention program in India, efforts for HIV testing of all FSWs in every six months needs to be done in focussed way. FSWs who are home based, young and currently married should be targeted.

THPEC360 Female sex workers as peer educators in HIV prevention program in Ibadan, Nigeria, foundation for family health experience

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Background: HIV transmission in the context of sex work plays a significant role in the expansion of HIV epidemics in many countries around the world. Nigeria has a large population of female sex workers with extensive differences between and within states. Brothel -based female sex workers (FSW)’s HIV prevalence rate is as high as 27.4%. It is imperative that an effective HIV prevention strategy must be in place. The aim of this study was to establish continuous HIV prevention messages through FSW peer educators.

Description: The program took place between November 2016 and March 2017, in 10 brothels in Ibadan, Nigeria. Brothels were selected using population of sex workers and 50 female sex workers (FSW) were selected using a structured criteria. Capacity building was carried out on HIV prevention packages and peer education. Selected FSWs mobilized and conducted HIV testing and promoted condom use. Community gatekeepers were sensitized for improved access to the brothels. HIV positive identified were referred, condoms was distributed and FSW with sexually transmitted were also referred. The peer educators had six refresher (interactive) meetings. They registered 525 sex workers for HIV counseling and testing and screened all the FSW for other sexually transmitted infected using a screening checklist.

Lessons learned: At the end of the six month activity, out of 525 sex workers that registered, 99.6% had HIV counseling and testing. A total of 9 FSW were found to be positive, they were linked and accessed antiretroviral therapy (ART). 30% of FSW had other sexually transmitted infections which they were referred. Female sex workers were willing to have HIV test done as encouraged by their peers. Other prevention packages such as use of condoms was promoted by peers and acceptable by 80% of the sex workers.

Conclusions/Next steps: It appears that FSW may increase uptake of prevention programs. Future research with a comparison group is need and much time is needed to evaluate the sustainability of the program with the FSW.

THPEC361 Creating collaborative, client-friendly health services for key populations in Zambia: Overcoming stigma, discrimination, and HIV with sensitivity training for health workers

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Background: In 2016 about 12 million people were living with HIV in Zambia. 65% of whom were accessing antiretroviral therapy. Zambia’s National AIDS Strategic Framework acknowledges that female sex workers (FSW) and men who have sex with men (MSM) are key populations (KPs) driving the country’s HIV epidemic and that more effort to engage these and other vulnerable populations and provide access to non-judgmental, client-friendly health and psychosocial support services. Description: In 2016, American International Health Alliance (AIHA) established a partnership linking Chreso Ministries with the University of South Carolina to address the increased risk of HIV infection and significant barriers to care and treatment services faced by FSWs, MSMs, and other KPs in Zambia. The overarching goal of the project was to mitigate the impact of HIV/AIDS on KPs by reducing stigma and discrimination and improving access to crucial health and allied services. Activities focused on strengthening the capacity of health workers at Chreso Ministries’ clinics in Lusaka, Livingstone, and Kabwe, and increasing provider awareness and understanding of the special needs of KPs. The AIHA project team, with support from President’s Emergency Plan for AIDS Relief (PEPFAR), developed a sensitivity training package for healthcare, training a total of 86 across the 3 pilot sites and establishing community advisory boards to provide input and feedback.

Lessons learned: Trainings enhanced health worker knowledge, skills, and attitudes toward KPs in general, and specifically the provision of inclusive HIV-related treatment and care. Members of KPs reported increased access to healthcare services and willingness to seek care when needed. In Livingstone, for example, 120 KPs were brought into care.

Conclusions/Next steps: Partnering with facility- and community-based health workers and KP communities is critical for mitigating the impact of HIV on vulnerable populations and attaining the global go-go-go targets. Health workers can harbour the same misconceptions that increase stigma and discrimination against KPs as the general population, so sensitivity training is a crucial first step toward developing more welcoming, inclusive healthcare services and achieving epidemic control.
Public-private partnerships

THPEC363
Driving innovation at the community level: How leveraging human resources for health in the private health sector can help scale and sustain HIV/AIDS prevention and treatment

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Background: National HIV responses in many countries are constrained by human resources for health (HRH) shortages. In order to accelerate and increase the provision of quality HIV and AIDS services in these settings, it is important to leverage private HRH, which is a significant source of non-HIV services for clients of all income levels. The Sustaining Health Outcomes through the Private Sector (SHOPPS) Plus project, funded by USAID through PEPFAR, conducted a qualitative study to identify effective strategies and tools used by private providers to grow and retain HRH and incorporate community-based prevention and outreach activities, and to consider how private providers can be better supported to establish an effective health workforce for HIV.

Methods: The assessment consisted of a global literature review and case studies of private organizations in South Africa and India. In-depth interviews and site visits were conducted with 18 private service delivery organizations (9 per country) that had viable, innovative, sustainable service delivery models.

Results: Private service delivery organizations in India and South Africa are driving innovations that could increase access to comprehensive HIV prevention and treatment services at the community level. These innovations include integrating prevention and care services, maximizing the efficiency of care models and patient flow, implementing scalable and gender-specific staffing models to empower, retain, and increase HRH; and adopting new technologies, such as artificial intelligence and tablet-based information systems, that increase access to services, enhance CHW’s impact, and enable rapid access to patient data. However, their willingness to apply these innovative models to address HIV depends on the regulatory environment, financial incentives, and the organizations’ own perceptions about their role in the national HIV response.

Conclusions: The private health workforce is critical to addressing HRH shortages and expanding access to HIV services. To maximize private providers’ contribution to national HIV responses, donors and governments need to consider how their programs and policies directly and indirectly incentivize private organizations to scale up HIV service delivery or crowd them out.

THPEC365
Same–same but different: Expanding HIV testing and PrEP to new MSM subpopulations through the private–sector Pulse Clinic in Thailand

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Background: Men who have sex with men (MSM) account for more than 50% of new HIV infections in Thailand; however, only 1/5 of these individuals is aware of his HIV status. Some MSM reject public-sector facilities due to concerns about stigma and discrimination, while community-based service delivery partners have limited space, human resources, and capacity. Additional and sustainable service delivery models are needed.

Description: To expand service delivery options and reach clients not covered by community-based testing services, Pulse Clinic and LINKAGES/Thailand—supported by USAID and PEPFAR and led by FHI 360—collaborated with a gay-operated, for-profit HIV testing clinic (Pulse) in a high-traffic area of Bangkok. LINKAGES supported clinic promotion and standardization of clinic procedures. HIV testing was subsidized for members of the target population while HIV pre-exposure prophylaxis was provided for those who wanted it.
Awareness, information, and risk perception regarding HIV transmission and prevention

TPED367
Making police officers allies in HIV prevention for adolescents using drugs in Kharkiv, Ukraine

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Background: The fear of being arrested and stigmatized by the police is one barrier to accessing HIV prevention and treatment services by adolescents using drugs (AUDs). Current law-enforcement reform in Ukraine puts greater emphasis on crime prevention and refrains from exclusively punitive functions in work with AUDs. Programme “Bringing the Gaps: Health and Rights for Key Populations” implemented in Ukraine since 2012 aims to improve access to services of drug users aged 14-19.

Description: The NGO „Blago“ works closely with police to support their involvement in services for youth. The most interesting form is joint prevention activities of police, youth and NGO staff through trainings, urban quests and visits to police departments. One event was held in the form of an urban quest where adolescents together with police officers formed teams and used police cars to find locations/service points in a game format. Trainings of police on human rights and specifics of working with AUDs help to avoid stigma and attract more young people to services. As a result police officers motivate AUDs to seek HIV prevention, and actively participate in advocacy (drug policy development and enhancing service delivery to AUDs).

Lessons learned: The police is interested in cooperation with NGOs as one of their tasks is to prevent crimes and risky behaviors. Police officers do not have enough skills and tools for working with youth and appreciate any support from NGOs’ experts. Building trustful relationships between young drug users and police contributed to the creation of citywide referral system and increased number of visits to the center for HIV testing and counseling at least by 20%. Adolescents feel more confident in communication with police and are ready to defend their rights in case of detention.

Conclusions/Next steps: Many AUDs have negative experiences with police that make them afraid to request help from any other service providers. Ongoing education of policemen, joint events, including police officers in service delivery team makes interaction between adolescents and policeman constructive. Minimizing the punitive component. The timely solution of problems related to delinquency and its prevention help to avoid imprisonment in future, and thereby reduce possible health risks.

THPEC366
Working with financial institutions to integrate sexual reproductive health promotion and HIV prevention into financial literacy

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Background: Straight Talk Foundation (STF) is a health and development communications Non-Governmental Organization that is implementing The Youth Enterprise Model (YEM) with funding from UNFPA with the objective of integrating sexual reproductive health (SRH) promotion and HIV prevention into young people’s business environments. The project engages 50 Small and Medium Enterprises (SMEs) and 23 Vocational Training Institutes (VTIs) in Mubende and Kampala districts.

Description: According to the Uganda AIDS Commission, it is estimated that 567 young people aged between 15-24 years get infected with HIV every week and of these 363 are girls! Uganda has a predominately young population with young people constituting 24.3% of the population. In an effort to prevent HIV among this population, STF partnered with financial institutions that included a community SACCOs, banks and micro finance institutions to provide integrated SRH and financial literacy to young people as part of their corporate social responsibility. 39 officials from 5 financial institutions were trained by STF on how to integrate SRH into business using a manual developed by the financial institutions and relevant Ministries. 30 outreaches targeting young people from the 50 SMEs and 23 VTIs with over 480 members were organised. In these outreaches, officials from financial institutions gave financial literacy talks carefully integrating SRH information.

Lessons learned: From a recent survey conducted by the YEM project, 86% of young people talked to hard HIV knowledge while 92% were aware of HIV transmission from mother to baby during pregnancy, delivery and breastfeeding. 5,044 young people accessed HIV counseling and testing. This shows the effectiveness of using financial systems to help in demand creation of HIV prevention services. Engaging financial institutions in SRH integration has contributed to increase in financial discipline among young people. This has led to a reduction in the procurement of risk among this population thus contributing to HIV prevention.

Conclusions/Next steps: With identified success using this strategy in just two districts, STF with support from UNFPA is considering scaling up this model to other districts to reach more young people in business to improve their financial discipline as well as their knowledge and access to SRH services including HIV prevention.

THPED368
Barriers to condom use among young men who have sex with men in Lebanon

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Background: In Lebanon, the number of new HIV infections is increasing specifically among YMSM. One of the reasons is the absence of condoms during sexual intercourse. Understanding the reasons standing behind this behavior was crucial in creating HIV and safer sex related programming.

Description: Sexual health and HIV prevention workshop titled “below the belt” is a fun meeting that where YMSM discuss issues related to dating, sexual health, usage of condoms and peer influence. During the session, various types of information is being circulated and many questions such as the barriers to condom-use are brought up with the group.

This session has been conducted with a total of more than 100 YMSM in 7 months.
Lessons learned: While many YMSM are aware of the importance of condoms, there were many socio-political reasons to why some would not use:
- Non-availability of the condoms or the cost of buying condoms
- The thoughts of reduced pleasures when using condoms
- Fear of being rejected by their sexual partner or boyfriend for suggesting condoms implying poor negotiation skills for condom use
- Being high on substance such as drugs or alcohol reduces the ability to request or negotiate condoms
- Trusting their partner is HIV negative solely on word of mouth
- For many YMSM who live with their parents buying and storing condoms represents a problem
- Power and Age dynamics specifically when meeting with older MSM
- Lack of school sexual education which plants the idea of condom use early on.

Conclusions/Next steps: During our program we discovered the importance of explaining the benefits of condom use in preventing HIV infection and other STIs. YMSM seem to be more convinced on condom use when pleasure is discussed in addition to prevention. New prevention methods such as Prep, PEP and Undetectable seem to gain more welcome among YMSM as alternatives to condoms. Recommendations around availability of condoms in bars and bathrooms and increased distribution by NGOs. Empowerment around condom negotiations is vital in spreading the culture of safety. Increase HIV testing rates by explaining and promoting MSM friendly spaces.

THPED369
Men’s beliefs about likelihood of HIV seroconcordance in couples with an HIV-positive female partner: Evidence from rural Uganda

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Background: Men’s beliefs about the likelihood of serodiscordance in relationships and how it is affected by antiretroviral therapy (ART) may influence their decisions to uptake HIV prevention. However, few studies have assessed men’s beliefs in sub-Saharan Africa.

Methods: In 2016, men from four rural parishes in Uganda were enrolled in an HIV testing trial (NTCT02890459) and administered a baseline questionnaire that elicited their beliefs about the likelihood of a man being HIV-positive in two hypothetical scenarios: one in which the man’s wife is HIV-positive and not on ART and another in which she is on ART. Beliefs were measured using a probabilistic scale from 0-10 (0=no chance of seroconcordance, 10=100% chance of seroconcordance). We assessed participants’ responses in each scenario and calculated the difference in responses between scenarios as an indication of beliefs about the preventive effect of ART. Logistic regressions were estimated to explore associations between beliefs and health behaviors.

Results: Of 2,532 men enrolled, 2,386 (94%) had full data and mean age was 38 years. In the scenario in which a man’s wife is HIV-positive and not taking ART, participants believed the man was very likely to be HIV-positive (mean seroconcordance likelihood 8.1 on 0-10 scale, standard deviation sd 2.0). In the scenario in which a man’s wife is HIV-positive and on ART, participants believed the man was somewhat less likely to be HIV-positive (mean seroconcordance likelihood 6.6, sd 2.4). The distribution of responses (Figure) indicated a substantial proportion believed seroconcordance was 100% likely in both scenarios (0.31 and 0.16, respectively). Comparing within-participant differences between scenarios, 57% (N=1,348) reported 30% reduction in seroconcordance likelihood with ART but few reported large reductions. Logistic regressions suggested these beliefs are associated with health behaviors, with those reporting a 100% seroconcordance likelihood even with ART being less likely to seek medical male circumcision (adjusted odds ratio 0.75, 95% CI 0.62-0.91).

Conclusions: Men in rural Ugandan communities over-estimated the likelihood of seroconcordance in couples with an HIV-positive woman and under-estimated the prevention benefits of ART. These incorrect beliefs suggest a need for further education about treatment as prevention and may partially explain men’s lower uptake of prevention interventions.

THPED370
Evaluating the reach of a prevention campaign for men who have sex with men in Quebec, Canada

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Background: In June 2016, COCQ-SIDA launched “Sex on the Menu”, a social marketing campaign aimed at preventing the transmission of HIV and other STIs among men who have sex with men (MSM) in the province of Quebec, Canada. Created by an advisory committee of gay men and other MSM, the campaign sought to inform MSM about different prevention options and encourage them to visit pretpourlaction.com, a sexual health information website. The following year, an evaluation protocol was developed and implemented to assess the reach of the campaign.

Methods: An online survey was developed to measure the proportion of the target population who: a) remembered seeing the campaign; b) were aware of its key message; and c) intended to learn more about the prevention methods. LGBT and HIV community-based organizations (CBO), research groups, and other stakeholders promoted the survey on social media for 10 weeks. Descriptive analyses of proportions were generated from survey responses. Two focus groups (N=12) were held to gather qualitative data that was analyzed thematically.

Results: A total of 123 participants responded to the survey with a completion rate of 88%. Nearly one quarter (24.3%) of respondents recalled seeing the campaign after being shown one of the visuals from the campaign. Of these, 60% were aware it was a prevention campaign, 38.7%...
agreed that it had led them to learn more about or to use one or more prevention methods, and 20% had visited prepourllaction.com after seeing the campaign. Focus group results suggest that MSM are exposed to many informational campaigns that deal with HIV or STIs. Participants could remember seeing these campaigns but had difficulty recalling the specifics of a particular campaign. Campaigns that they were able to recall in more detail were highly promoted on television for an extended period and were not related to sexual health.

Conclusions: Despite limited financial resources, “Sex on the menu” seems to have met its objectives: participants who saw the campaign remembered it, understood its message, and learned more about prevention options. To increase reach, CBOs should consider extending the longevity of prevention campaigns and tailoring promotional efforts to maximize visibility.

THPED371
Engaging youth in digital discussions about HIV and discrimination: How the initiative #UNAIDSChallenge caused a buzz in Brazil

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Background: The growth of AIDS cases among young people aged 15-29 in the past decade remains a major concern in Brazil. Recent indicators show that young people living with HIV present lower adherence to treatment and consequently a lower proportion of them achieve viral suppression. The #UNAIDSChallenge aimed to:
(i) mobilize YouTubers and digital influencers from different backgrounds and outreach capacity to use their creativity and promote new ways to debate HIV among their followers;
(ii) translate technical and formal language into messages relatable to young audiences;
(iii) provoke reflection on how society, especially young people, is debating HIV-related issues on the internet.

Description: The #UNAIDSChallenge was conceived as a social media informative game to raise awareness on AIDS-related issues. Over 30 digital influencers voluntarily accepted the challenge, and committed to publish their videos on YouTube and Facebook. Fifty of the most frequently asked questions about HIV were taken from the Internet and 15 of them were randomly sent to YouTubers as part of a special game box also containing tokens to skip and google questions, and even consult a specialist through a telephone-style headset. An online platform with quick guides, tips, videos, and all the answers was built to support them during the challenge.

Lessons learned: Altogether, the videos reached more than 1 million organic views, nearly 180,000 tweets and thousands of comments in a one-month period, rekindling an important debate on HIV and discrimination on social media, especially among young people. Mobilization was made on a voluntary basis, proving that young influencers are open to this kind of dialogue and that their followers welcome this kind of initiative. Social media monitoring tools have shown that acceptance and positive evaluation were at 100%.

Conclusions/Next steps: Innovative approaches to break down barriers in the promotion of the dialogue about HIV with young people are feasible and possible when tailor-made strategies are built with and for youth. Although intergenerational dialogue on HIV will continue to be a challenge, young people have proven to be open to the debate as long as it happens according to their preferences, languages and perspectives.

THPED372
Gaps in delivery and uptake of patient-centered HIV testing: Provider and community leader perspectives on HIV testing in fishing and non-fishing villages around Lake Victoria, Kenya

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Background: Wide-scale delivery and uptake of HIV testing in high-prevalence communities around Lake Victoria is critical to controlling the HIV epidemic in Kenya. Engaging young women, men who have sex with men, and heterosexual men in HIV testing remains a challenge. We sought to better understand barriers to uptake and delivery of HIV testing in general, and high-quality patient-centered care specifically, from the perspective of those providing HIV testing and related community services in Homa Bay, Kisumu and Siaya.

Methods: We conducted 16 focus groups (11 with HIV testing and care providers, 5 with community leaders) with a total of 172 individuals. Semi-structured focus group guides focused on multilevel factors influencing the HIV care continuum. Transcripts were double coded and themes extracted inductively.

Results: Factors thought to influence uptake of HIV-testing were generally consistent across regions and focus groups, with main concerns (Figure 1) falling within the areas of lack of trust in services, stigma, problems in delivering high-quality patient-centered care, fears of negative consequences of testing positive (largely social in nature), entrenched gendered norms, and HIV testing policies. Gender disparities included lower uptake of testing among men and men using the results of their female partners to determine their own HIV status. Participants recommended, as solutions, extending clinic hours, venue specific in-community testing, creation of welcoming environments that respect patient
dignity, time, privacy and confidentiality, providing incentives/tokens for testing, using peers and improving the counseling surrounding testing, and community-level efforts to reduce stigma and disseminate better information about HIV.

**Conclusions:** Despite considerable progress in HIV testing in high prevalence areas in Kenya, a number of barriers remain. Providers of HIV testing and care and community leaders offered a number of innovative strategies that should be seriously considered. Bringing opportunities to test into venues commonly accessed by at-risk groups, flexing clinic hours and creating inclusive clinic environments may help to improve current programs. Further research is needed to investigate if and how current policies (e.g., testing pregnant women) may reinforce existing gender disparities in HIV uptake (e.g., men wait for their partners to test rather than test themselves).

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**THPED373**

**HIV knowledge trends during an era of rapid antiretroviral therapy scale-up: An analysis of 35 sub-Saharan African countries**

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**Background:** Population-level improvements in knowledge about HIV may reduce the stigma attached to HIV and ensure maximal uptake of HIV prevention initiatives. It is unknown to what extent levels of HIV knowledge in the general population of sub-Saharan Africa have changed in the current era of antiretroviral therapy (ART) scale-up.

**Methods:** Data on HIV knowledge in the general population were drawn from the 2003-2015 Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIDSIS) of 35 countries in sub-Saharan Africa. The DHS/AIS contain five questions on HIV prevention and transmission that have been used by UNAIDS as a core indicator of HIV knowledge. We created a composite HIV knowledge variable equal to the number of correct responses to these five questions: a participant was considered to have comprehensive knowledge of HIV (yes/no) if he/she answered all five questions correctly. We fitted negative binomial regression models with cluster-correlated robust standard errors and country fixed effects specifying comprehensive knowledge of HIV as the dependent variable and year as the explanatory variable. As an alternative, spatial-temporal Gaussian process regression (ST-GPR) is used to synthesize all country level estimates and make trends estimation for each indicator in each country.

**Results:** From 1990 to 2016, across all countries, having heard of AIDS (heard_aids) slightly increased from 93.7% to 95.0%, from 79.8% to 82.7% and from 67.4% to 75.7%, respectively. However, knowing that condom use reduces risk of HIV infection decreased from 77.9% to 73.8%. Regarding attitude, willing to frequent HIV+ vendor (att_veg) slightly increased from 93.7% to 95.0%, from 79.8% to 82.7% and from 67.4% to 75.7%, respectively. However, knowing that one partner reduces risk of HIV infection (kw_one_partner) and healthy looking person can have HIV/AIDS (kw_look) were included in the analyses. The mean HIV knowledge score was 3.7 among women and 3.9 among men (p< 0.001). Only 35% of women and 41% of men (p< 0.001) had a comprehensive knowledge of HIV. We estimated a modest but statistically significant positive association between year of DHS/AIS and HIV knowledge (adjusted b = 0.005, 95% Confidence Interval (CI), 0.001-0.009). Similarly, we estimated a statistically significant positive association between year of DHS/AIS and comprehensive knowledge of HIV (adjusted b = 0.011; 95% CI, 0.006-0.017), suggesting an approximately 1% relative increase per year in the percentage of the general population who possess a comprehensive knowledge of HIV.

**Conclusions:** There have been only modest improvements over time in HIV knowledge across sub-Saharan Africa.
Conclusions: Attitude towards people living with HIV has been improved significantly across all countries. However, improvement in knowledge is moderate and knowledge of condom use reducing HIV risk even decreases slightly, suggesting that health education on HIV/AIDS and condom use needs to be not only continued but also strengthened.

THPED375
Longitudinal studies of HIV risk perception and sexual risk behaviour in east Zimbabwe 2003-2013
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Background: Risk perception is central to behaviour change theories that informed HIV prevention interventions, but mixed evidence exists on associations between risk perception and sexual behaviour. This may be because risk perception is essentially a bi-directional longitudinal concept which is difficult to capture in cross-sectional studies. We use longitudinal data to examine whether changes in sexual behaviour lead to changes in risk perception, and whether changes in risk perception lead to changes in protective behaviour.

Methods: Data on HIV-negative adults (45-54 years) participating in 12 of 4 surveys (2003-2013) in a general-population open-cohort study in Zimbabwe were analysed. Individuals not reporting risk perception in the first of two surveys were examined regarding whether changes in sexual risk (having multiple, casual, or concurrent sexual partnerships) between surveys were associated with developing risk perception at follow-up. Individuals not reporting condom use during last sex in the first survey were examined regarding whether developing risk perception between surveys was associated with condom use at follow-up. Data were analysed as panel and logistic regressions were adjusted for socio-demographic characteristics.

Results: Among respondents not reporting HIV risk perception in the first of two surveys (n=2259/N=1008), increasing sexual risk between surveys was associated with developing risk perception (odds ratio [OR]=1.56, 95% confidence interval=1.09-2.24) (Table). Despite this higher relative risk among those increasing sexual risk, 86.0% of all developing risk perception (93/1155) did not change their sexual risk. Among respondents not using condoms in the first survey (n=7234), developing risk perception was associated with starting condom use (OR=1.52 [1.19-1.94]) controlling for changes in sexual risk, marital status, and other socio-demographic factors (Table). 63.5% of all starting to use condoms (372/590) did not change their risk perception.

Conclusions: This is the first longitudinal study confirming expected associations between changes in sexual behaviour and HIV risk perception, and between changes in risk perception and protective behaviour. The results support prevention programmes to educate about risky behaviour and increase risk perception. However, only a small proportion of changes in condom use could be attributed to changes in risk perception, underlining the importance of other factors that determine HIV prevention behaviour, including factors beyond individual control.

THPED376
HIV intervention using interactive voice response (IVR) for key populations
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Background: Physical outreach has been the main prevention approach for key populations (KP) in HIV programs, but is often costly and limited in its capacity to reach geographically dispersed, criminalized, stigmatized, or otherwise “hidden” KP. The use of mobile and internet technologies is a promising approach for young tech-savvy users with internet access. However, in the conduct of virtual outreach, high levels of illiteracy or limited social media or Internet access remains challenging. The use of telephone-based Interactive Voice Response (IVR) systems may help overcome these barriers by supporting keypad-based interactions that require no advance knowledge on the part of end-users and can be accessed by mobile phone virtually anywhere.

Description: A four-digit, easy to remember, free of charge call number (2296), was linked to the Verboice® free and open-source IVR and was promoted through leaflets and social media targeting KPs. A variety of services are available to callers via self-guided menu items, including health information via quizzes and short messages; edutainment using mini-dramas, songs, and testimonials; and, online live counseling. The system also provided an option for callers to register to receive HIV-related voice-message reminders monthly.

Lessons learned: Between September 2015 and November 2017, 55,577 calls were received from 8,027 unique telephone numbers registered. These included 22,809 calls where users opted to receive content relevant to entertainment workers (EW) (40.82%); 17,704 calls selecting content relevant to men who have sex with men (MSM) (31.68%); and 15,564 calls selecting content relevant to transgender (TG) people (27.50%). Edutainment was the most popular service selected, accessed 34,043 times or (60.92%) of the total calls. Approximately 13,204 users chose health information (23.63%), and online-counseling was accessed by 8,530 (15.44%). During the same period, 145,079 reminder messages were sent to numbers registered under the EW option, 132,520 for MSM, and 29,415 for TG.

Conclusions/Next steps: IVR systems are a viable approach to providing KP with essential HIV-related information and bridging the digital divide. However, in adopting IVR it is also essential to establish online-to-offline referral systems to facilitate and document the connections to HIV testing and treatment services needed to accelerate epidemic control.
Promoting HIV risk awareness among key population through tablet-based outreach risk screening in Cambodia

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Background: To support the National Center for HIV/AIDS, Dermatology and STD (NCHADS) in improving the effectiveness and reducing the costs of HIV programming, tools are needed to differentiate and prioritize the prevention and treatment response on the basis of individuals’ risks and preferences. Persistent stigma, discrimination, and criminalization of key populations (KP) facing the greatest HIV risks prevent many KP from feeling comfortable disclosing their risks through face-to-face interaction. Confidential, self-administered, electronic risk screening tools may provide viable and preferred alternatives for eliciting personal risk information.

Description: We introduced a Tablet-based Outreach Risk Screening (TORSR) as an electronic tool used during outreach to determine an individual’s risk (high, medium or low) of HIV acquisition or onward transmission. It was piloted by the USAID Flagship project in Siem Reap province between April and July of 2015 and was then implemented more widely in four provinces, from January 2016 through October 2017. Individuals categorized as “high-risk” included those reporting multiple partners during April and July of 2015 and was then implemented more widely in four provinces, from January 2016 through October 2017. Individuals categorized as “high-risk” included those reporting multiple partners or unprotected anal/vaginal sex. Following the risk screening, all those identified at risk (high and medium) were invited to participate in a finger-prick HIV screening test. A nine-digit unique identification number (UIC) was used to identify individuals participating in screening and finger prick testing.

Lessons learned: In total between January 2016 and October 2017, 16,424 EW, 7,171 MSM, and 1,338 TG had been screened. Among that 6,618 (40%) EW, 3,210 (35%) MSM, and 834 (63%) TG were identified as “High Risk.” 5,465 (33%) EW, 1,344 (18%) MSM, and 14 (6.8%) TG were “Medium Risk.” For finger prick testing, 4,767 (39%) EW, 1,829 (35%) MSM, and 138 (20%) TG of all “High Risk” and “At Risk” individual had taken the test; and 36 (6.8%) EW, 4,012 (51%) MSM, and 5 (1%) TG were reactive to the test.

KPIs Reached Screened High-Risk HIV Test At-Risk HIV Test Low-Risk HIV Test Total HIV positives
EW 19,174 16,424 6,618 3,210 6,615 1,557 4,327 563 36
MSM 9,015 7,171 3,860 1,531 1,344 298 1,967 137 4
TG 1,377 1,318 834 184 114 2 370 3 5

Conclusions/Next steps: Tablet-based risk-screening can provide useful answers to risk assessment questions and promote HIV risk awareness among KPs by letting them know their risk status and behaviors. By knowing the individual risk behaviors, the outreach workers can provide more specific HIV and STI educational messages, and reduce unnecessary HIV testing among those with low risk.

Predicting sexual assertiveness among Black women

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Background: Despite the high HIV prevalence rate for Black women in Virginia, few studies have examined how potential protective factors against HIV vary within this group. The purpose of this study was to determine if four aspects of sexual assertiveness differed across demographic categories and were associated with self-esteem in a diversified group of Black women living in Virginia.

Methods: A cross-sectional study was conducted with a community-based sample of 117 adult Black women. The women provided information on their age group, income level, highest level of education, sexual orientation, and relationship status. Self-esteem was measured using the Single-Item Self-esteem Scale (SISES). The Sexual Assertiveness Scale (SASS) was used to measure four types of sexual assertiveness: (a) initiation of sexual interactions, (b) refusal of sexual activity, (c) HIV/AIDS/STD communication, and (d) contraception/STD prevention. ANOVAs determined differences in means of the four SAS subscales across the demographic categories. Pearson bivariate correlations were conducted between the SISE and the four measures of sexual assertiveness.

Results: HIV, AIDS, and STD communication assertiveness mean scores were significantly higher among higher- versus lower-income Black women (p=.016) and Black women with a college versus a high school degree (p=.047). Homosexual Black women had a significantly higher communication assertiveness mean score in comparison to heterosexual and bisexual Black women (p=.002). Similar results were found for contraception and STD prevention assertiveness. Moreover, self-esteem was significantly positively associated with all but one measure of sexual assertiveness in the sample of 117 Black women. No significant differences in sexual initiation or sexual refusal assertiveness scores were found across demographic groups.

Conclusions: Sexual assertiveness scores among HIV/AIDS and STD prevention and communication were associated with level of income and education. In addition, as the study participants’ self-esteem increased, so did their sexual assertiveness. The findings suggest that HIV/AIDS prevention and education initiatives focusing on educational attainment and building self-esteem would be beneficial in building sexual assertiveness attitudes and behaviors among Black women as an HIV/AIDS prevention method.

Factors associated with HIV status disclosure to partners and its outcomes among HIV-positive women attending care and treatment clinics in Kilimanjaro region, Tanzania

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Background: Sub Saharan Africa continues to be the epicenter of HIV with 70% of people living with HIV globally. Women form nearly 60% of those living with HIV. Studies have shown disclosure of one’s HIV status is important in HIV prevention; in increasing partners who are tested and getting into care early as well as in improving retention in PMTCT and ART programs. This study aimed to determine the prevalence, factors and outcomes of HIV status disclosure to partners among HIV-positive women attending HIV care-and-treatment clinics (CTCs) at Kilimanjaro region, northern Tanzania.

Methods: A cross sectional study was conducted from January to June 2014 in 3 out of the 7 districts of Kilimanjaro region. The study population was HIV-positive women aged 15-49, who were attending for routine HIV care at 19 selected clinics. Face to face interviews were conducted with consenting women to collect necessary information.

Results: A total of 672 HIV-positive women in Moshi municipal, Hai and Mwanga districts were enrolled. Of the enrolled, 609 HIV-positive women reported to have a regular partner. Prevalence of HIV-serostatus disclosure to partners was 66%. Of the 400 who had disclosed: 56% did so within the first month of knowing their HIV status. In multiple logistic regression HIV-serostatus disclosure was higher among women who were married/cohabiting, currently on ART, who reported condom use, and who reported had ever communicated with partners on number of children and contraceptives. Most of the women (81%) who disclosed their HIV status to did not reported negative outcomes.

Conclusions: In this setting still a third of the HIV-positive women (34%) fail to disclose their HIV- serostatus to partners. Interventions to impart skills in communication and negotiation between partners may help in improving disclosure of HIV. Efforts to involve men in general sexual and reproductive health including couple counseling and testing will contribute in improving disclosure and communication on HIV among partners.
THPEDI380
Impact of workplace HIV interventions on HIV knowledge and risky sexual practices among key and priority populations in Uganda

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Background: The USAID Uganda HIV and Health Initiatives in Workplaces Activity (HIWA) disseminates information on how to reduce HIV transmission, protect oneself from HIV infection, and reduce risky behavior to the following priority populations: Uganda Police Force (UPF), Uganda Wildlife Life Authority (UWA), private security guards (PSGs), and hotel employees. HIWA disseminates messages through:
1) enlisting workplace HIV champions,
2) conducting peer-to-peer small group sessions,
3) holding workplace-based HIV/health wellness events, and
4) supporting a 24-hour mobile health platform.

This study assessed the impact of these interventions after 2 years of implementation.

Methods: Surveys were conducted comparing baseline (November 2015) and post-intervention (October 2017) data from a random sample of 1,185 and 654 employees, respectively. Comprehensive HIV knowledge was calculated in accordance with Uganda Demographic and Health Survey methodology (survey participants were asked to name recommended ways to prevent HIV infection and reject two common misconceptions about HIV transmission). A composite indicator of participants’ risky sexual behavior was generated by analyzing transactional sex, cross-generation sex, multiple sex partners, non-condom use with partners of non-regular partnerships, and consumption of alcohol before sex.

Results: All indicators were significant at the 5% level. The study identified a 14% (confidence interval (CI) 10-18%) increase in HIV knowledge, a 2% (CI 1-3%) increase in ability to identify HIV preventive measures, and a 16% (CI 13-19%) increase in ability to reject misconceptions in the intervention group. The largest knowledge increase was among UPF and hotel employees (17%, CI 10-24%), followed by UWA (10%, CI 8-12%) and PSGs (5%, CI 3-7%). Reported engagement in risky sexual practices declined overall by 12% (CI 8-16%), with the largest decline among UPF (25%, CI 21-31%). However, an increase in risky sexual practices was seen in 23% (CI 17-29%) observed among hotel employees.

Conclusions: The study suggests HIWA’s interventions contributed to measurable increases in HIV knowledge, with less consistency on their impact on risky sexual behavior. The results contribute to program learning and adaptation of implementation strategies. Additional exploration of workplace setting situations is needed to determine where specific approaches are most appropriate.

THPEDI382
Should the permanent deferral for blood donation among MSM be revisited: A cross-sectional study in 3 metropolitan cities in China

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Background: Many countries are evaluating the potential risks and benefits of relaxing deferral policies for blood donation among men who have sex with men (MSM). In China many MSM conceal their same-sex behaviors and donate blood in despite of the permanent deferral. This study aimed to assess the prevalence of and factors associated with blood donation among MSM in China.

Methods: Our observational study was conducted between January and August, 2017 in 3 metropolitan cities: Guangzhou, Shenzhen and Wuxi. Eligible participants were MSM (≥18 years old) who had either ≥2 sex partners or unprotected anal sex with casual partners, or had been diagnosed with an STI in the past 6 months. A self-completed tablet-based questionnaire was collected about blood donation history, socio-demographic characteristics, sexual behaviors and HIV testing history.

Results: A total of 603 MSM were enrolled in our study, with a mean age of 27.9 years (SD=7.8). Overall, 29.2% (76/252) reported a history of blood donation, namely 33.1% (100/302) in Guangzhou, 27.6% (42/152) in Shenzhen and 22.8% (34/149) in Wuxi (*6.41, P=0.093). While 83.0% donated blood out of altruism, only 11.4% did so to get tested for HIV. MSM who had ever used geosocial networking (GSN) mobile applications (apps) (OR=2.4, 95%CI 1.2-4.6) or had ever tested for HIV ≥2 times in the past 12 months (OR=1.5, 95%CI 1.1-2.3) were more likely to have donated blood. Some 3.3% (20/603) reported blood donation in the past 6 months, among whom one person was tested HIV-positive with CD4 of 145 copies/mm³. One other individual donated blood knowing his HIV-positive status. Compared to non-donors, a higher proportion of donors had ≥10 male sex partners in lifetime (36.4% vs 26.0%, P=0.011). Among 582 men who had sex in the past 6 months, only 20 (3.4%) donated blood in the same period.

Conclusions: Blood donation was common among MSM in China. The great majority of MSM may comply with 6-months deferral which implies the necessity of reconsideration of deferral length. In the meantime HIV testing technologies that can substantially narrow the window period should be scaled-up in blood donation venues.
THPED383
Substance use, adherence to antiretroviral therapy, and sexual risk behaviors among people living with HIV in Guangxi, China

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Background: Sexual risk behaviors among people living with HIV (PLHIV) can have serious public health consequences. Adherence to antiretroviral therapy (ART) can be positively or negatively associated with engagement in sexual risk behaviors. The negative associations can be due to the confounding effect of some factors such as substance use, while the positive associations have sometimes been attributed to treatment optimism. Given a general lack of relevant research in China, this study aims to explore the associations among substance use, ART adherence, and sexual risk behaviors among PLHIV in Guangxi, China.

Methods: Cross-sectional data from 1,134 PLHIV (654 men and 470 women) in Guangxi, who reported having been sexually active and receiving ART were analyzed. Measures included demographics, drug use, alcohol use, smoking status, medication adherence, HIV viral load, and sexual risk behaviors (multiple sex partners and inconsistent condom use). Path analyses were performed using Mplus 7 to identify the associations of interest.

Results: In the first path analysis for testing treatment optimism hypothesis, the participants who reported lower ART adherence were more likely to have an unsuppressed HIV viral load (β = 1.11, p = 0.023), have multiple partners (β = −12. p = 0.017) and have used condoms inconsistently (β = −0.08, p = 0.003). No associations between HIV viral load and sexual risk behaviors were identified. In the second path analysis for testing confounder hypothesis, alcohol use (β = −12, p < 0.001), smoking (β = −0.09, p < 0.003), and drug use (β = −19, p < 0.001) were separately associated with poorer ART adherence. Those who reported alcohol use (β = −14, p = 0.005), and smoking (β = −19, p < 0.001) were more likely to have multiple partners. Drug use had an indirect effect on partner concurrency (β = −0.02, p < 0.033), while alcohol use had an indirect effect on inconsistent condom use through ART adherence (β = −0.03, p < 0.03).

Conclusions: The findings indicated substance use was a confounder, and ART adherence buffered the positive associations between substance use and sexual risk behaviors. Future interventions to reduce sexual risk behaviors among PLHIV in Guangxi are recommended to focus on reducing substance use, as well as promoting ART adherence.

THPED384
AHF Checkpoint Kyiv: Effective marketing to increase HIV testing

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Background: The estimated number of HIV-positive people in Ukraine is more than 230,000, with 132,945 patients in care. The availability of rapid testing in Ukraine is a priority, in line with the recently adopted “Test and treat” strategy. In Eastern Europe there is a lack of effective marketing campaigns to motivate and educate people to get tested. The objective of the intervention was to use creative marketing to motivate people to get tested at AHF Checkpoint Kyiv.

Description: AHF Checkpoint Kyiv is a testing facility, opened in July 2015 that provides free, low-threshold, walk-in HIV rapid testing, counseling, and free condom provision. The data reviewed covers January 2016–December 2017 when the marketing interventions were launched. 1. interactive website with locations of testing site and HIV facts (August 2016), 2. campaign “New love” targeting youth and MSM with 130 outdoor billboards in subway (August 2016), 3. campaign “Kołaczymy HIV” covering over 200 public transportation stops in Kyiv (June 2017).

Lessons learned: Overall in 2016 and 2017, 9,294 HIV rapid tests were performed at AHF Checkpoint Kyiv with 348 reactive cases and 37% positivity rate. During the period of both campaigns the number of visits to the new website exceeded 31,000 people, all of them spent over 2 minutes on the site focusing on testing site locations, condom use guide and HIV facts. With the launch of the campaigns the monthly average of tests performed doubled, from 169 (positivity rate 6.7%) to 399 tests (4.6%) after the first activation to 709 (4.5%) after second activation. 6,489 (70%) clients were first-time testers. There were 265 (3.5%) positive results in this group. Young people (15-24 years of age) constituted 30% of all people who tested at the Checkpoint with 44 reactive cases (1.6%).
Lessons learned: The demand for PrEP in Uganda exceeds supply. Information on PrEP still remains scanty as only a few organizations focus on it. The WHO guidance is clear that women should have information as well as full access to the method of their choice, regardless of their HIV risk.

Conclusions/Next steps: Use of Hormonal Contraceptives in Uganda, especially Depo is high. Women therefore need to have full information on the possible risk of acquiring HIV when on Depo so they can make informed choice.

THPED386
Beliefs about HIV treatment-as-prevention among young adults in rural South Africa

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Background: WHO recommends treating all HIV-infected people with antiretroviral therapy (ART) at diagnosis in order to reduce onward transmission of the virus. Yet uptake of ART among young adults is low, contributing to persistently high transmission rates. We hypothesized that young adults may not be aware of the prevention benefits of ART, leading to potentially sub-optimal uptake of ART.

Methods: We conducted a population-representative household survey of 425 young adults (ages 18-29) in rural KwaZulu-Natal, an area where one in three adults is HIV-infected. Using an innovative method to ascertain quantitative risk perceptions, we assessed young adults’ beliefs about the HIV risk environment, including prevalence, survival, and infection risk. We asked about the risk of HIV transmission within a serodiscordant couple under different scenarios, and compared perceived transmission risks to objective risks in the literature.

Results: Young adults had largely accurate beliefs about HIV prevalence and the survival benefits of ART. However, they substantially underestimated the prevention benefits of ART. On average, young adults perceived an 82% annual incidence of HIV in serodiscordant couples where the HIV-infected partner was on virally-suppressive ART. Young adults perceived that consistent condom use would reduce infection risk by 71% relative to unprotected sex - close to published estimates. However, young adults perceived that ART would only reduce per annum incidence by 17%. Published estimates indicate >95% reduction in risk.

Conclusions: Young adults in rural South Africa are growing up in an HIV risk environment that differs dramatically from that faced by the previous generation. Treatment-as-prevention, in particular, offers an opportunity to substantially reduce HIV transmission. However, gaps in knowledge about the benefits of HIV treatment-as-prevention may limit the potential of policies aimed at increasing ART uptake. Further efforts are needed to disseminate this information.

THPED387
Beyond clinicians’ recommendations: Understanding the underlying reasons for infant feeding choices among HIV-infected women in the Eastern Cape, South Africa

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Background: Prevention of breast milk transmission is the next critical step in attaining the goal of elimination of mother-to-child transmission of HIV in South Africa. This study examines the feeding choices of peri-partum women infected with HIV in the Eastern Cape, South Africa, and assesses the underlying reasons for their choices.

Methods: Drawing from the baseline data of the East London Prospective Cohort Study Database, 1709 mother-infant pairs enrolled across three large maternity facilities were interrogated on infant feeding choic-
es in the Buffalo/Amathole districts. All HIV-infected women who gave birth between September 2015 - May 2016 with complete responses (N=1662) were included in the analysis. In addition, semi-structured interviews were conducted among 177 purposively selected participants to gain insights into the reasons for choosing their preferred infant feeding method. Descriptive and inferential statistics were used to summarise the quantitative data, while thematic analysis was performed on the qualitative data.

Results: The participants mean age was 29.63 (SD±6.2) years. Most participants were already diagnosed with HIV prior to the index pregnancy. The majority of the participants (80.3%) preferred to breastfeed their baby. There were no significant associations between demographic characteristics and infant feeding choices. Aside from clinicians’ recommendations, perceived benefits of breastfeeding, fear of transmitting HIV to the baby, unaffordability of formula feeding, coercion, low milk supply/painful breast and need to return to work and school were the underlying reasons for infant feeding choices.

Conclusions: The majority of HIV-infected women chose to breastfeed their infants. Beside the clinicians’ recommendations, the socio-economic and socio-cultural factors are the facilitators of breastfeeding among women in this setting. Retention and continuous engagement in care post-partum are crucial for elimination of breastfeeding transmission in the exposed infants.

THPED388
Shaping policy with science and stakeholders: Development and administration of a survey on U=U messaging in New York State

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Background: In September 2017, New York became the first state in the US to adopt the Prevention Access Campaign’s Undetectable equals Untransmittable (U=U) consensus statement. The U=U concept, that PLWH with a sustained undetectable viral load cannot sexually transmit the virus to partners, provides a structure to advance positive messages that help to reduce stigma and reinforce retention in care strategies to end the HIV/AIDS epidemic in New York State. The New York State Department of Health AIDS Institute (NYSDOH) Al plans to initiate pro-
grammatic efforts and messaging to ensure the U=U concept becomes broadly known throughout the State.

Methods: The NYSDOH Al implemented a statewide online survey to assess knowledge and to guide development of U=U messaging among key stakeholders, including consumers, medical providers, advocates, health workers and others involved in HIV activities from all regions of New York. With 23 questions, the survey assessed awareness and atti-
tudes regarding U=U, verbal and visual image preferences, and potential impact.

Results: Results from this U=U survey provide a framework for a suc-
cessful policy initiative around HIV prevention and stigma reduction. There were 617 individual respondents, including go clinical providers. Responses indicated a high level of awareness and positive attitudes about U=U. Overall, most of the participants (84.3%) had heard of U=U before taking the survey, and over half (57.5%) were very confident in the U=U concept. There were clear preferences for certain messaging terms, visuals that include images of people, and a multifaceted outreach approach. Some regional and occupational variations emerged that indi-
cate a need for targeted messaging as well as informational initiatives.

Conclusions: The survey results affirmed that Undetectable equals Untransmittable represents a social and scientific shift, with significant positive implications for PLWH, their service providers and communities. This key information will be used to develop a statewide U=U messag-
ing campaign adapted to the cultural, geographic, and socioeconomic diversity of New York State. Results also support a possible ‘diffusion curve’ for accepting certain U=U concepts, and further investigations are needed to assess the ways medical providers discuss U=U with patients.
THPED389
Egocentric networks, HIV knowledge and status disclosure: Case of St. Petersburg

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Background: Russia is currently experiencing an increase in HIV incidence. St. Petersburg is one of the cities with the highest level of reported HIV prevalence, especially among the heterosexual population. Social context plays a key role in forming attitudes and behavior but there are few studies in Russia examining egocentric networks of people living with HIV (PLWH). This research aims to serve as a pilot study to examine associations between the different aspects of disclosure of HIV-positive status, sexual risk behaviors, and HIV-related knowledge among PLWH and members of their egocentric networks.

Methods: We conducted a cross-sectional study with 134 patients of St. Petersburg AIDS Center and 137 members of their egocentric networks. Each respondent could recruit up to three members of their networks but only 95 patients (71%) recruited at least one alter. All participants completed self-administered questionnaires. We compared patients with their alters separately for parents and peer alters (paired statistical tests).

Results: We identified that men were more likely to recruit friends, women recruited mainly family members. Patients who did not recruit anyone did not differ significantly from the rest part of the sample. Patients showed better knowledge of facts related to HIV-infection compared to their peers (median value of right answers 80% compared to 60% for the peers, Mann-Whitney U=94, p=0.011) and compared to their parents (median value of right answers 70% compared to 60% for the parents, Mann-Whitney U=98.5, p=0.01). Patients had less casual sexual partners during the last 3 months (exact test p=0.03) than their peer alters. Those who disclosed their status to the parents had lower rates of risky sexual behaviors (0% vs 44% of not using condoms with casual partners, Fisher test p=0.03).

Conclusions: We found that peer alters had poorer HIV knowledge than patients and were more engaged in HIV risk behavior which could result in HIV transmission. These patterns could be related to stigma associated with HIV in Russia. Because network members share features with patients that put them at risk for HIV, it makes egocentric networks a focus for HIV prevention interventions.

THPED390
HIV services in healthcare settings

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THPED391
Expanding access - saving the future: Taking HIV testing to village health facilities increased the access to pregnant women. Results from Global Fund supported AHANA project in 9 states of India

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Background: While India has made a significant progress in arresting and reversing the HIV epidemic. Testing coverage for pregnant women remained very low. Evidence suggests access to HIV testing remained at 18% in the 218 priority districts of 9 identified states with an estimated annual pregnancies of 15 million per year. A strategy study carried out under Plan India’s Ahana programme supported by The Global Fund to understand the access to HIV testing among pregnant women.

Description: A mixed method study was carried out in 29 districts of 9 states. 22 In-depth interviews and 58 FGDs were carried out with state and district level health officials and 888 pregnant women were interviewed through a structured interview schedule. Quantitative data was analysed using SPSS and qualitative data was analysed through a structured coding template.

Lessons learned: Findings from the study suggests that as the access to HIV testing has expanded to the district and village level population, HIV testing has increased from 18% to 69% among pregnant women during Oct. 15 to Oct. 17. There has been substantial increase in the public health facilities providing HIV testing services, in CHCs it has increased from 55% to 91%, in PHCs from 7% to 48% and in sub centre from 1% to 19%. Three fold approach: investing in the capacities of community health worker, procurement of Kits and managing supply chain of kits and consumables resulted in increasing coverage of pregnant women with HIV testing. PPTCT related knowledge remained at 98% among the community health workers and only 6% pregnant women concluded saying access of HIV testing is difficult.

Conclusions/Next steps: Increased access to HIV testing led to pregnant women accessing more HIV testing. As the testing services was made available in the peripheral public health units the HIV testing increased manifold. Plan India's Ahana project shows the pathway to how to rationalise the investment in the high load and priority districts with the measures of capacity enhancement and enhancing the supplies so that coverage increases from 18% to 69% within 24 months.
**THPED392**

**Reasons for failed linkage to care across four facilities in Lusaka, Zambia**

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**Background:** The Centre for Infectious Disease Research Zambia (CIDRZ) routinely monitors progress toward 90/90/90 in 233 government health facilities across four Zambian provinces. HIV testing services (HTS) are provided through a number of entry points. Despite expanding access to HTS, recent estimates for linkage-to-care in Zambia are 50% at 12 months. To better describe the role of HTS entry point on ART initiation, reasons for incomplete linkage in Lusaka Province were analyzed.

**Methods:** A mixed methods approach was used to evaluate reasons for ART initiation refusal among a convenience sample of two urban and two rural ART clinics. All individuals with a HIV-positive test recorded 1 May–30 June, 2017 at the four clinics comprised the study population. Data was abstracted from hard copy HTS registers, with specific reasons for refusal (within 60–90 days) linkage ascertainment using a “Comment” field in the HTS register. Individuals were categorized as: 1) linked-to-care, with evidence of registration in the national HIV electronic medical record (SmartCare); 2) not linked-to-care, with no documented registration in SmartCare; and 3) refused care, in which care refusal was documented in the HTS register. Documented reasons for refusal were categorized by keyword(s).

**Results:** Of the 1,119 records reviewed, 683 (48.9%) were identified as linked-to-care, 487 (40.8%) as not linked-to-care, and 121 (10.1%) as refusal care. Of those that refused, we identified seven reasons for care refusal (Figure 1). Of the 99 who refused care and had complete documentation, the majority (68.6%) received HTS through unspecified provider-initiated testing and counseling (PITC). Unspecified PITC had the highest proportion of refusals across all entry points at 15.0% compared to 5.3% for those entering via voluntary counseling and testing (VCT). The most common reason for refusal was poor service quality across all entry points at 15.0% compared to 5.3% for those entering via voluntary counseling and testing and the maternal child health department. The most common reason for refused care included promising to return at a later time (12.4%) followed by needing to consult spouse (9.1%), cited mostly by women (92%).

**Conclusions:** A better understanding of the reasons for refusing treatment may inform efforts to reach 90/90/90 goals. Tracking linkage-to-care by testing entry point may provide insights for facility-level quality improvement and targeted interventions to promote ART acceptance and initiation.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Level</th>
<th>Linked, n (%)</th>
<th>Not Linked, n (%)</th>
<th>Refused, n (%)</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Age, mean (SD)</td>
<td>Female</td>
<td>31.85 (10.67)</td>
<td>30.71 (10.70)</td>
<td>30.59 (9.42)</td>
<td>0.23</td>
</tr>
<tr>
<td>Age, mean (SD)</td>
<td>Male</td>
<td>30.00 (10.60)</td>
<td>29.23 (10.60)</td>
<td>30.00 (9.40)</td>
<td>0.82</td>
</tr>
<tr>
<td>Sex</td>
<td>VCT</td>
<td>170 (33.10)</td>
<td>136 (28.60)</td>
<td>17 (15.70)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sex</td>
<td>PITC</td>
<td>190 (37.00)</td>
<td>230 (48.60)</td>
<td>74 (15.80)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Entry Point</td>
<td>Maternal Child Health</td>
<td>109 (21.20)</td>
<td>34 (7.20)</td>
<td>8 (13.50)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Entry Point</td>
<td>Tuberculosis Clinic</td>
<td>9 (1.80)</td>
<td>9 (1.80)</td>
<td>0 (0.00)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Entry Point</td>
<td>Other/Unspecified</td>
<td>36 (7.00)</td>
<td>64 (13.50)</td>
<td>9 (8.30)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

(Table 1: Linkage Review Population Characteristics by Linkage Status)

**[Figure 2: Refusal Reason by Entry Point]**

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**THPED393**

**Experiences of patients on the quality of service delivery influencing the uptake of antiretroviral treatment in South Africa**

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**Background:** Patients’ non-adherence to antiretroviral treatment (ART) is now being considered as one of the major obstacles facing public health institutions around the world. Service quality plays a vital role in ensuring patients adhere to ART. A worldwide survey of 59 ART clinics around the world by World Health Organization (WHO, 2016) discovered that poor service quality results into non-adherence to ART. The objective of this study is to ascertain the perspectives of patients on the quality of ART service delivery influencing the uptake of antiretroviral uptake in Piet Retief Wellness Centre, Mpumalanga Province, South Africa.

**Methods:** This qualitative study draws on 20 individuals, in-depth, face-to-face interviews with both males and females between the ages 15-49 years enrolled at Piet Retief Wellness Centre for ART between the period 2010 and 2014. The quasi-experimental design was utilised whereby both patients who defaulted (10 patients) treatment as well as who have not defaulted treatment (10 patients) formed part of the study. The interviews were 20 minutes on average. To analyse the data, interviews were audio-recorded, transcribed and analysed using thematic analysis and NVivo 8 software.

**Results:** The results of the study highlights patients’ experiences with regard to service quality influencing the uptake of ART services. Clear instructions from service providers and patients’ knowledge about the benefits of ART adherence positively contributed to the uptake of ART. In addition to that, patients’ adequate knowledge about the dangers of non-adherence to ART contributed positively to the uptake of ART. However, shortage of staff workers, negative attitude from health care providers as well as long waiting times negatively affected the uptake of ART thus resulting into ART poor service quality at Piet Retief Wellness Centre.

**Conclusions:** Although ART is readily available in health institutions around the country, poor service quality affect adherence to this life saving treatment. Interventions should aim to ensure that adequate staffing of health workers is put in place to limit long waiting times, psychosocial support should be provided to health workers on an on-going basis and long-term learning should be provided ART patients through community support groups (ART adherence groups).

**THPED394**

**Healthy Mothers, safe babies: EMTCT through strengthening public health system: Result from plan India’s Global fund supported Ahana project in g state of India**

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**Background:** An estimated 29 million pregnancies in India need to be annually screened for HIV so as to meet the goal for elimination of Mother to Child Transmission. The Government of India accord priority attention to EMTCT of HIV by 2020. The study showed that importance given for strengthening public health system and follow up for saving HIV exposed babies and healthy mothers. Plan International (India) implements Global Fund–supported PPTCT program (AHANA) in liaison with NHM and NACO in 218 priority districts of 9 Indian states to achieve the goal of eMTCT.

**Methods:** A mixed method study has been carried out to understand the state Level implementation strategies towards strengthening the health system and follow up. All together 888 pregnant women and 51 Positive Pregnant Women were interviewed. FGDs were carried out with ASHA and ANM. Detailed and desk research was carried out to understand the response system.
Results: Continuous capacity Building on PPTCT issues and methods of executing whole blood finger prick testing (WBFPT) provided to peripheral workers through AHANA for streamlined HIV screening in periphery level. 37217 ANM got WBFPT training and 37267 ANM got training on PPTCT. Created awareness about PPTCT through Community Mobilization Meeting and Mid media activities. There has been substantial scaling up of HIV testing facilities in the periphery level. 95% PPW linked to ART. Continuations follow up leads to safe delivery and timely service. As a result of multipronged strategy engaged by Plan India resulted in increased HIV coverage among pregnant women from 18% to 70%.

Conclusions: The study suggests that a continuous dialogue and collaboration resulted in increased capacities at the periphery level health worker, improved HIV kit supplies which sets the demand and supply equilibrium at a higher level. There has been increased awareness on the issues of PPTCT at the beneficiary and as well as at the service provider level, reduction in stigma observed with the outreach work carried out at the field with existing public health workers e.g. ASHA and ANM. As a result of continuous treatment mothers were healthy and continuous follow up till 18th months leads babies were negative.

THPED395
Improving pediatric HIV testing and counselling and linkage to care: A pilot in Uganda

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Background: In many facilities throughout Uganda, there is low uptake of pediatric HIV testing and counselling (HTC). Of those children who are tested and identified as HIV-infected at different entry points, linkage to care and treatment services is also often poor. Of those eligible for anti-retroviral treatment (ART), only 57.6%, are currently receiving it.

Description: We conducted a pilot to enhance efforts to improve identification of HIV positive children through high-quality pediatric HTC services and the successful linkage of those children to care and treatment, while ensuring high quality of pediatric HTC services. It was implemented December 2014-July 2015, in 20 health facilities within 5 districts targeting different levels of the health care system in Uganda. Key activities included: pediatric HTC aligning with the highest-risk populations, successful linkage to care and treatment services of those children who are tested and identified as HIV-infected, and use of Quality Improvement (QI) approach to ensure high quality services. The pilot process had 7 key steps namely: selection of the 5 districts and 20 sites; training of QI teams at facility level, and monthly mentorship using QI approach.

Lessons learned: Comparing the 4 pilot districts performance access to paediatric HTS has generally improved from an average of 4.75% at baseline - December 2014 to 47.2% as of June, 2015; with the highest district scoring 60% and the lowest 39%. All the 20 pilot health facilities have functional QI teams and actively QI running projects. Improved client satisfaction surveys using the Likert scale (0-10). Responses were categorized into promoters, passives and detractors after which, the Net promoter score (NPS) was calculated.

Conclusions/Next steps: Utilization and awareness of the National Call Center at Baylor-Uganda by health workers was accelerated nationwide from 2015 to 2017. The study suggests that a continuous dialogue and collaboration resulted in increased capacities at the periphery level health worker, improved HIV kit supplies which sets the demand and supply equilibrium at a higher level. There has been increased awareness on the issues of PPTCT at the beneficiary and as well as at the service provider level, reduction in stigma observed with the outreach work carried out at the field with existing public health workers e.g. ASHA and ANM. As a result of continuous treatment mothers were healthy and continuous follow up till 18th months leads babies were negative.

THPED396
Improved utilization of the national pediatric and adolescent HIV/AIDS/ TB call center through targeted marketing: Lessons from Baylor-Uganda

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Background: Real time consultation between health specialists and lower cadre health care providers who are front line workers in the communities through call centers can improve HIV/AIDS and TB clinical management skills to achieve the 90:90:90 goals especially in developing countries like Uganda. There is limited documentation on utilization of this approach and the strategies used to improve access by health workers in periphery health care facilities. We describe how the utilization of the National Pediatric and Adolescent Call Center at Baylor-Uganda by health workers was accelerated nationwide from 2015 to 2017.

Description: Following the Call Center inception in 2015, review of data showed that it was receiving about 20 calls per month from health workers. The marketing strategies used at that time were radio and television advertisements which fetched more calls from patients than the real intended audience of health workers. Using a continuous quality improvement approach, the call center team conducted targeted visits to the ART health facilities across the country. Onsite CMES were conducted and individual, weekly SMS reminders sent out to emphasize health workers’ awareness. Monthly feedback on the calls was tracked through client satisfaction surveys using the Likert scale (0-10). Responses were categorized into promoters, passives and detractors after which, the Net promoter score (NPS) was calculated.

Lessons learned: Overall, the calls received from health workers increased from 20 to 400 per month from March 2016 to March 2017. The NPS improved from 60% in 2016 to 73.3% in 2017 from a sample of 157 feedback calls made.

The national call center coverage rose from 40% in September 2016 to 94% in September 2017 with calls from over 95 districts in Uganda. Knowledge gaps were identified from frequently asked questions and 47% of the calls indicated a gap in pediatric TB management.

Conclusions/Next steps: Utilization and awareness of the National Call Center for HIV/TB increased following innovative approaches like targeted health worker marketing and site team improvement strategies. The Call Center, as a tool, can identify knowledge gaps that can guide health implementing partners to prioritize key areas for training such as pediatric TB management.

THPED397
Understanding the experiences of adolescents living with HIV in the context of lay health worker service delivery in Swaziland

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Background: There is a growing prevalence of adolescents living with HIV (ALHIV) and a rising dependence on lay health workers (LHWs) to deliver HIV services throughout sub-Saharan Africa (SSA). Hence, it is important to understand how ALHIV experience and perceive HIV services delivered by LHWs. Expert clients (ECs) are a cadre of LHWs who are living with HIV and are deployed through Swaziland’s National Expert Client Program and are generally recognized for effectively engaging people living with HIV within the health care system. However, there have been no studies done to determine how ALHIV experience services delivered by ECs.

Methods: This study utilized a qualitative descriptive approach to: (1) understand the experience of receiving services from LHWs from the perspective of ALHIV and...
2) explore specific health care needs among ALHIV that are addressed through LHW service delivery in Swaziland. Four focus groups among ALHIV (ranging from age 10 and 20 years) and 21 semi-structured interviews among ECs and key informants were conducted in urban, rural, and peri-urban areas throughout Swaziland from April to May 2017.

Results: The semi-structured interviews and the focus groups reveal that ECs are a necessity for ALHIV because:

1) ECs are people or adolescents who are also living with HIV.
2) ECs are role models and can share their health care experiences with ALHIV.
3) ALHIV feel comfortable around ECs because they are a trusted member of the community.
4) ECs encourage ALHIV to adhere to their medications through home visits and peer support groups.
5) ECs play a crucial role in linking adolescents to HIV care and services.
6) ALHIV are able to interact with ALHIV outside of normal work hours.
7) ECs maintain strong relationships with ALHIV by providing psychosocial support.
8) ECs help health care providers improve clinical care.
9) ALHIV find that ECs are more approachable than are professional health workers.
10) ECs work directly with professional health workers as well as the caregivers of ALHIV.

Conclusions: ECs are a valuable cadre in adolescent-specific HIV service delivery. Future research should focus on the impact that LHWs have on health outcomes among ALHIV in SSA.

THPED398
Preventing loss to follow up at health facilities during transitioning from pediatric to adult clinic by adolescents living with HIV

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Background: In Nigeria, children living with HIV are expected to transit to adult clinic at age 15 as most health facilities do not have adolescent specific clinics offering youth friendly services. This has resulted in loss to follow up of adolescents during the transition from paediatric to adult care. This abstract presents the effort of PATA to address this challenge and ensure retention in treatment for children moving to adult health facilities.

Description: This initiative involves intensive training for selected adolescents living with HIV as peer mentors and treatment educators. At the end of the training, they are supported over a designated period and placed in HIV clinics to provide transitioning treatment support who are transiting from pediatric to adult care. In partnership with treatment sites, clinic based adolescent support groups are also established to serve as platforms for team bonding, experience sharing and promotion of treatment adherence. During the monthly meetings of the support groups, sexuality education sessions are skills acquisition trainings are also carried out.

Lessons learned: Effective in reducing loss to follow up at facility level for adolescents living with HIV. In just one year 725 adolescents were reached with adherence counseling and support services in 3 sites. Promotes engagement of young people in HIV response. Effective in sustaining clinic based support groups for adolescents ‘as monthly meetings and sessions at support groups are coordinated by the adolescents. Reduces the time spent at clinics by the adolescents ‘who get prompt attention from their peers. Prevents facility based stigma and discrimination as the adolescents are attended to by their peers. Reduces the pressures of work on adult care givers.

Conclusions/Next steps: Uptake of treatment services at facilities by adolescents is most successful with the active participation of the adolescents themselves. Adolescents living with HIV are willing to serve as peer mentors, treatment educators and stigma fighters for their peers. All they need is the strengthening of their capacity and creation of an appropriate enabling environment. We recommend active engagement of adolescents at the clinics to provide services for their peers.

THPED399
Identification of barriers and potential strategies to improve the performance of publicly-funded healthcare facilities for people living with HIV in Mexico: A mixed methods and user-centered approach

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Background: Since 2003, Mexico offers universal access to free antiretroviral therapy (ART). However, only 34% of people living with HIV (PLWH) have an undetectable viral load. Most research to address this issue has focused on the individual determinants of poor health outcomes, yet little is known regarding the influence of the healthcare provision process in middle-income settings, where ART is available through a public network of health services. Therefore, we aim to analyze the barriers that public HIV healthcare facilities face in Mexico, in order to identify key strategies to improve their performance.

Methods: From September to October 2017 we conducted 40 semi-structured interviews with healthcare providers in 12 Mexican cities. Additionally, we applied an online survey to 196 healthcare providers from a nationally representative sample. Interviews and surveys focused on the barriers that facilities face during the healthcare delivery process. We used ‘Design-thinking’, a user-centered approach, to guide the identification of barriers and the building process of the strategies. Finally, we implemented a discourse analysis and triangulated it with the descriptive results of the surveys.

Results: We identified several barriers that the facilities face to provide optimal care, and categorized them into 4 levels of necessity:
1) Lack of basic resources, especially office supplies, human resources and medical equipment.
2) Need of resources to provide ART and clinical monitoring, such as transportation means for antiretroviral drugs and blood samples.
3) Lack of drugs and lab tests for comorbidities, including opportunistic infections.
4) Beyond the facility, mostly discrimination and rejection of patients at referral hospitals.

Finally, we identified two potential strategies to overcome these barriers: improving the communication channels between facilities and higher organizational levels in order to achieve a sustainable and effective resolution of needs; and strengthening the facilities’ capacity to find local allies and enrich their networks, to temporarily overcome transportation and supply barriers.

Conclusions: Despite the immense advance in ART access in Mexico, several challenges in the healthcare provision process remain. In order to successfully address them, additionally to delving into the facilities’ current obstacles, we need to further test and assess the feasibility and effectiveness of our proposed strategies.

THPED400
Healthcare providers’ attitudes and willingness to prioritize HIV prevention and treatment for gay and transgender communities in Manila, Philippines: An opportunity for provider-focused interventions

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Background: Gay and transgender youths who have sex with men (GTYSM, ages 18-29) are disproportionately impacted by the rising HIV epidemic in the Philippines, where HIV incidence has more than doubled in the past six years. In the UNAIDS’ 2017 Global Report, 86% of new HIV cases are concentrated among GTYSM. However, little is known about healthcare provider’s capacity to servicing these populations. We ex-
Background: Poverty and adherence and poverty and viral load.

Methods: Between July and August 2017, we conducted semi-structured qualitative interviews with healthcare providers (n-15) delivering HIV-related services in hospitals, clinics, and organizations in Manila. Using Dedoose qualitative software, interviews were transcribed and examined for attitudes and willingness in providing HIV-related services for GTYSM.

Results: Overall, healthcare providers displayed positive attitudes in welcoming GTYSM patients who are at-risk for or living with HIV in their practice. Most expressed treating every patient equally and providing services regardless of their patient’s gender or sexual identity. However, many expressed hesitancy in providing HIV-related services due to: little to no training in providing care specific to GTYSM, difficulty understanding the importance of being sensitive to patient’s gender and sexuality when delivering services, and fear that targeted services with GTYSM’s could lead to further stigmatization of these communities. Although most healthcare providers were unsure how to tailor and prioritize HIV-related services for GTYSM, some providers acknowledged the importance of engaging GTYSM communities in their practice, learning how to improve their services from GTYSM’s perspectives, and expressed willingness for HIV-related trainings focused on providing gender affirmative and culturally sensitive care for GTYSM.

Conclusions: Healthcare providers are willing to deliver HIV-related services to GTYSM patients but unsure how to approach service delivery specifically and sensitively among these highly-impacted populations. Provider-focused interventions that train providers to improve their knowledge, skills, and attitudes on GTYSM gender and sexual identities, as well as their familiarity and sensitivity with GTYSM’s lived experiences and health needs, are likely to increase healthcare providers’ engagement in delivering and prioritizing gender affirmative and culturally sensitive care for GTYSM in Manila.

Results: Of sociodemographic predictors, only poverty status was associated with lower perceived clinical humanism (β=-0.65; p<.05). Lower perceived clinical humanism was significantly associated with lower ART adherence (β=-0.34; p<.05) and with higher viral load (β=0.107; p<.05). Perceived clinical humanism significantly mediated the relationships between (a) poverty and ART adherence (βp<.05) and (b) poverty and viral load (βp<.01). Building on these findings and on the extant literature, we developed a set of Harm Reduction Principles for Healthcare settings to operationalize this HIV care approach. These include humanism, pragmatism, individualism, autonomy, incrementalism, and accountability without termination.

Conclusions: We are currently developing two complementary scales to test patients’ and providers’ perceptions of the degree to which harm reduction-informed HIV care is delivered incorporating the full set of harm reduction principles. Additional research is needed to assess the impact of harm reduction-informed care on clinical outcomes of vulnerable PLWH.

TPHED402
The effect of differentiated care interventions on the workload of facilities providing ART in Onandjokwe district in Northern Namibia

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Background: The Namibia Ministry of Health and Social Services (MHOSS) 2016 ART guidelines recommend implementing differentiated care models (DCM) for eligible stable clients. Stable clients required at least four clinical reviews per year, resulting in high workload and long waiting times at health facilities. In January 2018, IntraHealth International, with USAID funding, analyzed program data to ascertain the effects of implementing DCM on workload for district ART services.

Description: Onandjokwe district in northern Namibia has one hospital and 10 primary health care (PHC) facilities providing ART to over 11,000 clients. In June 2017 all facilities began planning for, or implementing, at least one of two DCM for eligible stable clients: fast-track ARV refills at facilities and community ART refill groups (CARGs) that are linked to the nearest facility. In both models, clients receive ARV refills every three months and are seen semiannually. Data from January–December 2017 were sourced from facilities’ electronic patient monitoring systems, electronic dispensing tools and facility reports and quantitatively analyzed in Excel.

Lessons learned: Seven of ten PHC facilities are providing ART to 4,605 clients of which 357 (7.7%) are in CARGs, two of these facilities are also providing fast-track ARV refills to 81 clients, which translates to 876 fewer visits per year. Onandjokwe hospital has 60 out of 6,107 clients (1%) in CARGs and 732 (12%) on fast-track ARV refills, together amounting to 1,584 fewer visits per year. A comparison of client visits in February and November 2017 revealed that six of the seven PHC facilities and the hospital saw 33% and 88% fewer clients, respectively, in November.

Conclusions/Next steps: Within six months of implementing DCM, Onandjokwe district is experiencing a reduction in ART-related workload. The hospital is experiencing faster decline because clients are also transferring to PHC facilities. The rate of CARGs enrollment and fast-track ARV refills is expected to intensify in 2018, resulting in significant further reductions in facilities’ workloads. National HIV programs should continuously monitor and evaluate such interventions and use the findings to advocate for scale-up. Findings can be used to conduct workload analyses to support equitable distribution of scarce human resources.
HIV services in community settings

THPED403

Community-based HIV care and treatment: Differential care among stable key population positives in Ghana

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Background: ART delivery has essentially been concentrated in health care facilities in Ghana. The Ghana national ART guidelines, which is in line with the Treat All policy makes provision for all people living with HIV regardless of clinical and immunological status to initiate treatment. This shift calls for meeting diverse patient needs. Addressing the diverse needs of HIV positive key populations (KPs) such as men who have sex with men (MSM) and female sex workers (FSWs) in care require proper segmentation to provide for the unique needs of KPs receiving ART for at least 1 year with no adverse drug reactions requiring regular monitoring, no current illnesses or pregnancy, a good understanding of lifelong adherence, and evidence of treatment success.

Description: The USAID Strengthening the Care Continuum project, implemented by JSI, aims to improve the Government of Ghana’s capacity to provide quality and comprehensive HIV services for KPs and people living with HIV by improving their access to and use of HIV services while reducing stigma and discrimination in health settings. The project trained 63 Case Managers (CM) comprising 3.2% healthcare workers and 96.8% peer educators. CMs follow up on HIV positive persons who consent to be followed up. Feedback from peer review meetings and field visits reveal that stable patients prefer to do their refill at designated community spaces and CMs they trust instead of the clinic. At one Polyclinic in Accra, there are 48 HIV-positive MSM enrolled in care, 38 initiated on ART out of whom 30.0% collect their refill at home and designated community spaces.

Lessons learned:
- From the focus group discussions with HIV positive MSM and FSWs, 25% wanted their refill from CMs, 5% by family members, 50% by healthcare workers while 20% preferred clinic doctors.
- Stable patients doing their refill at designated community spaces help to decongest the clinic and allow providers to give more attention to patients with more complex conditions.

Conclusions/Next steps:
- Community-based distribution for stable patients can reduce clinic visits and improve adherence.
- HIV positive KPs facilitate the access of their stable peers to ART at homes and agreed upon community spaces.

THPED404

Outsiders, Insiders and Intermediaries: Village Health Teams’ negotiation of roles to provide high quality HIV care in Nakaseke, Uganda

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Background: In 2001, Uganda’s Ministry of Health instituted Village Health Teams (VHTs) using community health workers, as a formal part of the health system to increase access to community-based care, including HIV prevention/treatment services. Tensions may emerge as VHTs navigate dual roles as community members and care providers, posing challenges for quality of care and VHT retention. This study explores the benefits and challenges experienced as VHTs utilize dual roles to provide high-quality HIV care.

Methods: Twenty-five semi-structured interviews were conducted with one-third of the VHTs affiliated with a rural clinic in Nakaseke, Uganda in 2017. Interview questions focused on challenges VHTs face in providing services, and strategies for improving quality care. After translation from Luganda, the local language, and transcription, interviews were analyzed using grounded theory to identify emergent themes.

Results: The majority of VHTs were female in-161, with a mean age of 45.5 years, and 11.1 mean years of VHT work. Three themes emerged around VHTs perceptions of their roles: community insiders, professional outsiders, and intermediaries. All VHTs capitalized upon the duality of their position, shifting roles depending upon the challenges presented. A caregiver insider role facilitated their ability to build rapport and discuss sensitive issues such as HIV with clients. As community members, VHTs leveraged existing community structures to educate clients in familiar settings such as “drinking places”, where they felt comfortable. However, this intimate role posed challenges as some clients hid their status, fearful that the VHT would break confidentiality. Occupying a professional outsider role offered some VHTs more respect. Their specialized knowledge allowed them to follow-up with patients – accompanying reluctant clients to testing, explaining medication, and ensuring ARV adherence. Some VHTs faced opposition, as patients were suspicious of their motives as government representatives. In balancing these two roles, the VHTs adopted a third as intermediaries, connecting the community to resources and services in the formalized health care system.

Conclusions: As countries continue to scale up HIV services in rural community settings using VHTs, supervision and training are critical so VHTs are prepared for the challenges of assuming multiple roles within their community. Ethical dilemma training is advised.

THPED405

Bridging the gap: Reaching men for HIV testing through religious congregations in rural South Africa

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Background: Men are underrepresented in the HIV programmes in sub-Saharan Africa. In this region, religious congregations play an important role in daily life. Bridging the religious and health sectors could provide an opportunity to reach men who normally do not engage with healthcare. We aim to determine the potential of reaching men for HIV testing through religious congregations.

Methods: We implemented an innovative model of building capacity in religious congregations to increase engagement with the HIV programme. Following training of religious leaders, a family-centred mobilisation approach was implemented with provision of general information about HIV during Church services and including specific male-focused messages. Following this mobilisation period, the programme was concluded on a designated Sunday when HIV testing services (HTS) were provided at the Church. In this cross-sectional study we collected gender/age-disaggregated operational data on uptake of HTS services among church attendees.

Results: To conclude the capacity building programme, we provided HTS at 27 religious congregations with an estimated attendent population of 5250 individuals over a 15-months period in rural Mopani District, South Africa. A total of 1971 individuals attended the Church service on designated HTS days: 1416 (72%) of the attendants were female and 555 (28%) male. With a median age of 32 years. HTS uptake by men (52%) was significantly higher than by women (40%; p< 0.001). A large proportion of men (35%) reported testing for HIV for the first time. This was significantly higher than reported by women (18%; p< 0.001). HIV test positivity rate was in a similar range for men and women (2.1% vs. 3.7%; p=0.21). Men testing HIV-positive at the Church were all >40 years old (median 50 years; range 41-64 years).

Conclusions: This innovative approach was successful in reaching a relatively large group of (older) men with unknown HIV status that has not engaged with HIV testing services before. Male uptake of HIV test-
ing was good with an HIV positivity rate in similar range to that of other community-based testing activities in this region. We have demonstrated promise of connecting religious and health sectors to improve male engagement with the HIV programme in rural African settings.

THPED406
Using m-counseling to increase linkage into care among HIV positive men who self test.
A TASO Masindi experience

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Background: HIV self testing is a strategy that has been employed to increase the number of people who know their HIV status. However linkage of people who test positive following self testing still remains a big challenge towards the attainment of the second and the third UNAIDS 90s. We used the peer to peer distribution of HIV self test kits among fishermen and m-counseling to improve on the linkage into care for those who tested HIV positive.

Methods: Through the TASO expert clients, we identified fishermen who were in care and those who had never for HIV in the last one year. These men were trained on the usage of the kit, given basic HIV counseling skills and information. Each fisherman received 5 kits, instruction leaflet and a number for a counselor for distribution to their fellow fishermen. Participants who received the kits were encouraged to call the counselor in case they needed more information and counseling. On calling, the counselor provided online counseling and encouraged the participants to return the used kits to the health facility.

Results: 19 fishermen of whom 10 were HIV positive and in care and 9 hadn’t tested in the last one year approached 115 fishermen and 95 accepted to self-test. 4 out of 95 men were HIV positive, of whom 3 first called the counselor immediately after testing and shared their results. All the three were counseled on phone and encouraged to go to the health facility for confirmatory testing and were all linked into care. 1 out of the 4 who tested positive already knew his HIV status and was already on ART. This information was provided to the counselor on phone who confirmed that he was already linked into care.

Conclusions: Through m-counseling HIV positive men were influenced to go to a nearby facility for confirmation of results and linkage into care. Therefore in self-testing programs m-counseling replaces the conventional counseling and contributes to linkage of HIV positive persons into care.

THPED408
Food security and nutrition vulnerability assessment among people living with HIV in South Sudan

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Background: South Sudan ranks among top 30 countries in the world which account for 86% of new HIV infections. Households of People living with HIV (PLHIV) are among those most affected by the persistent conflict, displacements, poverty, food insecurity and malnutrition in the country. The United Nations World Food Programme (WFP) supports a nationwide institutional feeding programme (IFP) for PLHIV but there was no reliable information on their food security and nutrition situation. The vulnerability assessment was conducted to provide reliable national data on food security and nutrition among households affected by HIV in order to inform appropriate responses.

Methods: Qualitative and quantitative data was collected from 933 households of PLHIV (aged 15 years and above) in 7 of the 10 former states of South Sudan using a two stage cluster sampling method. The Consolidated Approach to Reporting Indicators for food security (CARII) was used to measure the degree of food insecurity. The nutrition status of 942 PLHIV was assessed using Body Mass Index (BMI) and Mid Upper Arm Circumference (MUAC).

Results: Majority of the household heads (77.2%) were PLHIV, 45% were headed by women and 41% households were food insecure. A significant proportion of households (60%) relied on unsustainable sources of food including remittances, begging and the sale of natural resources and alcoholic beverages. One in three PLHIV households consumed less than the recommended four food groups. The factors affecting food security included nutrition and health status of PLHIV, ability to engage in agriculture, stigma and discrimination. The prevalence of acute malnutrition among PLHIV based on BMI was 26.2% and 19.7% based on MUAC. The risk of malnutrition was significantly higher among female headed households, those hosting an orphan or with a lower wealth index.

Conclusions: The food security and nutrition situation of PLHIV in South Sudan is alarming. PLHIV headed households had an increased risk of food insecurity. Special consideration should be made to provide food and nutrition support for PLHIV on ART and those with limited workability. The findings triggered a revision of the WFP HIV/AIDS nutrition strategy which is now aligned with national and global policies.
THPED409
Improving referrals from health facilities to community based structures: Strategies used to improve referrals in the Rwenzori Region in Uganda
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Background: Achieving the UNAIDS 90-90-90 targets calls for the adoption of innovative and efficient strategies for delivering HIV and prevention, care, and treatment services. Baylor-Uganda developed a referral and linkage strategy to improve access to comprehensive HIV/AIDS/ TB services as well as other wrap around services. The strategy focuses on strengthening bi-directional referrals. White referrals from the community to the facility were high, the referrals from the health facilities remained low in the Rwenzori Region. Strategies were implemented with the aim of increasing the number of referrals from the health facilities to the communities.

Methods: We convened a District based re-orientation meeting to review jointly the strategy. The meeting was also an opportunity to discuss and understand why fewer referrals from the health facilities. Causes were identified and joint action plans developed jointly by community structures and health facilities mapped out in their catchment areas. Notable causes included health workers not aware of services to refer, poor documentation of referrals and lack of knowledge on the model. Strategies developed included pinning up referral services in the health facilities, CMES, on-site mentorship, coaching, monthly review meetings, health facility focal persons to create demand and timely updating of the linkage and referral register.

Results: Referrals in October, 2016 were 851 with a completion rate of 67% and with the strategies there has been gradual improvement to 5,233 (92% completion) in December, 2017. Community referrals have contributed to improved Retention rates of 91% for ART clients for eMTCT and reduced Loss to follow up from 6% to 4% attributed to functionality of the community health facility linkage and referral process.

Conclusions: Strengthening the referral and Linkage model is critical in attaining the 90:90:90 goal as well as increase demand and utilization of HIV services at community level.

THPED410
Improving linkages and retention for TB clients through community health workers: A case study of Rwenzori, Uganda
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Background: Over all Tuberculosis (TB) prevalence is 263/100,000 approximately 87,000 new cases occurring every year (Uganda National Tuberculosis Prevalence Survey, 2016). Despite the high prevalence, there is minimal integration of interventions delivered by community structures into the existing formal health system. Community health workers (CHWs) have been considered as a key pillar in attainment of the UNAIDS 90-90-90 targets as well as the STOP-TB strategy. Uganda has embraced the use of CHWs in improving health care service delivery. Baylor-Uganda within its community framework model has used CHWs to assess their role towards timely linkages and TB retention rates in health facilities with Rwenzori region, Uganda.

Description: In 2016, Baylor-Uganda initiated a community framework model in reaching the 90:90:90 target. 289 CHWs were selected in the community through the District Health office and trained in Comprehensive HIV Care for 6 days using a tailored curriculum. A follow on onsite mentorship was conducted.

Outcomes of interest include retention of clients undergoing the TB treatment for a period of 12 months and timely Linkage for referrals made from the community to the facility for presumptive TB cases. The TB program within Baylor-uganda in Rwenzori, embraced and utilized the community framework model to improve referral, linkage and retention. Data collected was collected over a period of 12 months from October, 2016 to October, 2017 and data was descriptively analyzed using excel.

Lessons learned: Linkage of TB clients to Community health workers and emphasis on monthly reporting greatly led to improvement of TB loss to follow up. There was a notable drop in Loss To Follow Up Kyenjojo dropped from 21% to 3%; Kamwenge from 6% to 2% and Kabarole from 13% to 2% for the period December 2016 and September, 2017.

Conclusions./Next steps: Community health workers when fully engaged improve identification, linkage to health facility for TB diagnosis and retention in care for those tested positive.

THPED411
Pathway to improved health outcomes and graduation of orphans and vulnerable children in the context of a generalized HIV/AIDS epidemic. Experience from Swaziland Umlila Loyi Embili project
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Background: Pact’s USAID-funded REACH III (2016-2018) project is designed to respond to the HIV prevention and impact mitigation needs of vulnerable populations in Swaziland. In 2015, Pact conducted a vulnerability assessment of adolescents (10-19 years) to determine enrolment eligibility and service needs of orphans and vulnerable children (OVC). Based on the results of the vulnerability assessment REACH III tailors services to OVC in the areas of HIV/health, education, household economic strengthening, child protection, and psychological support. The assessment also acts as a mechanism for monitoring the level of OVC vulnerability and determining the appropriate time for graduation from the program.

Methods: The baseline and follow-up vulnerability assessments were conducted with a cohort of OVC (n=12,042) and their caregivers in 2016 and 2017. The assessment scores and ranks vulnerability into three categories: most vulnerable (qualified for OVC and HIV prevention and/or care and treatment services); at risk of becoming OVC (qualified for HIV prevention services); and good wellbeing. Descriptive analyses and the Stuart-Maxwell test were conducted in Stata to determine statistically significant differences between enrolment and reassessment. Cohen’s kappa analyzed inter-rater reliability.

Results: The Stuart-Maxwell test yielded statistically significant (p<0.00) change in the OVC vulnerability. with 10.2% of OVC shifting from the "most vulnerable" category at enrolment up to "at risk" at follow-up. Fifty-five percent of OVC who did not disclose their HIV status at enrolment reported being HIV-negative at reassessment, and 15.2% of OVC remained HIV-negative at reassessment. Self-reported VMMC rates climbed 9.1% at reassessment. The cohort also saw statistically significant improvements in OVC school enrollment, attendance, and progression, and household economic security at follow-up over baseline.

Conclusions: The results demonstrate that providing a tailored package of services to OVC based on a vulnerability assessment is associated with decreased vulnerabilities and improved social and health outcomes for OVC, which leads to OVC graduation from support programs. The results also suggest that OVC support services and demand creation services at the household level over time may lead to HIV status disclosure, as well as increased uptake of health and HIV services, including VMMC, HIV testing services and linkages to care and treatment services.
**THPED412**

**Achieving viral load suppression for men who sell sex to men (MSM/MSW) in Nairobi: A community led and centered approach**

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**Background:** HOYMAS is registered as a CBO in Nairobi which has contributed remarkably towards progressive improvements in the number of MSM/MSW accessing HIV and STI prevention services, treatment and care services through networking with government led clinics and the community led comprehensive services clinic to provide services to 4500 MSM/MSW.

**Description:** Since 2015, HOYMAS runs the community led clinic where HIV/AIDS prevention, treatment, and care services are offered. Peer educators conduct outreach and community mobilization activities to bring HTC services closer to clients as well as refer others to the clinic. In addition, the HOYMAS community drop in centre continues to attract positive MSM for services including:

- Support groups and Encounter groups where positive MSM supported each other and developed messages to reach out other positive peers who are not yet in care. Share experiences with ARV medication, side effects, disclosure and sex work.

Other innovations that have ensured that MSM are retained on care include utilizing Social media, including WhatsApp and Facebook to keep engaging the positive MSM who join support groups, continuous Peer and sex education that is offered through IEC materials, daily health education forums in the drop in centre, continuous Phone reminders by the clinician and improving relationships with strategic partners who provide a referral point for viral load testing for our patients.

As a result these activities and establishment of the HOYMAS community led clinic, 84 MSM/MSW received VL testing with 79 achieving VL suppression in the year 2017 and an improvement in turnaround time in VL results (from 6months to 2 weeks) through working with strategic partners.

**Lessons learned:** Social media engagement is key in ensuring people understand the importance of adherence, building strategic partnerships is key for grass root organization who cannot provide all services across the 90-90-90 continuum of care, letting the HIV+ KP design and lead their own support groups and sharing forums is instrumental in reaching and maintaining the 3rd 90.

**Conclusions/Next steps:** Continue utilizing social media for complementing the physical support and encounter groups, enhance peer education through community continuous outreach and create more strategic and referral partners with donors and government.

**THPED413**

**Virtual outreach finds hard-to-reach HIV+ MSM in Cambodia**


1Phnom Penh, Cambodia, 2Phnom Penh, Cambodia, 3Clinical Services Lead, Phnom Penh, Cambodia, 4Men’s Health Social Service, Virtual Outreach Online for HIV Testing, Phnom Penh, Cambodia, 5Men’s Health Social Service, Virtual Outreach Online for HIV Testing, Phnom Penh, Cambodia, 6Men’s Health Social Service, Virtual Outreach Online for HIV Testing, Phnom Penh, Cambodia

**Background:** HIV prevalence among men who have sex with men (MSM) in Cambodia is estimated at 2.3%, but this low prevalence belies substantial risk and potentially high HIV incidence in this population. Despite numerous and diverse peer outreach and web-based interventions, a majority of MSM report low intervention exposure and HIV testing rates. Finding high-risk MSM in conventional outreach has proven challenging. Of 5,650 MSM reached by conventional outreach in 2015, 3,674 agreed to testing but only 27 were found HIV positive (0.7%).

**Description:** To find men actively seeking sexual partners online and presumed to be at higher risk, LINKAGES recruited communicators among local MSM NGOs to conduct virtual outreach online. Communicators broadcast messages to potential MSM clients online in chat rooms and on MSM dating sites. Messages include HIV prevention themes, including consistent condom use. HIV/STI risk reduction, and the importance of early testing and treatment. MSM who had not been previously tested were encouraged to come to an NGO drop-in center (DIC) to meet a peer counselor who would do a finger-prick combined HIV and syphilis test. If reactive for HIV and/or syphilis, the counselor accompanied them for confirmatory testing at the local Chouk Sar KP friendly clinic.

**Lessons learned:** Between November 2016-December 2017, 1,750 MSM were reached by virtual outreach, of which 354 (20.2%) accepted screening at the DIC. Of these 354, 26 (7.35%) were found HIV reactive. 10 times the yield via conventional outreach. Of these 354, 20 (5.7%) were syphilis reactive. All who were HIV reactive were successfully referred for confirmatory HIV testing, and all were enrolled in pre-ART. Those who had positive syphilis serology or STI symptoms were successfully referred to treatment.

**Conclusions/Next steps:** This intervention showed a 10-fold increase in yield compared to conventional outreach, demonstrating that virtual outreach for MSM can be used to reach high-risk and hard-to-reach MSM not reached or tested by traditional outreach. Further strengthening of the online outreach counseling to increase the proportion of clients willing to participate in facility-based screening or self-testing should be pursued.

**THPED414**

**What are socio-demographic characteristics associated with uncollected HIV test results among caregivers of orphaned and vulnerable children in Tanzania?**

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**Background:** Realization of the ambitious 90-90-90 target to end the HIV epidemic depends hugely on the success of the first 90 that targets to have 90% of all people living with HIV knowing their HIV status by 2020. This analysis assesses the magnitude and characteristics of caregivers of orphaned and vulnerable children (OVC) who tested for HIV but never showed up to receive their test results in Tanzania.

**Methods:** Data originate from a community-based, USAID-funded Ki- zazi Kipya Project that seeks to increase uptake of HIV/AIDS services by OVC and their caregivers in Tanzania. Caregivers who were served by the project during January-March 2017 in 18 regions of Tanzania with complete information on their HIV status, household socioeconomic status and socio-demographic characteristics were analyzed. HIV status was self-reported. Multilevel mixed-effects logistic regression was performed, with those that tested for HIV but did not receive test results forming the outcome.

**Results:** The analysis included 59,683 caregivers of OVC, 71.2% of whom were females and the rest males. Of this, 37.2% (n=22,186) reported that they tested for HIV but never waited to receive test results. The rest received their test results, whereby 44.6% and 18.2% were HIV negative and positive respectively. Multivariate analysis showed that fleeing HIV test results was significantly higher among males than females (OR=1.21, 95% CI 1.15-1.27), single women (OR=1.13, 95% CI 1.04-1.24) and widowers/widow- ers (OR=1.12, 95% CI 1.07-1.18) than married, those without health insurance (OR=1.39, 95% CI 1.30-1.47) and age 61+ than 18-30 (OR=1.72, 95% CI 1.68-1.88). Better education and wealth status were protective factors (P< 0.001).

**Conclusions:** An outstanding number of caregivers who test for HIV flee test results, suggesting lack of confidence in unpleasant results, thus a missed opportunity for timely care and treatment services for those that may be infected. While better education, economic strengthening
Sero-adaptive behaviours: preference, practice, and impact

THPD415
HIV serostatus disclosure to sexual partners and HIV sexual risk behavior among people living with HIV in Botswana: Population-based household survey

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Boysana Harvard AIDS Institute Partnership, Gaborone, Botswana, 1Harvard T.H. Chan School of Public Health, Boston, United States, 2Goodblates Data Consulting, LLC, Norman, United States, 3Bennett Statistical Consulting, Ballston Lake, United States, 4Ministry of Health and Wellness, Gaborone, Botswana, 5Harvard Medical School, Boston, United States, 6Briham and Women's Hospital, Department of Medicine, Division of Infectious Diseases, Boston, United States

Background: Disclosure of positive HIV status to sexual partners is essential for optimizing prevention, and has been associated with greater engagement in HIV care and treatment. We investigated the association between non-disclosure of HIV positive status and sexual risk behavior among sexually active participants in an ongoing HIV prevention study, the Boysana Combination Prevention Project (BCPP).

Methods: In BCPP, we enrolled a random, population-based sample of adults aged 16-64 years in 30 rural and peri-urban communities in a prospective study. At enrolment participants were administered structured questionnaires, including questions about HIV sero-status disclosure to sexual partners over the prior 12 months and sexual risk behavior (non-consistent condom use, alcohol use, multiple concurrent partnerships (MCP)). We analyzed responses from participants who knew their positive HIV serostatus at the time of the initial survey, and who reported being sexually active during the prior 12 months. HIV sero-status non-disclosure was defined as non-disclosure to at least one sexual partner. We estimated prevalence ratios (PRs) and 95% confidence intervals (CIs) for demographic, HIV sexual risk, and clinical (ART use and viral suppression) factors associated with non-disclosure, adjusting for community clustering, age and gender.

Results: Among 2270 participants who reported being sexually active in the past 12 months and who already knew their positive HIV status, 2192 (96.6%) had available data on HIV disclosure to their sexual partner. The proportion of participants who reported not disclosing was 79% (95%CI:68.9-81.0). Individuals who reported non-disclosure were significantly younger, more likely to be single / never married (PR=5.4; 95%CI:3.0-9.5) or divorced / widowed (PR=5.3;95%CI:2.7-10.5) and had significantly higher number of sexual partners over the prior 12 months and sexual risk behavior [inconsistent condom use, alcohol use, multiple concurrent partnerships (MCP)].

Conclusions: Individuals who did not disclose their positive HIV status were younger, had higher education and non-long-term partners. Those at high risk of forward HIV transmission, including those engaging in MCPs and those not on ART were significantly less likely to disclose their HIV status to a sexual partner, highlighting the importance of programming that successfully results in behavior change in high-risk populations.

THPD416
Tetanus toxoid vaccination-PrePex active surveillance cascade in Zambia

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1Jhpiego, Lusaka, Zambia, 2Centre for Disease Control, Lusaka, Zambia, 3Ministry of Health Zambia, Lusaka, Zambia

Background: WHO prequalified the PrePex circumcision device in May 2013 for males 13 years and above. After a pilot in Zambia in 2014, active adverse event (AE) surveillance to further evaluate the device commenced in June 2016. However, it was halted in July based on WHO’s recommendation of completed tetanus toxoid containing vaccine (TTCV) vaccination, at least 2 weeks prior to device placement. Active surveillance was restarted with TTCV in May 2017 by the Government of Zambia.

Description: Since April 2015, Jhpiego has been implementing a 5-year PEPFAR/CDC funded project that aims to increase male circumcision (MC) coverage to 80% in supported districts. In addition to MC provided by conventional surgical methods, Jhpiego is also supporting the Ministry of Health (MoH) to implement PrePex active AE surveillance.

Lessons learned: Surveillance records from May 2017 to September 2017 were reviewed. 415 clients received the 1st TTCV vaccination, 397/415 (96%) received the 2nd dose, 247/397 (62%) had the device placed, 233/247 (94%) had the device successfully removed. The major point where clients discontinued use was after the 2nd TTCV vaccination. Among reasons cited for deciding to forego PrePex circumcision after completing TTCV vaccination included testing HIV-positive as part of device placement screening or no longer wishing to wait for circumcision by the PrePex device method. In this cohort of clients there were no AEs.
Conclusions/Next steps: The completion rate observed is 56% (233/415) from first TTCV vaccination to device removal, with most clients lost to follow-up after the second TTCV dose. Demand generation activities are also being tailored with more TTCV specific communication to address these potential challenges, the project is also implementing additional follow up calls and visits after the second TTCV dose. In addition, the program has implemented a dual HIV testing process at first TTCV and just before placement.

<table>
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<tr>
<th>Provinces</th>
<th># VMMC Clients</th>
<th>#Tested for HIV (%)</th>
<th># HIV Positive (%)</th>
<th>% of Facility-Based Testing done in VMMC/VMMC</th>
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<tr>
<td>Central</td>
<td>10,893</td>
<td>10,081 (91.6%)</td>
<td>88 (0.8%)</td>
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<td>Copperbelt</td>
<td>41,604</td>
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<td>Lusaka</td>
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<td>19,219 (93.6%)</td>
<td>106 (0.5%)</td>
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</tr>
<tr>
<td>Western</td>
<td>2,690</td>
<td>2,683 (99.8%)</td>
<td>6 (0.2%)</td>
<td>20.7%</td>
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<tr>
<td>Total</td>
<td>99,929</td>
<td>92,729 (92.8%)</td>
<td>432 (0.4%)</td>
<td>28.3%</td>
</tr>
</tbody>
</table>

(MC Contribution to Facility Based HTS January 2016 to October 2017)

**THPED418**

A public-private partnership approach to expand VMMC uptake in Khomas Region, Namibia

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**Background:** Namibia’s Ministry of Health and Social Services (MoHSS) prioritizes voluntary male medical circumcision (VMMC) as a core intervention to avert new HIV infections. To achieve this goal, the country set out to conduct 330,218 procedures among men by 2021. Khomas Region, where the capital Windhoek is situated, has a population of 386,000 and a set VMMC target of 47,000. However, the region has only one public VMMC site. Uptake of VMMC services was therefore low, and innovative approaches to reach targets, including partnership with the private sector, were required.

The USAID-funded Strengthening High Impact for an AIDS-free Generation (AIDSFree) Project provides assistance to private for-profit health providers and stakeholders to increase access to and affordability and quality of HIV services, with an emphasis on VMMC.

**Description:** AIDSFree had a network of 32 private health facilities in Windhoek. These facilities were providing VMMC services only to clients with health insurance or those who could afford to pay out of pocket. To increase VMMC coverage in Windhoek, AIDSFree partnered with the Khomas VMMC regional team to pilot and introduce free VMMC services for uninsured males at private health facilities. The free services were introduced in October 2016 and are funded by USAID.

A service-level agreement was reached to reimburse facilities for the provision of the VMMC service package. Additionally, the facilities were supported with disposable kits, recordkeeping, and reporting. Finally, the Khomas regional VMMC team and AIDSFree undertook joint demand creation activities to encourage clients to access services. Between October 2016 and September 2017, Khomas Region conducted 8,846 circumcisions; of these, 81% (7,172) were in private sector facilities.

**Lessons learned:**

- Private clinics reported providing more VMMCs to clients on the free program than to clients with insurance.
- The free VMMC program currently meets the needs of uninsured males.
- Engaging the private sector through a free VMMC program accelerates the achievement of national targets.

**Conclusions/Next steps:** Namibia has a well-developed, robust private health sector whose potential is not fully utilized. Private facilities are well-positioned to partner with the government to provide VMMC services beyond their regular health insurance clients.
TPHED419
The factors that affect the low uptake of Voluntary Medical Male Circumcision among adult malea (20-39 years of age) in Gauteng Province, South Africa

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Background: The South African government has been scaling-up VMMC services since 2010. However, South Africa has continued to miss its VMMC targets, indicating that more is needed in terms of understanding the slow uptake of VMMC services. The objective of this study is to determine the factors that contribute to low VMMC uptake with the aim of proposing strategies to improve VMMC demand creation for older adult males (20-39 years).

Methods: By employing a qualitative research methodology, the study explores the factors and barriers that contribute to the low VMMC uptake of adult males. A purposive sampling method was used to select 4 Program Managers from the National and Gauteng Provincial Department of Health. In addition, 20 uncircumcised males between the ages of 20 and 39 in Gauteng province were interviewed via focus group discussions.

Results: The main findings show that there are various contextual, individual and community factors contributing to the low VMMC uptake. Interviews with Program Managers revealed that:
1. There was no clear demand generation strategy in place.
2. No clear relationship between VMMC demand creation and actual uptake.
3. Lack of human capital.
4. Poor integration between VMMC and other prevention programs.
5. A lack of VMMC program leadership, and
6. A lack of resources.

Focus group discussions with uncircumcised males found several key deterrents to VMMC uptake, including:
1. Fear of pain and adverse events.
2. A lack of confidence in the public health system.
3. The requirement of abstinence for 40 days after circumcision.
4. Potential loss of income.
5. Cultural and religious concerns.
6. HIV testing requirements.
7. Peer pressure and
8. Circumcision-related stigma.

Conclusions: There is a need to understand the lack of VMMC uptake both from the provider and the consumer perspectives. In many cases, the barriers to uptake identified by Program Managers were not identified as important by uncircumcised males, and vice versa. Among the uncircumcised males, barriers included a combination of real concerns, interspersed with myths, fears and false beliefs.

Antiretroviral therapy, including treatment as prevention

TPHED420
Drug resistance mutations in patients enrolled in Rapid Start: Experiences from a New York City community health center

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Background: Same day HIV treatment initiation „rapid start” is feasible, well tolerated, acceptable to patients, reduces time to virologic suppression, lowers potential for HIV transmission and may improve 12-month retention and mortality compared with treatment as usual. Previous pilots have not documented ART modifications due to virologic failure or drug resistance mutations (DRMs). Callen-Lorde, a Community Health Center in New York City, implemented a multidisciplinary (medicine, nursing, case-management) Rapid Start program in August 2016. Preferred regimens were predominantly Integrase Strand Transfer Inhibitors (INSTI) based. We investigated regimen choice and switches due to tolerability or resistance.

Methods: A retrospective chart review was conducted of patients newly-diagnosed with HIV who accepted same-day ART initiation that investigated demographics, clinical data, treatment choice, switches, time to suppression and 6-month retention.

Results: Over 12 months 47 of 79 (59%) newly diagnosed patients opted to enroll in the Rapid Start program. Demographics: Patients opting in were predominantly MSM (92% MSM, 8% transgender women); ethnically diverse (23% Black, 23% Hispanic). 13% < 25 years. Many were uninsured at time of diagnosis (43%). At initiating ART 58% achieved viral suppression (<200 copies/mL) within 30 days. Baseline results: mean CD4 109 (17-148) cells/µL, mean CD4 48 (12-947) cells/µL. ART agents were used.

Conclusions: Rapid start programs have evident individual and population level benefits however program scale-up requires close attention to baseline resistance testing and flexibility to change regimens. Prevalent DRMs should determine initial treatment regimens, and if possible, baseline INSTI resistance testing should be considered when these agents are used.

HIV testing and antiretroviral therapy usage are negatively associated with belief in supernatural determinants of health: A nationwide survey from China

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Background: Spiritual and religious beliefs in China are rapidly growing and may have profound impact on health behaviors related to the HIV cascade of care. We examined belief in supernatural determinants of health (degree of conviction that health is influenced by supernatural forces) and correlates with HIV-testing and antiretroviral therapy (ART) use among young men who have sex with men (MSM) in China, a key population with suboptimal testing and viral suppression.

Methods: Data were collected online in May 2017 by anonymous, self-administered, structured questionnaires. Participants were recruited via gay social networking platforms throughout China. Eligibility criteria: born male, ever had anal or oral sex with another man, seen a doctor in the past two years, and between 16 and 30 years old. Belief in supernatural determinants of health was assessed by a validated three-item continuous scale (range: 3-15 points; higher score = stronger belief). Adjusted measures of association (controlling for sociodemographics, religious affiliation, and sexual behavior) were estimated using logistic regression.

Results: 503 men participated in the survey and 72 (14.3%) had ever HIV tested. 14.5% reported ever testing positive for HIV (73/503), among whom 83.6% reported currently using ART (61/73). Over 37% (185/503) of participants expressed some belief in supernatural determinants of HIV testing and antiretroviral therapy usage are negatively associated with belief in supernatural determinants of health: A nationwide survey from China

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health. and the mean score for beliefs in supernatural determinants of health was 5.37 (standard deviation = 2.47). Stronger belief in supernatural determinants of health was associated with lower odds of ever testing for HIV (adjusted odds ratio [AOR] 0.84, 95% CI: 0.74-0.95) and currently using ART among participants living with HIV (AOR: 0.47; 95% CI: 0.29-0.77). Interaction analysis indicated that an inverse association between supernatural belief and HIV testing was only present among individuals with less than college education (p< 0.05) (Figure). Conclusions: Many young online MSM in China appear to believe in supernatural determinants of health. Such beliefs may be inhibiting greater uptake of ART and HIV testing, particularly among men with lower educational attainment. Measuring patients’ supernatural beliefs may help identify individuals at higher risk of stopping ART. Additional research on belief in supernatural determinants of health and use of HIV services is warranted.

Panel A: Predicted probabilities and 95% confidence intervals of “currently using antiretroviral therapy” by strength of belief in supernatural determinants of health, among young men who have sex with men in China who previously tested positive for HIV (n=73)

Panel B: Predicted probabilities and 95% confidence intervals of “ever tested for HIV” by strength of belief in supernatural determinants of health, among young men who have sex with men in China with less than college-level education (n=154)

These numbers increased over the quarters because the project conducted increased supervision and hands on support to CSOs by adopting targeted testing using social media, social network testing, index case testing and partner notification. In some quarters, the numbers initiated were higher than positives identified because some positives from the previous quarters were still going through adherence counselling and looking for money to complete their lab tests.

Conclusions/next steps:
- The decision to fast track treatment is based on the service providers’ own assessments of the clients’ conditions.
- Clients should be considered for ART initiation while the laboratory investigations go on.

THPED423
Mobile application for PLHIV

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Background: There are estimated 26,000 people living with HIV in Kazakhstan. About 4,000 new HIV cases identified in 2017. Local AIDS centers cannot cope with such burden. Due to that, clients do not receive quality and comprehensive HIV services for key populations and people living with HIV by improving access to and use of HIV services while reducing stigma and discrimination in health settings for key populations and people living with HIV. The project has trained 193 healthcare workers, strengthened capacity of community service organizations (CSOs) working with KPs to segment KPs into typologies with healthcare workers, strengthened capacity of community service organizations (CSOs) working with KPs to segment KPs into typologies with targeted HIV testing using innovative social media, social network testing and PLHIV partner testing from October 2016 to September 2017. Lessons learned: HIV Positivity and Initiation (October 2016 to September 2017).

<table>
<thead>
<tr>
<th>Quarters</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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</thead>
<tbody>
<tr>
<td>Number of Positives</td>
<td>106</td>
<td>298</td>
<td>523</td>
<td>534</td>
</tr>
<tr>
<td>Number Initiated on Art</td>
<td>148</td>
<td>202</td>
<td>396</td>
<td>545</td>
</tr>
</tbody>
</table>

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Mobile application for PLHIV

D Kim
Public Fund, Program, Almaty, Kazakhstan

Background: There are estimated 26,000 people living with HIV in Kazakhstan. About 4,000 new HIV cases identified in 2017. Local AIDS centers cannot cope with such burden. Due to that, clients do not receive quality and timely services, necessary information, referral to other AIDS service organizations. Only 48% of PLHIV are adhered to ART. Old tools like tablets with timer and brochures are obsolete and irrelevant for the majority of PLHIV. AFEW KZ within the HIV React Project funded by USAID has developed a mobile application named POZ.INFO, which combines necessary tools and intended to help people affected by HIV. Increase awareness, adherence to treatment, improve quality of services for PLHIV.

Description: POZ.INFO is a free mobile application that helps PLHIV in taking ART, available for Android and iOS, does not require registration and does not collect/store personal data. It can be used offline. POZ.INFO includes necessary information about HIV, medicine and per-
sonalized treatment regimen; reminder alarm clock; contacts and information of organizations that help PLHIV; question-and-answer forum and notes.

POZ.INFO allows entering a personal regimen of ART independently or through immunoblot number previously entered by doctor; set up convenient time for taking medications; customize text of reminder to keep anonymity; get general information about HIV; find the nearest AIDS service organization; communicate with other PLHIV or specialists; make notes; such as test results or medical appointments.

POZ.INFO developed on data collected during focus groups with PLHIV and partners in Almaty, Üst-Kamenogors and Pavlodar. It was presented to international and local partners and supported by Republican AIDS Center - main governmental organization responsible for HIV prevention and treatment in Kazakhstan.

Lessons learned: Apply integrated approach to promote and disseminate application among PLHIV through initiative groups, community-based NGOs and local AIDS Centers. The application should be simple, user friendly, functional, available on/offline, anonymous, suitable for most smartphone models on most popular platforms in the region, information should be continuously updated.

Conclusions/Next steps: Further improvement of application based on clients’ suggestions and comments. Adoption of application on national level. Provide application to partners for adaptation in other countries of the region.

**TPHED424**

**Reasons for true loss to follow ups in patients on anti retro viral treatment in Maharashtra State, India**


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**Background:** Adherence to Anti Retroviral treatment (ART) is influenced by multiple patient level and health system level factors. We interviewed True Loss to Follow Up (TLFU) patients on ART to understand the reasons for ART discontinuation.

**Methods:** Between 2014 to 2017, 60 TLFU patients on ART (defined as those who were not keeping ART refill appointment for 90 days or longer, and being found alive but not on ART from any other source: or not being traceable to allow confirmation such as “dead or transferred-out”) were traced back using phone calls and/or house visits by study investigators. Quantitative interviews were conducted among willing TLFU patients. The study was approved by the Institutional Ethics Committee of the National AIDS Research Institute and BJMC & Sasson Hospital, Pune.

**Results:** Of the 34 TLFU patients interviewed, 52% (18) were male, 38% (13) were illiterate. 61% (21) were married and median age was 45. Only 62.7 (10) of the TLFU patients were reportedly contacted over phone by ART staff during discontinuation period. Personally, side effects of drug and lack of money to visit ART center were major reasons for discontinuation said by 52% (18) and 26.5% (9) of TLFUs respectively. Lack of support from family, lack of care takers and stigma were cited as reasons for discontinuation by 5.9% (2) of TLFUs. Drug collection on 2-3 month basis were expected by 81% (17) of TLFUs.

**Conclusions:** The findings highlight that side effect management, timely appointments and flexible drug dispensation schedules for patients at ART centers could help address facility level barriers for adherence. Financial assistance and counselling support for patients and their families could help address patient level barriers for adherence.

**TPHED425**

**Responding to ART non-adherence by strengthening youth resiliency in an under-resourced setting using TI_CBTTe youth leader model**

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**Background:** Rwanda, as a developing and recovering country from war and genocide consequences, is experiencing mental health human resource scarcity to respond to problems caused by war, genocide, and HIV. However, cost-effective initiatives to achieve multiple effect regardless the huge needs and little financial resources are possible. This abstract describes a Trauma Informed Cognitive Behavioural (TI-CBTTe) Youth Leader Model and its effect on Youth Leader (YL) wellbeing and improvement in health outcome.

**Methods:** 14 YLS aged 21 to 24 were enrolled in the Kigali Imbereheza Project (KIP) in Rwanda which utilized cognitive behavioral strategies to improve mental health and adherence to antiretroviral therapy (ART) for youth. They were trained and delivered 6-6 session interventions over four years to groups of 10 14-21 year-old youth. YLS provided demographics and information on their behaviors, and treatment. Data was collected using audio computer assisted technology at baseline, 6-months study visits. Using SPSS, we performed descriptive statistics to determine the mean and total score mean of different variables.

**Results:** The average age of Youth Leaders was 22.9 years, 57.1% male; only 7% (1) had both parents alive; 64% did not have any parents, they were all unmarried, and did not have any other source of income than KIP. At baseline, the mean viral load was 9420 copies/ml and was 171 copies/ml around 18-months after baseline. CD4 was 379 at baseline and 353 around 18-months post baseline. The Wilson Adherence total score was 84 at baseline and increased slightly to 86 at 6-month follow up. The Self Esteem total score also increased slightly from 22 at baseline to 24.7 at 6-month follow up. The cases of STIs were 0 during the first 6-months of intervention.

**Conclusions:** TI-CBTTe led by YLS has promised decreasing viral load and increasing CD4, self esteem, and healthy behaviours.

**TPHED426**

**Factors associated with late presentation of paediatrics on anti retro-viral therapy in Mashonaland East province, Zimbabwe**

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**Background:** The provincial average of paediatric patients presenting late for ART rose from 23.33% in 2014 to 31.9% in 2016. Despite numerous interventions to improve early paediatric diagnosis and treatment of children below 24 years, they still present late for ART. Factors for such a trend needed to be identified to improve early diagnosis and initiation of paediatric patients on ART.
Methods: The study used an unmatched 1:1 case-control study design. Cases were defined as a paediatric patients who presented for ART initiation in WHO Clinical stage 3 or 4, and controls were defined as a paediatric patients who presented for ART initiation in WHO Clinical stage 1 or 2. Data was entered into Epi Info version 3.5.2 for analysis. Means, frequencies, proportions, odds ratios (OR), and their 95% confidence intervals (CI) were generated. Odds ratio (OR) that did not include the value 1 in the 95% confidence interval were considered statistically significant. Step wise multivariate analysis was carried out to estimate the measures of association while at the same time controlling for a number of confounding variables. All the variables that were significant at P-value $<0.05$ in the Bivariate analysis were included in the logistic regression model. Variables that were not significant were eliminated until all the variables that were significant at 0.05 levels (95% CI) were added to the model.

Results: The results showed that children’s age on initiation on ART [AOR 4.18 (95% CI: 2.29, 7.63) p=0.0000] and travelling less than 5 kms to reach the clinic [AOR 0.49 (95% CI: 0.30, 0.82) p=0.0064] were independent factors associated with the likelihood of presenting late for paediatric ART. Children above the age of 5 years at time of ART initiation were 4 times more likely to present late for ART. Living within 5 km radius of a health facility was protective as the paediatric ART was 0.5 times less likely to present late for ART.

Conclusions: Children above the age of five years are most likely to present late for ART initiation. Living within five kilometres radius of health facilities is protective to the paediatrics as they are less likely to present late for ART.

**THPED427**

Why young African American MSM (YAAAMSM) ages 18-29 who are living with HIV in the Southern region of the United States do or do not take HIV treatment regularly

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**Background:** YAAAMSM are disproportionately impacted by HIV, especially in the U.S. South. It has been estimated that 60% of AAMSM will be living with HIV by age 40. Adhering to HIV treatment so that men will become virally suppressed will not only reduce morbidity among this group, but will also reduce the transmission of HIV to others.

**Methods:** Long-chain peer recruitment was used to enroll YAAAMSM in two large Texas cities. All men were tested for HIV, and HIV+ men were recruited into this study’s cohort (N=333). Surveys were self-administered on iPads at project sites. Here we compare men currently taking ART who reported their 3-month medication adherence (N=189): missing doses once/week or more in the prior three months (35.4%) versus men who never or very rarely missed doses (64.5%).

**Results:** Cohort mean age was 24.5; 45% had high school degrees or less, and the other half had some college; few were college-graduates (6%). Bivariate analyses indicated that social issues were associated with adherence, including perceived social norms about adherence. Support received about living with HIV, protecting sex partners, and friends talking with them about the importance of treatment. Experiencing greater societal oppression through experiencing more homophobia, racism, and HIV stigma; internalizing the oppression (internalized heterosexism, societal oppression (through experiencing more homophobia, racism, anti-blackness, antiheterosexism, and HIV stigma) and depressive symptomology were also related to adherence. Medical mistrust and uncertainty about providers were marginally associated with medication adherence. There were no statistically significant differences in adherence by education, employment, income, poverty, incarceration history, conspiracy beliefs, or pride in being gay.

**Conclusions:** Increasing treatment adherence among YAAAMSM living with HIV requires more than reminders. While some issues can be targeted at clinics (e.g., increasing HIV treatment literacy), other issues might be best met through efforts positioned in and focused on the YAAAMSM community (e.g., changing social norms to support adherence; increasing supportive conversations from friends; decreasing internalized oppression). Multipronged approaches are needed to increase adherence to HIV treatment among YAAAMSM that targets depression and important cultural issues, such as externally and internally experienced oppression, medical mistrust, resilience to adversity, agency about one’s own health, and a desire to protect sex partners by becoming virally suppressed.

**THPED428**

Poor rates of linkage to HIV care and treatment uptake after home-based HIV testing among 15-49 year-old men and women in a high HIV prevalence setting in South Africa

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**Background:** Early antiretroviral therapy (ART) initiation is essential to obtain the full therapeutic and prevention benefits from ART, but linkage to care following community-based testing services is often poor, and inadequately understood. This study examined demographic, socioeconomic and psychosocial factors influencing linkage to care following home-based HIV-testing services (HBHTS) in a hyper-endemic epidemic setting in South Africa.

**Methods:** HBHTS was offered to all participants (N=10,236) in the 2015-2016 cross-sectional survey of the HIV Incidence Provincial Surveillance System, KwaZulu-Natal, South Africa. Fieldworkers collected venous blood samples for health screening, including CD4 counts. Follow-up telephone surveys (N=1,941) collected data on clinic visits and ART initiation among individuals diagnosed HIV-positive through HBHTS. Factors associated with linkage to care (defined as a clinic visit within 12 weeks of receiving an HIV-positive diagnosis) were assessed using multivariable logistic regression models.

**Results:** Fifty-four percent of men and women linked to care, and 21% of ART-eligible participants started treatment within 12 weeks (men 25%, women 13%). The median CD4 count was 416 cells/µL (IQR:268-608) and 418 (IQR:254-612) among those that did, and did not link to care respectively. Few men (12%) or women (15%) linked to care within 4 weeks. Linkage to care was less likely among participants who had doubted their HIV-diagnosis (aOR=0.54, 95%CI:0.27-1.06, p=0.072), and who reported being unafraid of contracting HIV due to the effective-ness of ART (aOR=0.53, 95%CI:0.28-1.01, p=0.054). Linkage to care was
more likely among participants who had disclosed their HIV status (aOR=2.89, 95%CI:1.17-7.36, p=0.0412), and who had recently engaged in an HIV-related activity (aOR=1.91, 95%CI:1.03-3.36, p=0.037). Self-reported reasons for not linking to care included no time (men:71%, women:57%); only wanting to start treatment when sick (men:58%, women:39%); being afraid of side-effects (men:29%, women:35%); and not believing the HIV diagnosis (men:4%, women:2%).

Conclusions: HBHTS needs to be paired with targeted interventions to facilitate early linkage to care. Interventions are required to counter denial of HIV status, and encourage early ART initiation among individuals inclined to delay treatment until falling ill. Further research is needed to better understand the interplay between perceptions of ART and HIV, and how perceptions of HIV affect the uptake of HIV care and treatment services.

THPED430
Factors affecting linkage to HIV care and ART initiation following referral for ART by a mobile health clinic in South Africa: Evidence from a mixed-methods study

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Background: Community-based HIV-testing is effective at diagnosing asymptomatic people living with HIV, but subsequent linkage to care is often poor and inadequately understood. This mixed-methods study assessed factors that both improved and hindered linkage to care and antiretroviral therapy (ART) uptake following ART-referral by a mobile health clinic in Cape Town, South Africa.

Methods: From April 2014 to August 2016, longitudinal data were collected among individuals (N=86) referred for ART by a mobile health clinic: face-to-face survey data were collected immediately after ART referral, and data on subsequent clinic visits and ART initiation were obtained from clinic records. Multiple logistic regression analyses were used to assess factors associated with visiting a clinic within three months, and with ART-initiation within three months. Follow-up in-depth interviews (N=13) were conducted to examine challenges to, and factors motivating ART initiation.

Results: Among people living with HIV (N=86), 67% linked to care and 42% initiated ART within three months. Linkage to care was more likely among individuals expressing intentions to disclose their HIV-status (aOR: 2.99, 95%CI: 1.13-7.93), and among those who were classified as treatment ready (aOR: 2.97, 95%CI: 1.05-8.34), and less likely among individuals in good health (aOR: 0.35, 95%CI: 0.17-0.99), those who drank alcohol at least once weekly (aOR: 0.35, 95%CI: 0.12-0.98), and those reporting internalised stigma (aOR: 0.38, 95%CI: 0.14-1.02). In-depth interviews elucidated fears about ART side-effects, HIV-status denial, and lack of money for food as barriers to ART initiation. Factors motivating treatment uptake included awareness of a positive ART-effect, follow-up telephone counselling, familial ties and responsibilities, and maintaining health to avoid involuntary disclosure.

Conclusions: Results provide evidence that an array of interventions are required to encourage rapid ART initiation among individuals diagnosed HIV-positive by mobile health clinic HIV-testing services. This is especially the case among healthier populations.
Pre-exposure prophylaxis

HIV-positive women’s attitudes towards and willingness to use long-acting injectable antiretroviral therapy (ART): A qualitative study in San Francisco, New York and Chicago

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Background: Adherence to antiretroviral therapy (ART) is imperative for viral suppression and reducing further HIV transmission. Many HIV-positive individuals report difficulty sustaining long-term adherence and long-acting injectable (LAI) ART has the potential to transform HIV treatment and prevention. However, little LAI ART-related research has occurred among women.

Methods: We conducted 30 in-depth interviews with HIV-positive women at three sites (New York, Chicago, San Francisco) of the Women’s Interagency HIV Study (WHIS), a national ongoing cohort study of HIV-positive and HIV-negative women. The majority were women of color (93%), not currently working (67%), and earned <$12,000/year (70%); median age was 53. Interviews were recorded, transcribed, and analyzed using thematic content analysis.

Results: The majority of women enthusiastically endorsed monthly ART injections and would prefer it over pills. Four primary reasons emerged for this preference: 1) convenience over daily pills (“I’m tired of taking pills [for years]”); 2) increased privacy since there would be no pills to hide (“everybody has nosy friends, people see things they don’t need to see”); 3) not having daily reminders about being HIV-positive; and 4) believing that shots are more effective than pills (“I’m scared that if I take it I might get HIV”). Participants felt that LAI ART could be beneficial to all HIV-positive individuals, particularly those who are young, newly diagnosed, and female. Challenges remain, however, as some women expressed wariness about safety and effectiveness before they would try LAI ART: “I’m tired of taking pills, I might as well take them all.”

Conclusions: The majority of women would prefer monthly LAI ART over daily pills given its benefits for convenience, privacy, and perceived effectiveness. Future research should incorporate more women into LAI ART trials in order to better understand and align its development with user concerns and preferences in order to enhance uptake.

HIV-negative women’s attitudes towards and willingness to use long-acting injectable pre-exposure prophylaxis (PrEP) versus long-acting injectable antiretroviral therapy (ART): Results from a mixed-methods study in Chicago, New York and San Francisco

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Background: Current HIV medication—for treatment and prevention—exists almost exclusively in oral formulations that require daily adherence. Long-acting injectable (LAI) antiretroviral therapy (ART) and LAI pre-exposure prophylaxis (PrEP) are therefore being developed to address such barriers.

Methods: We conducted 45 in-depth interviews with HIV-positive (n=30) and HIV-negative (n=15) women at three sites (New York, Chicago, San Francisco) of the Women’s Interagency HIV Study (WHIS), a national ongoing cohort study of HIV-positive and HIV-negative women. The majority were women of color (93%), unemployed (64%), and earned <$12,000/year (71%); median age was 54. Interviews were recorded, transcribed, and analyzed using the constant comparative method.

Results: Half of the HIV-negative women had heard of PrEP and, once informed, the majority did not see it as useful for them regardless of formulation (“I don’t want to take another pill for another thing that won’t happen to me” or viewed it as potentially harmful (“I’m scared that if I take it I might get HIV”). If asked to choose between formulations, 11/15(73%) would take bi-monthly shots over pills. HIV-positive women responded enthusiastically to monthly LAI ART (“yes, lord, yes!” and “will shoot me up!”) and preferred monthly shots over pills (12/30(67%). While most HIV-negative women were somewhat/very concerned about potential pain at the injection site (B15,53%), HIV-positive women were not (6/30(20%). LAI are currently administered in the buttocks; one-third of HIV-positive women and one-quarter of HIV-negative women said this would cause them to choose pills but “if it’s someplace else, I would do the shot.” All women were equally concerned about potential side-effects (12/15,80% and 21/30(70%) and expressed a desire to wait and talk to friends who use LAI ART and PrEP in order to ensure its safety and efficacy. Nearly all women (90%) said it would be somewhat/very easy to get to the clinic for injections.

Conclusions: While the majority of HIV-negative women expressed excitement about LAI ART, HIV-negative women were relatively indifferent toward PrEP for their own use, regardless of its formulation. Future research needs to address medical-related anxiety and injection site for ART and PrEP, with specific attention toward targeting women for whom PrEP is relevant.
Predictors of non-use of PrEP among gay and bisexual men

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Background: Australian eligibility criteria for being prescribed HIV pre-exposure prophylaxis (PrEP) among gay and bisexual men (GBM) include: having an HIV-positive partner with detectable viral load; receptive condomless anal intercourse with casual partners (CLAIc); methamphetamine use; or a recent rectal sexually transmissible infection. Although many GBM meet these eligibility criteria, most have not yet accessed PrEP since its approval.

Methods: By Dec 2017, 128 Australian GBM who were not HIV-positive and were recruited through non-clinic settings completed 24 months follow-up in the FLUX online cohort study. We identified factors associated with not commencing PrEP among PrEP-eligible men.

Results: Of the 280 men (46.1%) who met the eligibility criteria, 22.8% were eligible at baseline and 47.1% at 24 months, with 26% eligible at both time points. About half those who were eligible at each survey round did not meet the eligibility criteria during the following round. By 24 months follow-up, 228 men had commenced PrEP.

Among PrEP-eligible men at each follow-up, 43% of those not using PrEP reported fewer or no sexual partners in the previous six months, compared to ~10% of those using PrEP (p < 0.001).

Men not commencing PrEP use were less likely to have been socially engaged with other gay men during prior survey rounds (aHR=0.94 [CI=0.88-0.99]), and less likely to have engaged in CLAIc during prior rounds (aHR=0.25 [CI=0.06-0.99]).

Conclusions: Although all PrEP-eligible men had engaged in high-risk behaviours, those who did not initiate PrEP use were less sexually active and less ‘risky’ than those who did initiate PrEP. Some men met PrEP eligibility criteria at some survey rounds but not others. For men who did not initiate PrEP, they may assess their risk as insufficient relative to others to warrant using PrEP because they did not continue to engage in ‘risky’ behaviours, or did so less often.

Men not using PrEP were also less socially connected to gay community, which may have restricted access to information about PrEP, but men who are more or less socially engaged with gay community may also hold differing perceptions of social norms about or perceived acceptability of PrEP.

Factors associated with condomless sex without PrEP among men who have sex with men enrolled in the ANRS-IPERGAY OLE

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Background: The ANRS-IPERGAY trial showed the efficacy of on-demand PrEP whereby pills are taken before and after each sexual encounter. We investigated the proportion of sexual encounters without PrEP and associated factors among men who have sex with men (MSM) participating in the trial.

Methods: MSM were recruited in the open-label extension (OLE) study of ANRS-IPERGAY. During the OLE, participants were followed every two months (M0 to M18). They provided information on sexual behaviours, condom use and PrEP use through online questionnaires. Focusing on participants’ most recent episode of anal intercourse, three specific behavioural groups were defined:
a) Anal sex with PrEP (behaviour A)
b) Anal sex with condoms without PrEP (behaviour B)
c) Condomless anal sex without PrEP (behaviour C)

Multinomial mixed logit models were performed to estimate the factors associated with these behaviours.

Results: A total of 296 participants of the 361 included in the OLE study were included in the present analysis, corresponding to 986 episodes of anal intercourse. Of these episodes, 75% were categorized as behaviour A, 5% as behaviour B, and 19% as behaviour C. Participants with behaviour C were more likely to have sexual encounters with HIV-negative partners.
Experiences of pill-taking and attitudinal covariates of PrEP adherence among men who have sex with men - findings from the VicPrEP implementation project, Melbourne

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Background: Oral pre-exposure prophylaxis (PrEP) has proven highly effective in preventing HIV infection, provided sufficient dosing levels are achieved. Insufficient adherence is an important explanation for differing outcomes of PrEP efficacy trials and a major concern regarding the implementation of PrEP in community settings. We previously reported continued high adherence over the first year of follow-up among participants in the VicPrEP community implementation project. Here we report an in-depth analysis of experiences of pill-taking and attitudes regarding HIV, PrEP and condoms which may contribute to informing adherence support.

Methods: Initiated in 2014, VicPrEP was a first PrEP demonstration project globally with no site in the US, undertaken through one sexual health clinic and three general practice clinics in Melbourne, Australia. A total of 115 participants were enrolled over one year, with daily dosing oral PrEP available for up to 30 months. Participants were provided baseline and 3-monthly self-report questionnaires during the first year of participation. Five-point rating scales were used to assess attitudes regarding HIV, PrEP and condoms (1 = low, 5 = high). Prospective data analysis was undertaken using Generalized Estimating Equations.

Results: At three months follow-up, nearly all participants (95.4%) indicated pill-taking around the same time each day, mostly early mornings (50.6%) or at night (22.2%). In the past 7, 30 and 90 days, 87.4%, 63.2% and 48.3%, respectively, reported missing no doses. Self-reported full adherence did not change significantly over 12 months follow-up, assessed for the past 7 days (Wald Chi²(df=1) = 1.741, p = 0.682), 30 days (Wald Chi²(df=4) = 5.272, p = 0.263) or 90 days (Wald Chi²(df=4) = 5.543, p = 0.230). Multivariable analysis found, controlling for socio-demographic characteristics, baseline motivation to take PrEP predicted 7, 30 and 90-day adherence over follow-up; no other attitudinal variables were significant.

Conclusions: Contrary concerns regarding PrEP adherence in community settings, findings from the VicPrEP study show high self-reported adherence, indicative of adequate protection. Self-reported adherence in this study was previously found to correspond well with objective indicators. Importantly, solely motivation to take PrEP predicted adherence over various intervals, underscoring the importance of appropriate motivational support for PrEP use.

ThPdE437

PrEP acceptability and preferences among a respondent-driven sample of MSM at high-risk in India: A discrete choice experiment

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Background: HIV prevalence among men who have sex with men (MSM) in India is 20-fold higher than general population prevalence. PrEP was recently approved in India after years of off-label ARV use among MSM who could afford it. To inform emerging government policy on PrEP implementation, we assessed PrEP acceptability and preferences among MSM.

Methods: From January-April 2017, we recruited HIV-negative MSM using respondent-driven sampling initiated in cruising areas and community-based organizations in Chennai and Mumbai. We programmed a tablet-administered survey interview (TASI) in Tamil and Hindi, including a discrete choice experiment (DCE) to assess PrEP preferences. Survey items assessed demographics, sexual risk behaviors and PrEP acceptability. The DCE used pictorial cards and a drag-and-drop technique on the tablet screen. Participants were presented with 8 double-rounds of best-worst choice sets of PrEP-scenario cards, each composed of 5 dichotomous attributes. To support DCE design, we obtained empirically-informed priors for model coefficients from a formative qualitative study and pilot DCE survey. We used logistic regression to identify demographic and behavioral correlates of acceptability. We modeled marginal willingness-to-pay (mWTP) for attributes of PrEP derived from a conditional logit model using the Krinsky-Robb procedure with 5,000 replications.

Results: Participants (n=201) (mean age=26.6y [SD=6.6], 19.5% high school education; monthly income, mean=12,280 rupees (~US$192); 19.5% heterosexual married), reported multiple (mean=6.0, SD=4.3) partners and 63.6% inconsistent condom use (past month), 77.0% would use PrEP immediately upon availability. PrEP acceptability was positively associated with perceived HIV-risk (AOR = 3.41, 95% CI: 1.07-10.84, p = 0.03), inconsistent condom use (AOR = 3.16, 95% CI: 1.03-9.70, p = 0.04), and inversely with being married (AOR = 26, 95% CI: 0.7-80, p = 0.02) mWTP indicated highest estimates for (high) efficacy, no (vs. minor) side-effects, intermittent (vs. daily) dosing, with no preferences for government- vs. private-hospital access. 62.0% endorsed “PrEP would avoid the hassle of taking pills”. Possible reductions in condom use indicate the need for interventions addressing STI risks and supporting PrEP adherence.

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THPED438
Bypassing policy inertia: How a collaborative, multi-channel advocacy campaign secured PrEP funding in New Zealand

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Background: In 2016 New Zealand recorded the fifth consecutive annual increase in HIV diagnoses among gay, bisexual and other men who have sex with men (GBM) and expanded HIV prevention options are urgently needed. International guidelines have recommended HIV pre-exposure prophylaxis (PrEP) since 2015 but there is still no official policy in New Zealand. Increasing concern about the lack of Government strategy and action on PrEP, and HIV in general, prompted the New Zealand AIDS Foundation (NZAF), a non-government organisation, to collaborate with community, clinical and research stakeholders to advocate for publicly funded access.

Methods: We used a range of strategies to build the case for public funding of PrEP:
- A demonstration project, enrolling 150 GBM, was conducted in Auckland to ascertain the acceptability of PrEP among this most-at-risk group and how it can be delivered in local sexual health clinics;
- A national consensus statement on comprehensive HIV prevention was developed and signed by over 100 clinicians, community organisations and researchers calling for change (https://hivconsensus.org.nz);
- An online learning course was developed for clinicians to support prescribing of PrEP for patients to import from overseas, resulting in 25 providers having sound experience in delivering PrEP and building health sector support;
- The presence of the Prime Minister and Leader of the Opposition at gay pride events was leveraged to secure high-level commitments to publicly fund PrEP;
- When pharmaceutical companies held off applying to New Zealand’s medicines purchasing agency PHARMAC for PrEP funding, NZAF lodged its own community application;
- A petition was launched calling for an expedited decision on PrEP funding, receiving 2,289 signatures.

Results: When government and health departments fail to show leadership on HIV, collaborative and multi-channel non-government advocacy can raise awareness, build coalitions and articulate a credible case for change. These efforts have successfully resulted in PHARMAC proposing to publicly fund PrEP in New Zealand for individuals at high risk of HIV acquisition, including GBM, from 1 March 2018.

Conclusions: Funded access to PrEP is an important milestone however there is no updated national HIV action plan to support implementation. Urgent actions include physician and community education and surveillance to monitor PrEP uptake.

THPED440
Is willingness enough? Exploring physician perspectives on pre-exposure prophylaxis for HIV prevention and discriminatory attitudes towards key affected populations in Ukraine

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Background: Ukraine has one of the highest HIV prevalence rates in Europe, with a concerning rise in new infections among men who have sex with men (MSM). Pre-exposure prophylaxis (PrEP) is an emerging intervention using HIV medications in HIV-negative individuals to prevent infection. PrEP has been shown to greatly reduce the risk of HIV infection but requires prescription and careful monitoring by physicians. Research has shown that despite familiarity with PrEP, physicians present a major barrier to PrEP access when they are unwilling to prescribe it. Access to PrEP is further complicated by stigma in healthcare settings that prevents key affected populations (KAP) from seeking and adhering to prophylaxis.

Methods: We recruited 209 physicians from across Ukraine to participate in an online survey, disseminated by email, assessing knowledge of PrEP, willingness to prescribe PrEP, and stigma-related constructs towards people living with HIV/AIDS (PLWH/HA), MSM, and people who inject drugs (PWID).

Results: Fifty-five percent of participants had previously heard of PrEP and 72% indicated willingness to prescribe PrEP; 86% reported knowing someone who had heard of PrEP before and 47% reported PrEP as being their first choice new-prevention technique if made available. While added protection was seen as an advantage, the following were reported as challenges around PrEP use:
1) daily adherence;
2) perception by family as drug users;
3) long-term impact of PrEP use on appearance;
4) being perceived as HIV positive; and
5) risk compensation.

While adherence was perceived as a challenge, participants expressed that shorter PrEP regimens could improve adherence. Participants and community leaders alike highlighted the following as important barriers to PrEP use:
- Being perceived as HIV positive;
- Concern about confidentiality;
- Concern about family reaction;
- Being perceived as drug users;
- Perceptions of health authorities;
- Cost of PrEP.

Conclusions: Despite the established effectiveness of PrEP among marginalized populations, PrEP-related knowledge among all key population groups is limited. Research has shown that despite familiarity with PrEP, physicians present a major barrier to PrEP access. Future research should examine the following:
- Comparison between willingness of physicians to prescribe PrEP and willingness to participate in an online survey;
- Comparison between willingness of physicians to prescribe PrEP and willingness to prescribe PrEP.

Intermediate findings from this study will be presented at the 2019 International AIDS Conference.
most would prescribe PrEP to high-risk patients, including persons with an HIV-positive sexual partner (95.7%), a patient who exchanges sex for money (95.7%), a man who has sex with multiple male sexual partners (94.2%), and a patient who injects drugs and is not on opioid agonist therapy (94.2%). Using a ‘feelings thermometer’, physicians reported significantly more negative attitudes towards people living with HIV (p < 0.001), PWID (p < 0.001), and MSM (p < 0.001) compared to general patients. Infectious disease specialists had significantly more positive attitudes towards KAP than other providers from other specialties (p < 0.001). Bi-variate analysis showed a positive correlation between reporting a high likelihood to prescribe PrEP (PB1/10) and currently curing for HIV patients (p = 0.035) and prescribing antiretrovirals in the last 12 months (p = 0.04).

Conclusions: While nearly all physicians expressed willingness to prescribe PrEP, particularly for high-risk patients, discrimination towards KAP was high, especially in non-specialized settings. Lack of familiarity with HIV care and discriminatory attitudes may present a barrier to accessing PrEP and other services.

THPED441
Community preparedness for HIV Pre-Exposure Prophylaxis (PrEP) among transgender women (TGW) in India: A cross sectional survey

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Background: High levels of HIV prevalence (7.5%) and inconsistent condom use (about 45%) among transgender women (TGW) as per the National AIDS Control Organisation/NACO annual report 2016 points out the need for additional HIV prevention methods in India. With PrEP emerging as a key addition to the combination HIV prevention approaches, India needs to fast track prevention. India HIV/AIDS Alliance conducted a study to examine PrEP awareness and willingness to use PrEP amongst TGW, including those in sex work, in 6 different states of India under Prayas project with the support of VIIV Health Care.

Methods: A concurrent triangulation mixed methods study design was used. The study conducted focus group discussions (FGD) with 57 TGWs in 6 sites, and 7 key informant interviews (KII) were conducted among health care providers (physicians). TGW leaders and government officials. A structured questionnaire was provided to 355 TGWs who were recruited through CBOs at the study sites. It assessed PrEP knowledge, condom use, attitudes towards PrEP (after a brief information on PrEP was provided to all), preferences in relation to PrEP regimens and access venues, and other factors influencing PrEP uptake.

Results: Two-thirds of participants (67%) had heard of PrEP, yet only 8.3% had ever used PrEP and even fewer (6.2%) were currently using PrEP. PrEP awareness was more likely among TGW who were older (Odds Ratio =1.03), had completed high school. Most (93.7%) had completed high school. Almost two-thirds had ever tested for HIV, with 6.3% identifying as HIV-positive. Focusing on the association between PrEP awareness—as well as likelihood of future use—and participants’ sociodemographic characteristics (e.g., age, income, race and ethnicity, sexual identity), self-reported HIV risk behaviors (e.g., transactional sex, multiple sexual partners, HIV-testing), and recent alcohol and substance use.

Conclusions: Disparities in PrEP knowledge and intention persist among YMTW. Five years after Truvada was approved in the United States, awareness and uptake of PrEP among YMTW remains limited. Interventions and policies focused on addressing age and income-related barriers to PrEP awareness and uptake are needed among YMTW communities.

THPED442
Limited PrEP awareness and use among young men who have sex with men and transgender women in Metro Detroit

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Background: Young men who have sex with men and transgender women (YMTW) are at a disproportionately higher risk for HIV infection. Pre-Exposure Prophylaxis (PrEP) can greatly reduce the risk of HIV infection, yet awareness and uptake has remained low in these key populations. We examined PrEP awareness and likelihood of use among a sample of YMTW in Metro Detroit participating in a pilot mHealth intervention (iCON 1.0).

Methods: We enrolled a sample of YMTW (N=158; 8.8% transgender) between the ages of 15 and 29 (Mean=23.5 years old) from Metro Detroit. Approximately 43% of participants identified as a racial or ethnic minority. Most (93.7%) had completed high school. Almost two-thirds had ever tested for HIV, with 6.3% identifying as HIV-positive. Focusing on the association between PrEP awareness—as well as likelihood of future use—and participants’ sociodemographic characteristics (e.g., age, income, race and ethnicity, sexual identity), self-reported HIV risk behaviors (e.g., transactional sex, multiple sexual partners, HIV-testing), and recent alcohol and substance use.

Results: Two-thirds of participants (67%) had heard of PrEP, yet only 8.3% had ever used PrEP and even fewer (6.2%) were currently using PrEP. PrEP awareness was more likely among YMTW who were older (Odds Ratio =1.03), had completed high school. Almost two-thirds had ever tested for HIV, with 6.3% identifying as HIV-positive. Focusing on the association between PrEP awareness—as well as likelihood of future use—and participants’ sociodemographic characteristics (e.g., age, income, race and ethnicity, sexual identity), self-reported HIV risk behaviors (e.g., transactional sex, multiple sexual partners, HIV-testing), and recent alcohol and substance use.

Conclusions: PrEP awareness was more likely among YMTW who were older (Odds Ratio =1.03), had completed high school. Almost two-thirds had ever tested for HIV, with 6.3% identifying as HIV-positive. Focusing on the association between PrEP awareness—as well as likelihood of future use—and participants’ sociodemographic characteristics (e.g., age, income, race and ethnicity, sexual identity), self-reported HIV risk behaviors (e.g., transactional sex, multiple sexual partners, HIV-testing), and recent alcohol and substance use.

THPED443
Community-led assessment of awareness and willingness to use HIV pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) in the Philippines

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Background: Recent studies have demonstrated safety and efficacy of dual antiretroviral oral pre-exposure prophylaxis (PrEP) in preventing sexual and parenteral transmission of HIV infection. Philippines, a lower-middle income country, has a rapidly emerging HIV epidemic, especially amongst men who have sex with men (MSM). While HIV preventive behavior, including HIV testing, among Philippine MSM is being brought to scale, formative research and pilot studies evaluating the PrEP concept for wider implementation among Philippine MSM should begin. However, a better understanding for potential demand for PrEP needs to be assessed. This study assessed PrEP knowledge and willingness to inform future PrEP programs in the Philippines.
Methods: An online survey was conducted by LoveYourself (a community-based organization based in Manila, Philippines) among MSM and TGW in the Philippines, aged 18 years old and above. A total of 1,706 respondents answered the survey. 1,268 HIV-negative and 193 HIV-positive. A separate survey was conducted among 245 volunteers of LoveYourself.

Results: Out of 1,706 total respondents, 51.23% are aware of what PrEP is. 72.50% (1,023 out of 1,411) HIV-negative individuals are “probably” and “definitely” interested in using PrEP while 75.90% (1,070 out of 1,408) are “probably” and “definitely” intending to use it when it becomes available in the Philippines.

Conclusions: This survey has determined that majority of HIV-negative individuals are interested to take PrEP should it become available in the Philippines. Further analysis of data, including their attitudes, and linking it to their sexual and drug taking behaviours should be conducted. Multi-stakeholder forums and focused group discussions should also be conducted to better understand client concerns, and provide qualitative data. Market analysis connecting PrEP use and demand can also be considered. Results of further studies and analyses could help future implementation of PrEP use in the Philippines.

**TPHED444**

**Acceptability of PrEP-based HIV prevention options among men who have sex with men in China**

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**Background:** The HIV epidemic among Chinese men who have sex with men (MSM) continues to expand rapidly. Efficacious or potentially efficacious biomedical prevention strategies may reduce new HIV infections among this population. We assessed willingness to use PrEP-based prevention options (oral pill, lubricant, enema) among MSM in Jiangsu Province, China.

**Methods:** Participants in a longitudinal cohort study completed an online follow-up survey in January 2015. They were recruited through venue- and online-based sampling methods. Data on sociodemographics, sexual risk behaviors, practices of douching, and willingness to take PrEP pills and use PrEP-based lubricant or enema were collected. Multivariable logistic regression was conducted to identify independent correlates of acceptability.

**Results:** Participants were diverse in terms of sociodemographic characteristics. Of 316 participants who responded to questions on PrEP-based prevention options, 20.3% were willing to take 1 pill a day whenever exposure was possible, 59.8% would use lubricant every time for any anal sex, 6.3% would use enema, while 13.6% would not adopt any of these options. In a multivariable model, being employed full-time or a student, having already had condomless sex (AOR = 3.89, 95%CI: 1.43, 10.6) and having had condomless anal sex (AOR = 3.89, 95% CI: 1.43, 10.6) were significantly associated with willingness to use PrEP-based lubricant. Douching practice, number of casual male partners, and lifetime HIV testing were not significantly associated.

**Conclusions:** Acceptability of PrEP-based lubricant is relatively high among Chinese MSM. If proven efficacious, appropriate marketing strategies are needed to advertise it to the target audiences. Furthermore, in order to encourage uptake of oral PrEP, sociocultural concerns need to be taken into consideration including addressing drug toxicity and adverse effects.

**Table 1. Sample Characteristics (n = 316)**

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Most participants were enthusiastic about LAIP, and expressed greater interest in this modality than in daily oral PrEP. Participants perceived that appointments every 2 months would be more feasible and easier to remember than taking a daily pill, especially during drug “binges” or periods of frequent use when daily adherence would be challenging. Additionally, for many homeless and marginally-housed PWID, participants discussed the benefits of not needing to carry or store medications. Female participants compared the benefits of LAIP to injectable and im-
plantable contraceptives. A minority of participants expressed concerns regarding LAI, including general mistrust of medical providers and the possibilities that injections could “affect their high” or be “triggering” for those entering recovery.

Conclusions: Overall, FSW's was highly acceptable in our sample of community-recruited PMWID, with many participants perceiving adherence and logistical advantages over daily oral PrEP medications. These perspectives from PMWID highlight the relevance of, need for and the moral obligation for representation of this marginalized, at-risk population in clinical trials of LAI. Without this, a major opportunity will be missed.

THPED447
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Background: Sex workers outreach program of Kenya (SWOP-Kenya) is based in Nairobi and offers HIV treatment and prevention services to approximately 16,000 female sex workers (FSW). A PrEP uptake pilot study among FSW was done in one of the SWOP clinics; 75% of the target was reached, screened of which 98% were eligible but only 58.5% enrolled. Among those enrolled 38.4% remained active - the rest were either discontinued or lost to follow up. These results prompted the SWOP team to find out why the low uptake.

Methods: A qualitative cross sectional study was carried out among the community members. Ten PrEP ambassadors were chosen purposively and recruited as research assistants (Those who were able to read, write, communicate and active on PrEP). They carried out one focused group discussion (FGD) each in their community hotspot units on challenges of taking PrEP, each group had 6-10 FWS. The information was taped transcribed and thematic analysis was done. Trained research assistants administered Key Informant interviews to 12 peer leaders (PIL, five outreach workers (OW) and six staff who participated in implementation of the Pilot study. The ambassadors later addressed the issue raised.

Results: The FGDs showed 92% of population had low knowledge level on PrEP and reported many fears; 23% reported fear of liver maceration by the drugs that in-turn cause non-stop diarrhea, 92% reported loss of “marketing apparatus” (lipodystrophy of the breasts and the buttocks), close to 50% reported fear of infertility. A reduced libido. The ones who had enrolled reported gender based violence from sex partners who accused them of wanting to infect them knowingly; others lost their drugs while running away from the police officers at night. Some had been stigmatized by fellow sex workers as being HIV positive on treatment - this caused them to lose clients. 98% of legible clients reported willingness to take PrEP after ambassadors’ intervention.

Conclusions: Community involvement in all stages of PrEP implementation is very vital in Kenya, the significant barriers described by participants may need to be addressed through education to increase PrEP uptake.

THPED448
What would it be for? The potential impact of HIV prevention technologies on young people's sexual lives in environments of inhibited hope
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Background: Proclamations about eliminating HIV are tantalising in their appeal, but the challenges in addressing the HIV incidence among youth as a key population in Sub-Saharan Africa are formidable and puncture the plausibility of such statements. The current epoch of HIV prevention is increasingly polarised between those contexts in which HIV prevention technologies hold unprecedented potential for reducing transmission amongst some populations, and those where complex structural drivers of HIV risk overwhelming narrow technological solutions. What can we learn from current qualitative work with young people about the possibilities for biomedical prevention interventions?

Methods: We draw on a series of multi-method, qualitative longitudinal studies with (60) young people affected by HIV (aged 12-24 years) in high prevalence settings in rural communities in Uganda and South Africa and, in light of thematic findings, reflect on global treatment as prevention (TasP) priorities of test-and-treat and pre-exposure prophylaxis (PrEP).
Results: Young people’s social practices are moulded by community discussions which frame sexual risks as ubiquitous and where the consequences of acquiring HIV have been comparatively neutered by antiretroviral therapy. For young people, TasP remains not well understood and their engagement in test-and-treat is already fragile and undermined by multiple factors that would also impact on the feasibility of PrEP. The economic realities that young people are facing impede aspiration, encourage substance use and further disrupt the incentives to adhere to safe and protective behaviour. The future from where many of these young people are standing looks bleak.

Conclusions: TasP technologies need to be adapted and honed to interact with an array of broader prevention interventions that engage with the social (and highly gendered) realities of young people. Understanding the contexts, structures and economies which inhibit the hope necessary for young people to invest in sexual health is an urgent necessity in the era of TasP. In the enthusiastic pursuit of biomedical prevention technologies there is a risk that any limit to, or problems with, their effectiveness is interpreted as a failure of young people’s behaviour, rather than as a reflection of their limited capacity to engage with the complexity of the contexts in which they intervene.

Risk compensation: conceptualisation, assessment, and mitigation

THPED449

Reality vs. perception: Differences in self-reported behavioral risk compensation between PrEP users and non-users in a large sample of American MSM

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Background: Pre-exposure prophylaxis (PrEP) is highly effective at preventing HIV acquisition among men who have sex with men (MSM). Some evidence suggests that PrEP use may increase rates of condomless anal sex (ICAS i.e. risk compensation), thus increasing risk of STD transmission and HIV acquisition if adherence is suboptimal. This study aimed to examine risk factors for actual and perceived risk compensation when taking PrEP among high-risk HIV-uninfected MSM recruited via a large, national online sample.

Methods: Push notifications were sent daily to all active U.S. users of 2 MSM sexual networking mobile apps during March 2016 inviting them to participate in a brief, mobile-optimized survey. Multivariable logistic regressions were used to examine risk factors for perceived and actual risk compensation among PrEP non-users and PrEP users, respectively.

Results: Of the 4,638 respondents, 15% reported PrEP use. Of the 85% who never used PrEP, 30% reported that they thought they would increase their rate of CAS if they take PrEP in the future. Among those who had used PrEP, 43% reported that they had increased the rate of CAS when on PrEP. Among never users, being Black (OR=0.38, p<0.0001) and Latino (OR=0.65, p<0.0001) (vs. White) was associated with increased odds of perceived risk compensation. Conversely, being older (OR=1.01, p=0.000) and having private insurance (OR=1.35, p=0.001) (vs. no insurance) and 2+ CAS acts (vs. no CAS) in the past 3 months (OR=2.9, p<0.0001) was associated with higher odds of perceived risk compensation. Among PrEP users, being Black (OR=0.62, p=0.02) was associated with lower odds, while reporting 2+ CAS acts in the past 3 months (OR=1.76, p<0.0001) was associated with higher odds, of reporting actual risk compensation.

Conclusions: Among this sample of risky MSM recruited online, PrEP users were more likely to report actual risk compensation when taking PrEP compared to perceived likelihood of risk compensation among never users, and risk factors differed between PrEP users and non-users. Differences in actual and perceived risk compensation should be considered in studies aiming to understand and reduce risk compensation in the future.

Combination HIV prevention

THPED450

Vaginal health and HIV prevention: Improving HIV programming for adolescent girls and young women by addressing vaginal practices

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Background: Social scientists have long suggested a possible association between vaginal practices and African women’s risk of HIV acquisition. Research over several decades has explored behavioural motives and socio-cultural meanings, documented and classified particular substances and usage patterns, and estimated the prevalence of vaginal practices among various groups in HIV affected locales. Research in the context of microbicide development for HIV prevention has prompted a closer examination of practices in relation to their impact on vaginal ecology. More recently biomedical scientists have identified microbial factors that predict genital inflammation and suggest an association between inflammation and increased HIV susceptibility. We assess social and biomedical knowledge to date of vaginal practices in southern Africa and argue that there is a need to integrate vaginal health as a key protective issue for improving HIV prevention outcomes for adolescent girls and young women (AGYW) in high-burden countries.

Methods: This paper draws upon on-going ethnographic research commenced in June 2016 with women using truvada as a sexual enhancement purposes in South Africa. We reviewed social science and biomedical studies of vaginal practices and vaginal ecology in southern Africa and situate our findings within this growing body of evidence.

Results: Vaginal practices are used for a range of purposes and hold various meanings for the women who use them. Most usage falls within three categories; for hygiene, health and wellness, and sexual enhancement purposes. Emerging evidence suggests some potentially harmful practices are increasing as women attempt to assert greater agency in sexual relationships with men and adopt behaviours associated with a more empowered femininity.

Conclusions: While still limited in terms of the precise biological mechanisms and pathways that might link particular vaginal practices to enhanced HIV susceptibility, we believe knowledge to date is sufficient to justify the immediate integration of education for vaginal health into HIV prevention for AGYW in high-burden countries. We identify some key lessons to inform the design of activities and the related pressures and cultural scripts that increase AGYW risk currently and likely in the future.

THPED451

Community based response to stop HIV in Guatemala: Combined prevention for and from the gay community in Guatemala city

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Background: In Guatemala, MSM report the highest burden of HIV among key populations. Less than half had an HIV test done in the last 12 months and the coverage of prevention programs are less than 10% for them. Through different strategies based on the community, Colectivo Amigos contra el Sida (CAS) has implemented since July 2014, that including HIV and STI testing modalities, PrEP and PEP have reached nearly 50% of the MSM in Guatemala’s department.
Description: First, we started a Saturday clinic opened, with an increase in coverage of three times with other similar services. Community testing was implemented since January 2015. To improve prevention, in October 2015 PEP service was offered. In February 2016 we started a Monday-Friday night clinic, to improve access. In July 2016 we started PEP in case of sexual risk. We also implemented HIV testing with a mobile unit in 2016. We integrated mental health and legal services for MSM in 2017. We based our outreach in volunteer networks, but some of them were offered a job in our institution, part of a constant renovation process. Since 2016, we are also part of Ministry of Health (MoH) STI sentinel surveillance.

Lessons learned: Nearly 10,800 MSM accessed to HIV and STI services. 1 of every 3 MSM served had an STI, and a total of 642 HIV cases were diagnosed and linked 97% of them to HIV treatment services. 31 persons have been on PrEP and 30 on PEP; none HIV infection in both groups. We are currently an innovative service in Central America, as we are the only service to offer PrEP and PEP in the region, the first MSM-oriented mental health program and the biggest HIV testing service in Central America for MSM.

Conclusions/Next steps: Real combined prevention services by the gay community in a developing country are feasible, and our model can be easily replicated in other countries in Central America. Sustainability with the support of the MoH is a step needed, to ensure provision of prevention services for MSM. Integration of efforts between MoH and community is urgently needed to stop HIV in the region.

School-based sexual education, life skills and gender equality education

THPED452
How to develop effective comprehensive sex education? The ‘Long Live Love’ program - an example from the Netherlands

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Background: The Netherlands is often presented as an exemplary case for its pragmatic dealings with youth and sexuality. This is reflected in the lower numbers of teenage pregnancies, sti’s and sexual coercion. Comprehensive sex education in the school-based setting contributes significantly to the positive sexual health of the Dutch youth. ‘Long Live Love’ (LLL) is by far the most successful, effective, evidence-based program in the field of sex education in the Netherlands. It has existed for over 27 years with the current program being the fourth generation. The systematic development of this program using the Intervention Mapping protocol is highlighted as an example for producing effective sex education programs. How can program developers optimize their current approach to a more systematic one? What are the benefits of systematic intervention development? How does this relate to the effectiveness of interventions? An example is provided with Long Live Love.

Description: Long Live Love is a school-based sex education program for secondary school students aged 13-15. It aims to assist youngsters in the healthy development of their emerging sexuality. It not only addresses knowledge but is also aimed at attitudes, skills and behavioural change. LLL is a teaching pack that consists of a student magazine, a DVD or online films, digital lessons and a teacher manual. LLL promises six lessons, using a positive approach towards sexuality with attention for cultural-, gender- and sexual diversity. It targets unwanted teen pregnancy, sti’s, assertiveness, communication, respecting and accepting boundaries. HIV/sti testing, managing relationships and dealing with sex on the internet. It was developed in close collaboration with students, teachers and Municipal health Service professionals using the Intervention Mapping protocol as a planning tool.

Lessons learned: The systematic and planned development of LLL has resulted in a proven effective program as shown in a national effect study. Over 550 schools have already ordered the program, with over 140,000 student magazines having been distributed.

Conclusions/Next steps: This systematic approach to intervention development serves as framework for sexual health promotion initiatives in other countries, with the highest potential for effectiveness.

THPED453
Footprints of school based sexuality education in Uganda: Straight talk foundation’s experience

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Background: Sexual and Reproductive Health and Rights (SRHR) Alliance in Uganda is a consortium of 8 partner organizations (Straight Talk Foundation (STF) inclusive) implementing Get Up Speak Out (GUSO) for Young Rights program (GUSO 2016-2020). The program is funded by Dutch Ministry of Foreign Affairs and aimed at empowering young people to realize their SRHR in restrictive societies. The program is implemented in 2 Ugandan districts namely: Iganga and Bugiri. The two districts are chosen based on high teenage pregnancy rates standing at 30.1%

Description: The GUSO program focuses on Sexuality Education by serving as mechanism to voice young people’s rights among health, social policy and legal actors. STF uses a whole school approach (WSA)
in implementation which is based on the following principles: Ownership by the school; Involvement of all actors at schools; Participation and equity of all, a healthy, safe school environment; cooperation between the education sector and the health sector; Contextualization and embedding. To date, 60 schools are implementing sexuality education programs based on WSA in Bugiri and Igianga districts. Over 60,000 young people, 12,000 parents and 600 teachers have been reached utilizing this approach. Target schools have reported reduced risky sexual activity among young people. Lower rates of child marriages and early unwarranted pregnancy, lower rates of STIs including HIV/AIDS.

Lessons learned:
- There is improved school to school relationships and likelihood of more schools implementing sexuality education.
- Use of WSA ensures creation of safe, enabling environment to empower students, teachers and parents.
- Engagement of all stakeholders helped to curb the aggression of the community.
- Having standard and uniform SRHR teaching materials led to improvement in accuracy and quality of sexuality education.
- Having well established youth corners in schools helps in managing menstruation, referrals and SRHR related problems and improved on community
- Participation of School Management Committees and Parents Teachers Associations have created school ownership of the program.
- Integrating Income generating activities into SRHR intervention ensures self-sustenance of the intervention in schools.

Conclusions/Next steps: Whole School Approach helps schools to implement sexuality education in a sustainable and scalable way.

**THPED454**

High school students’ knowledge and attitudes towards HIV/AIDS: Baseline measures and the effectiveness of a nationwide, school-based program for HIV prevention and stigma reduction in Greece

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Background: HIV prevalence is relatively high among youths in Greece with roughly 25% of new diagnoses concerning people aged 15-29 years (HCDCP, 2017). However, data on youths’ knowledge of HIV/AIDS and attitudes towards PLWHAs are lacking and no respective educational/ prevention programs have been consistently implemented in Greece, nor tested for their effectiveness.

On September 2017, the NGO Centre for Life commenced the first nationwide, school-based HIV education program, authorized by the Greek Ministry of Education and scientifically edited by the National School of Public Health, aiming at raising high-school students’ awareness of HIV/AIDS, promoting safe sexual behavior and reducing HIV-related stigma. 36,486 students have benefited until January 2018 (70,000 expected by May 2018 / 40% of the total population). The program applies a theory-driven logic model outlying its target variables and key interventions (Graph 1).

Methods: Adaptations of the HIV Knowledge Questionnaire (Carey & Schroder, 2002) and the HIV Stigma Scale (Visser et al., 2008) are used to assess baseline knowledge of HIV/AIDS and attitudes towards PLWHAs in a stratified national sample of approximately 3,500 students, as well as the post-intervention effect on these variables in a subgroup of 1,200 students. Descriptive statistics and variance analysis are the main procedures used for data analysis. This is an ongoing study, the full dataset being expected by May 2018.

Results: Peers (73.8%) and the internet (96.1%) are the most common sources of students’ information on sexuality issues, unlike school (17.7%), while 71.3% of students are unsatisfied from previous sexual education received by school. Results suggest a moderate baseline level of students’ knowledge about HIV/AIDS (M=4.93/10, SD=2.54) and no significant gender difference, as well as relatively positive attitudes towards PLWHAs (M=7.29/10, SD=4.51) (n=2,246 [49.3% females]), with male students being more negatively biased towards PLWHAs (M=7.29). The intervention had significant (p<0.001) and large effects on both knowledge (r=0.22) and attitudes (r=0.31) (n=2,418 [58.2% females]), again with a significant gender x attitudes interaction (p<0.003, r=0.16).

Conclusions: Our findings clearly show the need for systematically applying sexual education programs within the school setting and that even brief interventions can induce large positive changes if certain conditions are met.

**THPED455**

The evidence on out of school Comprehensive Sexuality Education (CSE)

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Background: UNFPA and its partners agreed to develop a guidance specifically on CSE delivered out of school. The literature review was conducted to sought evidence on the effectiveness and implementation of out of school CSE programs since 2008.

Methods: The initial search focused heavily on finding systematic reviews and randomized controlled trials using electronic databases. Systematic reviews were prioritized because they are based on extensive searches and synthesize the evidence from multiple randomized controlled trials and other types of studies, thereby providing time-efficient access to summarized findings. Randomized controlled studies were also searched for because they provide the highest quality evidence for the effectiveness of interventions, are the best way to assess the extent to which a program has its intended effect, and can provide specific examples of effective programs.

Results: Out of school CSE should preferably be embedded in multi-component, multi-level interventions. Emerging evidence indicates that CSE-related programs that directly address gender and power may have more impact on sexual and reproductive health and violence outcomes than those that do not. Clinic-based programs appear to be more effective in achieving their intended outcomes than other settings. Among the variety of delivery modalities of out of school CSE, parent-focused interventions and those that include parents appear to be more effective than family-based programs and programs delivered only to youth. Technology-based programs are still evolving and have yet to be tested in the “real world,” but hold a lot of promise for reaching large numbers of young people cost-effectively. Peer education can increase knowledge and change attitudes but has not been found to consistently change behavior. However, programs that involve peers in outreach and education appear to be more effective in reaching hidden and stigmatized young people, such as young drug users and LGBTQ+ youth and are strongly preferred by Indigenous young people. Young key populations, LGBTI+ people, people with disabilities, people in humanitarian crises, Indigenous people are neglected by current CSE programs.

Conclusions: Programs should involve young people from the group from the start, distinguish and address diversity within each group, treat them with respect and dignity.
THPED456
Finding them where they are: The potential of online social networking service for adolescent sexual health promotion

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Background: Population in Sub-Saharan African countries including Uganda is currently experiencing the increasing access to the Internet with the rapid prevalence of mobile phone ownership. Based on this background, sexual health promotions using Information and Communication Technology are taking place widely in those developing countries. However, sexual health interventions typified by text message services have not achieved long-term behavioral changes of adolescents who are at a great risk of sexually transmitted infections (STI) including HIV. Therefore, Social Networking Service (SNS) is drawing attention as an innovative alternative tool to impact on adolescent sexual health considering its increasing popularity.

Methods: A research study was conducted to explore the potential of online SNS for adolescent sexual health improvement in urban settings. The research adopted a mixed method consisting of questionnaire surveys and semi-structured interviews. The research participants received information regarding STI and HIV prevention on a Facebook group and their knowledge and attitude change was observed by a measurement tool. After the intervention, qualitative data on the participants’ experiences were collected to specify what factors caused motivational changes towards target behaviors to happen.

On the other hand, it was revealed that behaviours related to cultural norms were difficult to change even by conducting sexual health promotion on SNS. The most interesting finding was that the participants found it easier to express their sexual values via online spaces than other occasions.

Conclusions: SNS could possibly be not only an instrumental sexual health promotion tool, but also a new educational opportunity. There is need to increase awareness of the available social media platforms so that more young people can access STI and HIV prevention information thus increasing their access to sexual reproductive health services.

THPED457
Access to comprehensive sexuality education and information by young people in schools and linkages to HIV/STI services

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Background: Young people below the age of 25 constitute 66% of the country’s total population. Adolescents on the other hand make up 24% of the country’s total population. Young people (10-24) suffer from some of the worst SRHR outcomes. The causes of these poor outcomes include lack of correct and comprehensive information on SRHR issues including HIV and AIDS, barriers in accessing SRH services such as distance to health care centers, lack of access to youth friendly services and lack of knowledge on where to access SRH services. GUSO project is a four year project that sorts to empower all young people especially girls and women to realize their sexual reproductive health and rights in societies that are positive towards young people’s sexuality. The program has three focus areas which include Advocacy, comprehensive sexuality education and integrated SRH/HIV services. The project is implemented in 4 counties in Kenya. A needs assessment to map out schools with poor SRHR outcomes was conducted. A total of twelve schools primary and secondary were identified. As part of sustainability, the project identified young people in the selected schools and trained them as Trainer of trainers on provision of CSE. CSE in school is implemented in a structured way by the trained peer educators using FHOK CSE curriculum which has seven components. The components include sexuality Gender, SRHR and HIV, Sexual rights and sexual citizenship, Pleasure, Violence, Diversity and Relationships. Young people in schools are linked to nearby identified health centers for SRH/HIV services by trained peer providers.

Lessons learned: Training young people in school as peer educators to deliver CSE is a sustainability measure to ensure continuity and ownership even after project close out.

Conclusions/Next steps: Conclusions/Next steps:
Advocate for inclusion of CSE in school curriculum
Continue to empower young people to exercise their SRHR rights
Link parents in sex and sexuality dialogue

THPED458
The whole school approach for sexuality education: A model for improving the implementation of school-based sexuality education?

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Background: Access to high-quality SRHR information and education is a key pillar to empowering young people to make safe and informed decisions regarding their SRHR. Governments around the world recognize this and are increasingly investing in school-based Sexuality Education (SE) programmes, also in Low and Middle Income Countries. Unfortunately, implementation challenges limit the sustainability, reach and effectiveness of such programmes. To address these challenges more systematically, Rutgers, the Centre for the Study of Adolescence in Kenya and the Straight Talk Foundation in Uganda are piloting a Whole School Approach for Sexuality Education (WSA for SE).

Description: The WSA for SE builds on the WHO health promoting schools framework and moves beyond classroom teaching of SE to address the whole school environment, including supportive school policies and school facilities, links with parents and the community and collaboration with health services. To follow the WSA implementation
Community-based approaches, including empowerment, outreach, and service delivery

THPED459
Supporting HIV treatment retention and adherence through community mobilization

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Background: Evidence points to the merits of community mobilization (CM) approaches for health promotion and HIV trials have examined impacts of community- and facility-based Antiretroviral Therapy (ART) care on adherence and retention. However, an in-depth analysis of the interplay of community factors promoted through CM approaches to support pro-ART attitudes and behaviors remains under-explored. This study analyzes these factors using end-line data from PACTO, a CM program implemented in Mozambique (2010-2015) to increase utilization of HIV services, strengthen the continuum of care, and promote HIV-supportive and gender-equitable social norms.

Methods: We used a qualitative subset of 22 interviews and 17 focus group discussions from the following PACTO participants: people living with HIV (PLHIV), community leaders, community networks, religious leaders, faith-based organizations, health care providers, Rodrigues, and students. The study was conducted in Mozambique’s Nampula province from 2014 to early 2015.

Results: With PACTO support, a critical mass of players with pro-ART attitudes were strengthened, providing an enabling environment for ART engagement. PACTO helped make cumulative acts of ART adherence more sustainable and supportive. These results were then analyzed through an in-depth analysis of the interplay of community factors promoted through CM approaches to support pro-ART attitudes and behaviors that create an enabling environment to support ART access, retention, and adherence and make them sustainable.

Conclusions: The results suggest that a CM program can precipitate community pro-ART attitudes and supportive behaviors that create an enabling environment to support ART access, retention, and adherence and make them sustainable.

THPED460
Developing the Y+ South Africa Network


Background: Increasing evidence indicates that young people living with HIV (YPLHIV) are underserved by HIV services. Actively engaging YPLHIV is imperative to ensure that services are responsive and provide sustainable, appropriate solutions. Networks YPLHIV provide structured platforms for engagement, and for members to connect and advocate for change. Currently no formal networks exist in South Africa (SA) for YPLHIV. To develop a Y+ network in SA, a youth-led community consultation was conducted.

We aimed to ensure that YPLHIV are meaningfully involved from the outset of developing the network and gain insights to inform the identity and strategy of the network.

Methods: Sixteen workshops, based on participatory learning and action approaches, were conducted in all nine provinces of SA. YPLHIV aged between 15 -24 years were invited through posters in clinics and social media posts. Conducted by 16 trained YPLHIV, the workshops followed standardised guides and reporting tools. The outcomes were analyzed using qualitative content analysis and the key themes identified were presented at a national network development meeting.

Results: In total 419 YPLHIV participated; 49% were 15-18 years old, 54% were female, 58% were employed. 83% would have disclosed their status and 68% were sexually active. Participants highlighted internal and external stigma, fear of rejection and judgement with many not wanting to disclose. Emotional distress including suicidal ideations were prominent especially when newly diagnosed. Accepting their status took time and was made possible with support especially from others YPLHIV. Poor access to and quality of services were noted with lack of information as a major barrier. Participants requested that the network be youth-led. That it provides information, builds skills, raises awareness and empowers them to live positively. They want a support systems, a safe space to be heard and listened too and a platform that connects them. Ultimately, they want a network that raises their voice, advocates on their behalf and fights for their rights.

Conclusions: A consultation process was imperative to ensure that Y+ SA is responsive to the needs and desires of YPLHIV in SA. The network’s identity and work plan have been developed based on these outcomes.

THPED461
Capacity development for improved performance of organizations serving key populations with HIV services

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Background: Pact’s capacity development (CD) theory of change posits that organizational CD interventions improve internal systems, policies, processes, procedures, and networks, leading to increased organizational performance, translating into improved programmatic impact. Under LINKAGES—a USAID/PEPFAR-supported, FHI 360-led global mechanism that aims to reduce HIV transmission among key populations (KPs) and improve their enrollment and retention in care—Pact...
strengthened civil society organizations’ (CSOs) performance to help close leaks in the HIV cascade. Increased organizational performance is measured using an organizational performance index (OPI) tool. The OPI measures the outcomes of CD efforts and helps adapt CD programming to tailor support to the needs of CSOs to allow for greater impact on organizational performance.

**Methods:** Between November 2014 and September 2017, OPI scoring was completed with 65 CSOs across 12 countries, with 28 completing follow-up scoring beyond baseline. OPI scores were analyzed in Excel using quantitative descriptive analyses, and t-tests.

**Results:** The average baseline OPI score was 2.13 out of 4.0 with no significant regional difference between Caribbean (2.18; n=4) and African (2.15; n=7) scores. For CSOs with two rounds of OPI scores, the average second-round score (2.97) was 31% higher (p<0.001) than the average baseline score (2.13). The average score by OPI domain increased significantly (p<0.05) by the second round for all domains (efficiency, effectiveness, relevance, sustainability) and eight subdomains. As additional OPIs are conducted, updated data can be presented at the conference.

**Conclusions:** OPI scores measure organizational performance of CSOs, which is critical to HIV service delivery to KP. Baseline OPI results are consistently low across LINKAGES regions (average of 2.13 out of 4), which suggests that CD support continues to be necessary to improve CSO performance for HIV service delivery. During the time that CSOs received tailored CD support under LINKAGES, the OPI scores of those with two rounds of scores increased significantly. These results suggest that CD support plays a role in improving capacity and organizational performance of KP-serving organizations. Following LINKAGES CD support, KP-serving CSOs are likely better placed to more effectively deliver HIV services to KPs than they would have been without Pact’s support.

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**TPHED462**

**Barriers to vaccine delivery: Polling mothers to determine best practice for vaccine trials and vaccination campaigns in Bamako, Mali**

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**Background:** Logistics and parental preferences are an important factor in vaccination campaign design. Resistance to vaccination, often caused by lack of information, is becoming a global issue. GAIA Vaccine Foundation has focused a body of research on the HPV vaccine, because existing vaccines are safe and increasingly accessible. GAIA’s research on Knowledge, Attitudes and Practices (KAP) related to HPV and cervical cancer (CC) and Willingness to Participate (WTP) in Bamako, Mali can provide a model for future campaigns.

**Description:** GAIA’s HPV research has included: 2011 KAP/WTP study among 25 women, 2013 KAP/WTP study with 301 subjects, including 75 women, and 2013 KAP study among 236 women with CC. In 2015, GAIA developed an education campaign and KAP study to address a lack of information about HPV. The 6-month campaign promoted free CC screening at 5 Community Clinics (CSCOMs). Healthcare personnel mediated public educational events, and 500 women seeking CC screening were surveyed for KAP/WTP.

**Lessons learned:** All KAP/WTP surveys demonstrated that knowledge of HPV was low (23%, 2015) while knowledge of CC was high (75%, 2015). Desire for the HPV vaccine in Mali remained high over the years, and the majority of women wanted vaccination for their daughters. For vaccine delivery logistics, CSCOMs were preferred locations for vaccination, over school-based campaigns. Participants preferred phone call reminders, rather than text messages. 45% of women would provide consent for a child’s vaccination, but 52% said they would contact their husbands for consent.

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**TPHED463**

**Better together? A systematic review examining the effectiveness of HIV prevention interventions that involve building or strengthening social ties in low- and middle-income countries**

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**Background:** Forging community bonds and grass-roots organizing have been essential to the HIV response. Interventions have also deliberately sought to create and strengthen such bonds as a means of facilitating HIV prevention, through changing both upstream risk factors (e.g., gender norms) and individual risk behavior. Terms such as “social capital” and “community mobilization” permeate the lexicon of HIV prevention; however, results from interventions aiming to increase social ties have not been synthesized, particularly in low- and middle-income countries. We systematically reviewed available evidence to understand how interventions created social ties, how ties were measured, and their effectiveness in preventing HIV.

**Methods:** We searched five electronic databases from January 1990-August 2016 to identify articles. Results were screened for eligibility by two independent reviewers. Studies had to be conducted in a low- or middle-income country, explicitly focus on building/strengthening social ties, and present pre/post or multi-arm results related to HIV prevention. We abstracted data into standardized forms in duplicate and synthesized results qualitatively.

**Results:** Of 4,801 unique citations screened, 25 articles evaluating 19 interventions met the inclusion criteria. We identified five intervention categories:

1. Strengthening ties in general communities through social mobilization (n=2);
2. Forming ties for collective action/group empowerment among at-risk populations (n=9);
3. Forming peer groups for support and skills building (n=3);
4. Expanding personal networks (n=4); and
(5) Forming ties between non-peers (e.g., between nurses and people living with HIV) (n=3).

Only 5 studies measured effects on some aspect of social relationships, including social cohesion, collectivization, social participation, peer interaction, and perceived community support. The vast majority of interventions demonstrated significant change in at least one HIV-related behavior, such as condom use. Several studies reported community-level change, such as decreases in social acceptance of intimate partner violence. One study measured the intervention’s impact on community-level HIV incidence but found no effect. The rigor of study designs varied significantly.

Conclusions: Interventions were generally effective in facilitating individual-level behavior change, regardless of the intervention modality through which ties were strengthened. However, most studies seeking to alter social relationships did not directly measure such changes, limiting our understanding of the mechanisms through which these interventions prevent HIV.

THPEdward464

MSM and TG/Hijra CBOs contribution to achieve SDGs: Promising practices and community system strengthening

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Background: In Bangladesh, HIV prevalence is less than 1% and to reduce the impact of HIV amongst key population, different strategies have been taken by the GO, NGOs, Civil Society Organizations. As a part of commitment, a total of 30 TG/Hijra and MSM CBOs have been formed between 2011-2017 to strengthen the Community Systems and organized capacity building trainings and provided other technical assistance under Multi Country South Asia Global Fund Regional Grant. The objective of the support was to reduce the impact of HIV amongst MSM and TG/Hijra through developing local level network with local influential, practicing Good Governance, implement sustainable business plan.

Methods: Selection process was completed through organizational need assessment survey; developed Capacity Develop Plan, ensured support to all selective CBOs at 8 divisions in Bangladesh. Regular monitoring, support for organizational registration, arrangement of capacity building trainings to build the capacity of CBOs and staffs, developed different policies/strategies/guidelines of CBOs, introduced sustainable business plan for their self-driven initiatives for future. established local level referral mechanism especially for HTC, and other support for HIV, STIs.

Results: More than 150 Hijra are in mainstream employment. 150 Hijra received NID cards as Third Gender. 14 CBOs got registration from Govt. authorities. Hijra are acknowledged as 3rd Gender by the Govt. of Bangla-


Conclusions: Interventions demonstrated significant change in at least one HIV-related behavior, such as condom use. Several studies reported community-level change, such as decreases in social acceptance of intimate partner violence. One study measured the intervention’s impact on community-level HIV incidence but found no effect. The rigor of study designs varied significantly.

Conclusions: Interventions were generally effective in facilitating individual-level behavior change, regardless of the intervention modality through which ties were strengthened. However, most studies seeking to alter social relationships did not directly measure such changes, limiting our understanding of the mechanisms through which these interventions prevent HIV.

THPEdward465

Strengthening the identification and diagnosis of disability among children and adolescents living with HIV - a peer-led response

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Background: Children with HIV worldwide are increasingly accessing HIV treatment, resulting in improved survival rates, although there is mounting concern regarding HIV-related disabilities amongst children growing up with HIV. The extent or nature of their disabilities is currently unrecognized, poorly understood and inadequately addressed. Africaid through the ‘HIV & Disability Impact Mitigation’ project aims to improve the quality of life for children with HIV-related disabilities living in Harare (Zimbabwe), through increased understanding about HIV and disability by strengthening their access to appropriate quality health, rehabilitation and educational services.

Description: Since 2016 Africaid has been implementing the HIV and Disability Impact mitigation project where Community Adolescent Treatment Supporters (CATS) were trained on identification of disabilities/impairments among children and adolescents in the Zvandiri cohort aged 6 to 16 in Harare. The CATS utilise a simplified disability identification questionnaire which was developed in collaboration with Ministry of Health and Child Care Rehabilitation Department. The CATS work closely with the clinics and rehabilitation programme for referrals of cases identified at community level. The CATS continuously offer support to the children & adolescents with disability through adherence support done through home visits, sms reminders and support groups.

Lessons learned: 1502 children, adolescents living with HIV (CALHIV) in the Zvandiri care were screened for disabilities. The identification questionnaire was administered by CATS to all the children and adolescents identified at community level. Those at risk of disability were all referred for further screening for impairments by specialist health care providers. 808 of the 1502 (54%) children who were assessed were confirmed to have significant physical and or intellectual disabilities that are interfering with their occupational and social functioning. The predominant impairments among those assessed were Visual (384), Hearing (323), Mobility (323), Cognition (476), Epilepsy (45). It is important to note that 328 CALHIV had multiple impairments.

Conclusions/Next steps: The prevalence of disability among this population of adolescents in Harare suggests that disability and impairments are a critical neglected concern. Further research is necessary to understand the prevalence and nature of disabilities among this group of young people so that disability can be integrated within HIV service delivery.
THPED466
Using an engendered, integrated community-based approach to HIV prevention among adolescent boys in peri-urban Swaziland

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Background: With an HIV incidence of 1.4% and prevalence of 27%, Swaziland has a severe HIV epidemic. Adolescents, especially girls, are increasingly at-risk. However, young Swazi men demonstrate lower HIV uptake of HIV testing (48%), lower viral suppression (62.7%), poor transmission knowledge (66%), inconsistent condom use and low VMMC uptake (48%). This, coupled with the prevalence of patriarchal gender norms, GBV, and poor economic opportunities creates high HIV vulnerability among young men, and as a result, young women.

In 2017, Kwalaha Indvodza (KI) and UNICEF provided a comprehensive package of adolescent behaviour change sensitizations and health services aimed at:
1) increasing uptake and referrals of quality HIV prevention service and products by 30%, and;
2) reducing violence against women and children by 15%.

Description: 235 boys and young men (15-25 years old, in and out-of-school), from three underserved peri-urban communities underwent an intensive curriculum of HIV prevention knowledge and services, gender sensitivity, GBV and economic empowerment. KI established male-focused youth centres which provided opportunity for service delivery, follow up and complementary services, such as psycho-social support, career guidance, parenting workshops and study support. The 5-month pilot programme integrated HIV prevention into other sensitizations and services to encourage uptake of HIV prevention services by combining referrals to existing health facilities and community-based youth-friendly HIV prevention services.

Lessons learned: Significantly increased participant status knowledge (89%), self-reported VMMC (66.3%) and self-reported condom usage at last sex (75%) among pivot-age course graduates. Substantial increase in gender-equitable norms and practices, including GBV awareness (38%) with 24% increase in GBV reporting at local police stations. As a result of the study support, participants had improved parent-adolescent communication and better academic pass rate (65%-25%) at national exams than the average boys at their school.

Conclusions/Next steps: Integrated HIV prevention packages targeting young men should be implemented as an HIV prevention approach for young men and women. Engaging adolescent males in HIV prevention requires more integrated approaches (combining medical, bio-medical, SBCC, skills development). Enhancing parent-adolescent HIV communication as HIV prevention approach needs further research. KI and partners hope to write a Facilitator’s Manual and scale this pilot implementation model across Swaziland throughout 2018.

[Figure 1: Increase in HIV status knowledge and uptake HIV prevention products and services over the 5 months. 208 participants interviewed.]

THPED467
Center for friendly testing - network of people with HIV / AIDS Mar del Plata accessibility to HIV prevention, diagnosis and care in Hsh, trans, sex workers

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Background: According to statistics from the National AIDS Directorate, the trans population has a prevalence of HIV of 34%, an average life of 40 years, the vast majority of which have sex work as a means of survival; men who have sex with men a prevalence of 12%; what makes it indispensable to address strategies to bring this population to the health centers to improve their quality of life and tend to decrease the transmission of HIV and meet go-go-go.

Description: Creation of a rapid testing center generated, promoted and managed by key populations at the Headquarters of the Network of Persons with HIV / AIDS Mar del Plata in strategic association with civil society organizations related to sexual diversity and sex work. Secretary of Health. Secretary of Culture and Human Rights Directorate. Identify issues to generate interventions that bring the testing closer to the most excluded populations.

Lessons learned: Training of 10 people from the key populations to perform the test. counseling pre and post test accommodation for access to the health system. 1 prevention campaign in the main bowling hall of sexual diversity Agreement with the Ministry of Labor to train 18 trans girls as multipliers in HIV / AIDS. Distribution of 15,000 monthly condoms to sex workers provided by the AIDS directorate. 1st Month 122 tests (F 40 - M 41) 129 Hiv - 12 Hetero - Trans 31. Of the one hundred and twelve (122), eighty (80) corresponded to sex workers. 3 positives corresponding to After Migrants.

Conclusions/Next steps: Strengthen the training, education and empowerment of Trans girls, especially migrants, where we are detecting new cases of HIV and more difficulties we have to get closer to health centers. Intensify strategies with the Ministry of Health, Interior and Labor to facilitate the inclusions to the sanitary service of these people, work on Hormonization and implants of silicones.

THPED468
Communities in the lead: The Botswana experience with community-led health improvement to achieve epidemic HIV control

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Background: Botswana has been hit hard by HIV/AIDS, and while largely successful, its national response has been costly, characterized by intensely vertical disease control efforts. Botswana’s health system - once renowned for its proud embrace of Alma Ata and primary health care - was transformed through this emergency approach. Today, as the country is determined to think beyond HIV and re-balance its health system, focus is on the role of communities.

With more than one in five Botswana living with the virus, there is a strong call for an integrated community perspective that characterized Botswana before HIV.

Description: Under PEPFAR Botswana, the USAID-funded Applying Science to Strengthen and Improve Systems (ASSIST) project followed a community health system approach that applied quality improvement methodologies across seven districts in Botswana. Alongside local NGOs scaling HIV services under USAID’s community platform, ASSIST reactivated existing but dormant community structures and reconnect them with district health systems.

Community teams under the mandate of traditional leaders received dedicated coaching to drive local efforts to improve HIV care. Tangible improvements in testing, retention and adherence were possible once
Lessons learned: During dedicated ‘Learning Sessions’, community teams presented their results to national and district officials, ranging from community-led HIV testing to retention and adherence strategies. This demonstrated their willingness and capacity to contribute to common health goals, and the power of innovation that came from partnering with local providers to improve community health. In Botswana’s unique context, traditional structures hold the promise of successfully revitalizing primary health care without undermining HIV control. In fact, they directly help in sustaining epidemic control - provided Botswana dedicates the necessary support to institutionalize new community partnerships.

Conclusions/Next steps: We continue to advise government on community-led service delivery strategies that differentiate care around community preferences and patient needs to improve integration and client orientation. The HRH2030 program will support the re-alignment and operationalization of health workforce frameworks to innovative client orientation. The HRH2030 program will support the re-alignment and operationalization of health workforce frameworks to innovative client orientation. The HRH2030 program will support the re-alignment and operationalization of health workforce frameworks to innovative models of care to ‘deliver differently’ in Botswana.

THPED469
Community entry experiences in implementing a model to prevent and respond to Gender Based Violence (GBV) and HIV in a highly prevalent GBV Community in Wakiso, Uganda

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Background: Previous studies have shown a link between Gender Based Violence (GBV) and increased HIV infections, and sexually transmitted infections. A significant reduction in GBV cases has been documented to be a promising strategy in reducing HIV incidence especially among high GBV prevalent communities. To ensure success of community based GBV interventions, systematic community entry and ownership of the programme by the community members remains a paramount factor. We describe experiences of implementing a community initiated model towards prevention and response to Gender Based Violence in this highly prevalent GBV Community.

Description: A combination of community entry packages were used including the following:

1. Strategic intervention mapping workshops to facilitate the community stakeholders own the intervention mapping.
2. Community driven selection of intervention activists that the community blesses and also believes in.
3. Early capacity building workshops for Community activists as a way of empowering the local communities to lead the implementation of the intervention, and.
4. Community participatory sessions to design GBV communication materials that are appealing and also resonate with the target audiences. Community ownership and understanding of the intervention concepts are fundamental components in all community engagement activities.

Lessons learned: Sensitivity of GBV issues in the community, especially surrounding cultural backgrounds, beliefs and values require the use of strategies for community involvement to ensure ownership, continuity and sustainability. A well laid out community entry approach is key to successful implementation of community interventions. Involving community members to contribute to designing of GBV Communication materials guarantees suitability of appropriateness materials to the targeted audiences. Building capacity of community members to lead GBV programming significantly reduces the implementation budget and gives a variety of platforms to address the intervention messages.

Conclusions/Next steps: Early inclusion community members as lead persons in the implementation of GBV activities is as important as the interventions themselves. This significantly reduces cost of implementation and ensures a successful and quick roll-out plan that can be achieved through community ownership.

THPED470
Engaging MSM of color leaders in guiding HIV prevention, outreach and service delivery

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Background: According to a Center for Disease Control and Prevention “Lifetime Risk of HIV Diagnosis” release, 1 in 2 black men who have sex with men (MSM) will become HIV positive in their lifetime if the current HIV diagnoses rates persist. Syndemic and proximity are directly related to the increase of HIV rates in MSM. Further, the social determinants of health (SDOH) and limited engagement in prevention research and public health strategies imply that HIV prevention efforts must be innovative. These approaches must engage MSM of color where service delivery structures have failed in empowerment and outreach.

Description: HealthHIV conceptualized and created the MSM of color Leadership Team (MLT) to provide valuable insight, constructive feedback, and creative recommendations for education and capacity building activities to be culturally informed and affirming to MSM of color. The MLT was formed to guide HealthHIV’s national programs. The MLT are stakeholders that provide input to discern the intersections of engagement, mobilization, recruitment, and retention of MSM of color in HIV prevention and care. These 20 leaders were identified from geographic areas with higher prevalence of HIV in MSM of color. The MLT, diverse in age, education, socio-economic status, employment, and access to health care, advocates for the greater MSM of color community through an intimate understanding of High-Impact Prevention and HIV Treatment as Prevention.

Lessons learned: A critical lesson learned is that engagement of gay and bisexual men in public health strategies positively impacts service delivery and healthy outcomes of other MSM of color. The MLT brings a voice not previously heard in guiding service delivery and development of systems educational programs. The MLT has provided relevant and impactful perspective in curricula development, including modules on: Cultural Competency, Racism and Stigma, Peer and PEP Navigation, and Motivational Interviewing.

Conclusions/Next steps: The MLT has informed national programs and activities in becoming more culturally competent. The MLT will continue to guide education and training activities. The MLT will continue to develop leadership capacity in HIV Prevention, leading toward more MSM of color guiding service delivery.
THPED471
Effect of duration of association with community-led organization on female sex workers' self-efficacy and self-confidence: Evidence from five Indian states

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Background: Community-led programs have been leveraged and widely promoted in the recent years to reduce HIV prevention, social and financial vulnerability among the female sex workers (FSWs). One of the cornerstones of such programs is to improve the self-efficacy of individuals so that the collective efficacy of the community enhances. In this study, we examine the association between duration of association with community-led organizations (COs) and individual self-efficacy and self-confidence of FSWs in India.

Methods: The article uses data from a study conducted during in 2017 and involves a sample of 3,589 FSWs aged 18 years or older from four southern and one western Indian states. Self-efficacy was measured as FSW's ability to insist on using a condom with each client and partner under various circumstances, and their ability to get the reproductive health services from government or other clients. Self-confidence was assessed based on their capacity to raise the voice to demand different services. Data were analyzed using bivariate analysis and multiple logistic regression models.

Results: Nearly three-quarter (72%) of FSWs had been members with the COs for more than 4 years. Compared to FSWs with less than four years of CO membership, those having longer association were more confident speaking their opinion in the training or CO meeting (76% vs 67%, adjusted OR 1.33, 95% CI 1.12-1.58), and in giving advice to a fellow sex worker in accessing HIV services (71% vs 63%, adjusted OR 1.37, 95% CI 1.15-1.60). Similarly, duration of association with COs had positive association with FSWs' ability to insist on using a condom with the regular partners when he got angry with her (43% vs 34%, adjusted OR 1.37, 95% CI 1.15-1.60). Further, longer duration of association with COs was associated with individuals feeling confident speaking their opinion in the training or CO meeting (76% vs 67%, adjusted OR 1.33, 95% CI 1.12-1.58), and in giving advice to a fellow sex worker in accessing HIV services (71% vs 63%, adjusted OR 1.37, 95% CI 1.15-1.60).

Conclusions: Community mobilization is the key to reduce vulnerability among FSWs. The findings from this study substantiate that sex workers who have been part of these community-led organizations for longer duration reported higher self-efficacy and self-confidence.

THPED472
The effectiveness of mentor mother programmes as a community intervention strategy to reduce vertical transmission of human immunodeficiency virus (HIV)

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Background: Following the UNAIDS Global Plan in 2011, vertical transmission of HIV was identified as a major contributor to the epidemic worldwide, with a particular focus in Sub-Saharan Africa. Mentor mother programmes employ HIV positive (HIV+) women to provide counselling, psychological support, and guidance to HIV+ pregnant women who are going through the prevention of mother-to-child transmission (PMTCT) care cycle. Comparing the health outcome indicators from Community Based Organisations (CBOs), the aim of this investigation is to assess and quantify how effective mentor mother models are at PMTCT of HIV.

Methods: The data used for this comparison was sourced from ViiV Healthcare’s Positive Action for Children Fund (PACF) CBO partners, which was collected on an ongoing basis between January and July 2017 using a two stage sampling method, criterion sampling followed by simple random sampling. The health outcome data of 12 CBOs using a mentor mother model is directly compared to data from 12 CBOs using a mentor mother model. The comparison aims to show the critical impact of mentor mother models on female sex workers’ self-efficacy and self-confidence: Evidence from five Indian states.

Results: The results show that projects implementing a mentor mother model have significantly lower overall HIV transmission rate at 4.30%, compared to those that do not at 12.05%. Importantly, the mentor mother CBOs are having a significant impact on reducing HIV transmission rate between 0 and 6 months with an increase of only 0.23% from birth compared to 3.81% in non-mentor mother CBOs, a difference with p-value <0.05.

Conclusions: The squared analysis demonstrates that the HIV transmission rate after 6 months is significantly lower in mentor mother CBOs compared to non-mentor mother CBOs, even when taking into account the errors of RDT. Most importantly the results show that the mentor mother model is particularly significant at reducing vertical transmission of HIV between the period of birth and 6 months whilst a mother is breastfeeding.
Lessons learned: The project is implemented through two community-based organizations in Kisumu and Homa Bay counties, and will expand to Nairobi in 2018. The AIDSFree project completed a literature review in November 2017 and developed a comprehensive training curriculum specific to AGYW. Training covers topics including antiretroviral adherence and viral suppression; pre-exposure prophylaxis; partner disclosure; screening/referring for post-partum depression; and addressing gender-based violence. Training materials include standard operating procedures, job aids, and monitoring/evaluation tools. In January 2018, AIDSFree trained 24 HVT cadres (Mentors, Household Facilitators and Supervisors, total of 80 participants) on the 10-day training package including supplemental supervisor training. Community engagement sessions facilitate the commitment and support of community leaders. The project aims to reach 192 adolescents and their children.

Conclusions/Next steps: To reduce the gap of lack of services and programs designed for pregnant adolescents, young mothers and their children in Kenya and globally, program results will be shared with country and national governments and PEPFAR to assist with policy formulation and design.

THPED474

Good clinical treatment outcomes: A comprehensive community peer led model by reach out Mbuya Parish HIV/AIDS Initiative

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Background: Reach out Mbuya Parish HIV/AIDS Initiative is a community Faith Based Non-Government Organization which has been in existence for the last 17 years. ROM delivers comprehensive HIV Care services using a unique holistic model of care to the urban poor and rural communities in Uganda.

Over the years, ROM has established Community peer models of HIV Patients in care, which relies heavily on community-based approaches that emphasize community ownership ensuring sustained impact in HIV epidemic control in Uganda. Using the different models, the community-facility linkages and referral systems, client empowerment thus good community supported treatment outcomes.

Description: Through ROM's unique models of care, Community Health Workers are identified first as expert clients who have shown that good adherence to treatment and are willing to share their life experiences in regard to their treatment. The CATTs for example have been trained in basic counseling skills, facilitation in Health education sections as a means to equip them with knowledge and skills to support clinical activities as well as Home Based Care activities like home visits, client follow ups, village meetings and Community Drug Distributions.

Lessons learned: In the first and fourth quarters of 2016, ROM realized client retention at 96.7 percent and 99 percent and adherence between 80.1 percent to 89 percent respectively. Most importantly, ROM has successfully maintained a zero percent transmission of HIV from mother to child since 2010. Effective Facility-Community linkages and feedbacks with regular communication to clients. At every village meeting, CHWs and clients use the fora to discuss critical service delivery to obtain feedback to Management.

Conclusions/Next steps: Treatment outcomes through the use of community peer model programs has proven to be an effective strategy for improving adherence to ART and leads to positive treatment outcomes. Teenage and adolescent supporters are key in supporting the transition process. M2M Community Based approach has helped strengthen the PMTCT strategies, including early infant diagnosis and health facility based births.

Importantly, the utilization of CHWs ensures effective use of basic care packages and tracing missed appointments and Lost to follow-ups.

THPED475

Getting young people on board: How a community-based peer-led approach can improve SRH including HIV service uptake in rural Zambia

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Background: Around 74% of Zambia’s population is under 30, Zambian youths like others in developing countries face challenges such as high unemployment, poor educational opportunities, high rates of HIV, teen-pregnancy and early marriage. In Mkushi, young people face these same challenges, compounded by economic barriers, limited health infrastructure / personnel, / commodities, contributing to low uptake/retention to services - only 7% of 15-24 year olds had youth-friendly SRH service access in 2015.

The district has since set a target to increase this to 20% by 2019. Against this backdrop, national NGO BISO, began piloting the ADHERE project in 5 rural communities of Mkushi in 2017.

Description: The project facilitates access to youth-friendly SRH services focused on behavioural change interventions anchored on a strong peer-led approach building linkages between the community and health facilities. It addresses risk-reduction by targeting young people with high impact age-appropriate (10-15 and 20-24) HIV interventions empowering them with information/skills in HIV prevention and increasing access to and uptake of these services. It closely works with community structures, leaders, schools, health facilities and parents/guardians.

Interventions include establishment of school/community-based safe spaces, sports, referrals, screening for HIV/STIs/teen pregnancy/HIV testing and linkages to treatment.

Lessons learned: Peer-led approaches have increased access to and uptake of SRH services in Mkushi. In the first nine months of the project:

- Much improved engagement with health facilities, which previously struggled to reach this demographic
- 3,029 adolescents and young people tested for HIV
- 25.1% tested positive and referred for treatment - much higher than national prevalence of 12.1%.
- 628 people engaged in safe spaces to talk openly about SRH
- 983 young people were tested for STIs and 1,174 for pregnancy with 36% and 20% testing positive respectively.

Conclusions/Next steps: Empowering young people to mobilise their peers has been an effective approach to increasing SRH service uptake in this rural Zambian context. As the project develops, the need to provide greater support to adolescents/young people testing positive is emerging, as is the need for more engagement of parents to get their buy-in and challenging damaging norms, such as child marriage and abuse.

THPED476

“It’s never too late” - building confidence of vulnerable adolescent girls to prevent HIV infection through sistazisista girls only clubs

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Background: The Programme was initiated in 2016 in 20 Hot Spot districts after a realisation that “Adolescent girls and young women (AGYW) in particular experience dramatically disproportionate burden and risk factors. Young women (20-24) have HIV prevalence 2.78 times greater than their male peers. 17.1% of women aged 15-19 who had sex in the last year did so with a partner that was ten or more years older (up from 15.2% in 2010 and 7.5% in 2005). Further, 41% of girls report sexual debut before 18 years as unwanted and rates of transactional sex are high, and increasing.” (Extended ZNAPSS III, 2015-2020).
THPED477

Galvanizing the voice and action of religious and cultural leaders as champions and advocates for widows and orphans affected by HIV/AIDS in Kenya

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Background: In some Kenyan communities, widows and orphans are disinherited of their property immediately the father dies. The situation is worse for HIV-positive widows and OVC who, on the event of spousal or parental death, are disinherited by kinsmen and victimized through forceful eviction from ancestral land, resulting in displacement, poor quality of health, emotional and psychological trauma, and loss of livelihood.

Description: INERELA+ Kenya facilitated consultative forums to document experiences of disinheriance and displacement by HIV-positive widows and orphans. These experiences were shared with key opinion leaders, religious leaders, women leaders, Laikipia County leadership and the local administrative unit (Chief and sub-chief). Through support, training and mentoring, an Alternative Dispute Resolution Committee (ADRC) was formed. The committee has the capacity and commitment to address rights abuses against widows and OVC. As a result, 12 widows have been resettled in their matrimonial property and over 20 women have received necessary support towards settlement. Several OVCs have access to family property. ADRC harmonized contradictions between modern and traditional culture and is intervening in disputes to promote women’s and OVC land and property rights.

INERELA+ Kenya’s technical assistance enabled the ADRC to implement advocacy programs through community ‘Banzo’s’ (forums) and congregational level responses to curb violations, administer and ensure referrals. There is now active representation by ADRC member in land boards that arbitrate inheritance disputes.

Lessons learned: Working with and mobilizing key religious, community, traditional and opinion leaders as advocates and champions for women and OVCs, especially in a highly patriarchal society, is a very effective method to promote access to land and property ownership.

Conclusions/Next steps: There is need to further build the capacity of the ADRCs on legal matters to enable them to advocate more effectively for the rights of HIV-positive widows and orphans.

THPED478

Empowering sub-Saharan immigrants in sexual health in Paris greater area. Results from the Makasi pilot study

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Background: In Europe, immigrants represented 37% of new HIV diagnoses in 2015 and immigrants from Sub-Saharan Africa are particularly affected (ECDC 2016). Between a third and half of HIV-positive immigrants in Europe acquired HIV post migration (Desgrées du Loû et al. 2016. Alvarez-Del Arco et al. 2017). Hence there is a strong need for efficient interventions to reduce immigrants’ social and sanitary vulnerability. The aim of this study is to evaluate a community-based intervention for Sub-Saharan immigrants’ empowerment in sexual health in Paris area.

Methods: Two community-based organizations (Arcat and Afrique Avenir) and three research teams conducted the pilot research. The formative phase was based upon participant observation in the two organization and strong peers’ involvement. The resulting Makasi project is a two-component intervention: i) a mobile team of mediators identifying immigrant’s needs through outreach thanks to a specifically designed tool and ii) two peer-health mediators delivering social support based on persons’ expressed needs, orientation and navigation to health and social services with an empowerment approach. The pilot phase is taking place in February and March 2018. A randomized two-arm trial is led to compare the outcomes of the group receiving the intervention to a control group. Indicators of individual empowerment and intentions of behavioral changes are measured at baseline at three-month follow-up.

Results: Preliminary results show that a community-based multicomponent intervention is feasible and could reduce Sub-Saharan immigrants’ vulnerability. A general-health-need approach, peers’ involvement and the use of positive messages were identified as key elements of success.

Conclusions: A package of interventions designed to reduce social and sanitary vulnerability in order to reduce sexual health is feasible among Sub-Saharan immigrants’ in Paris area.
THPE479

The role of ethnic identity and psychological empowerment in HIV and drug use prevention for Black and Hispanic female adolescents in the United States

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Background: Substance abuse and HIV/AIDS prevention research tends to overlook the resiliency skills that adolescents of color may possess. In addition, adolescent females of color, particular Black and Hispanic adolescents, are often viewed as a homogenous group with adolescent boys of color, thus ignoring unique gender-racial specific risk and protective factors to drug use and HIV/AIDS that may be present. Such an absence can lead to flawed outcomes in HIV and substance abuse prevention work that may continue to marginalize these groups. Using a strength based approach, this study aims to explore the role of psychological empowerment and ethnic identity on drug use and sexual and HIV risk behavior in Black and Hispanic adolescent females that reside in an impoverished and under resourced community located in Northeastern New Jersey, United States.

Methods: A sample of (N = 999) ethnic minority females’ adolescents that were enrolled in a federally funded HIV/AIDS and Substance Abuse prevention program were used. Participants were between the ages of 10-17 years of age and identified as mostly African American/Black or Hispanic. Multiple regression models were conducted in order to show the associations of latent constructs that have an impact on sexual/HIV risk behavior and drug use in adolescent girls of color. Confirmatory factor analysis was conducted to reduce scale variables to create latent variables used in regression models.

Results: Multiple linear regression was used to develop a model for predicting drug use and HIV risk behavior in Black and Hispanic female adolescents. Preliminary findings revealed that ethnic identity and psychological empowerment significantly predicted drug use and sexual and HIV risk behavior in Black and Hispanic female adolescents (p < 0.001).

Conclusions: The findings suggest that adolescent girls of color in this community whom have strong ethnic identity and high psychological empowerment were less likely to engage in behaviors that place them at risk of contracting HIV. Implications from the study can inform preventive efforts by creating interventions and programming that seek to empower adolescent females of color and highlight ethnic identity as a method to HIV and drug use prevention.

THPE480

Exploring the role of social asset building in reducing risk of HIV infection among adolescent girls and young women in Mutare District, Manicaland, Zimbabwe

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Background: AGYW aged 15-24 years account for 60% of new HIV infections globally. In Zimbabwe estimated number of new HIV infections per week among young women aged 15-24 years is 287. The DREAMS Initiative seeks to provide a comprehensive package of evidence-based strategies that go beyond the health sector, addressing the structural drivers that fuel AGYW’s HIV risk, including poverty, gender inequality, sexual violence, social isolation, and limited schooling.

Description: Family AIDS Caring Trust (FACT) through the PEPFAR-funded DREAMS Initiative is implementing Social Asset building among AGYW in Mutare District. This is aimed at addressing social isolation and link to relevant services. 434 AGYW were drawn from ultra-poor household receiving Social Cash transfer grants, GBV Survivors, AG from early marriages, YWSS, Teenage mothers, and AGYW in high HIV burden communities. Community cadres and health professionals identified the AGYW together with trained mentors. They went through seven weeks sessions facilitated by a trained mentor aimed to delay sexual debut and marriage, prevent HIV infection and reduce tolerance of GBV in a fun and safe meeting space. Upon completion of the sessions the AGYW had a clear direction of what they want to achieve in life and the route to take, including staying HIV free.

Lessons learned: Out of 434 AGYW who graduated 75% went for an HIV test and received their results, 55 went for community apprenticeship programme, 78 for vocational skills training, 20 for non-formal education while 271 joined income and savings groups. Social asset building thus provides a good platform to access other critical services. Community based approaches using “safe spaces” are effective in the identification of at most risk girls and connecting them to the appropriate services that they need. Comprehensive programming for HIV risk reduction for AGYW requires significant investment to ensure services are accessed and utilized consistently.

Conclusions/Next steps: Social asset building presents as an emerging mechanism for addressing HIV risk factors among AGYW but its potential can be limited if services that can sustain their learning are inaccessible. There is need to consider targeting the community and family members who influence AGYW decisions.

THPE481

Healthy Entrepreneurs: Using a business model to build sustainable community health systems, improving access to health products and HIV knowledge for adolescent girls and young women in rural Uganda

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Background: In rural Uganda, access to accurate HIV-knowledge and sexual and reproductive health (SRH) products, such as condoms, is limited. The Sparked Women project, funded through PEPFAR’s DREAMS Innovation Challenge, aims to reduce new HIV infections among Adolescent Girls and Young Women (AGYW), by strengthening local community health delivery systems through the social-enterprise Healthy Entrepreneurs.

Description: In less than one year, Sparked Women, implemented by Aidsfonds, ICW-EA, NAFOPHANU, and Healthy Entrepreneurs, trained 907 female community health volunteers to become Community Health Entrepreneurs (CHEs): small business owners who collectively reach all parishes in six rural Ugandan districts. CHEs reach out specifically to AGYW, and to other community members with quality SRH-HIV messages, referrals, and health education videos on their electronic tablets, all at the same time selling hard-to-come-by SRH products and over-the-counter medicine, critical in protecting AGYW against HIV acquisition. The small profit margin on the products is the Entrepreneurs’ income and covers the operational costs, thus maintaining a sustainable supply chain.

Lessons learned: The Healthy Entrepreneurs model improved community health delivery in less than one year (April-December 2017). CHEs spend more time on community health work than when working voluntarily and have increased self-esteem. CHEs each reach 1750 people on average per year, about 50% AGYW, with counselling sessions improving their SRH-HIV knowledge. In total, 34,820 SRH-HIV education videos were watched by community members, who also benefit from locally available and reliable health products, reducing out-of-pocket expenses. The 907 CHEs provided 75,580 condoms, supported by Ugandan government, and sold 159,667 medicine and health products. The CHEs monthly income increased by 849 USD, directly benefitting their families.

Conclusions/Next steps: The Aidsfonds Sparked Women project proves Healthy Entrepreneurs is a cost-effective and feasible business model to increase SRH-HIV knowledge and strengthen community health systems. In a one-year period, with a one-time investment, a sustainable sales network is created guaranteeing continuation of the CHEs working in the communities when funding ends in September 2018.
Healthy Entrepreneurs is being scaled up in Uganda to achieve national coverage of this sustainable community health delivery system improving communities’ and AGYW’s access to SRH-HIV knowledge and health commodities.

THP0482
Low-literate women leading the prevention of mother-to-child transmission of HIV in hard-to-reach areas of Cameroon
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Background: Access to antenatal and Preventing mother-to-child transmission (PMTCT) services is very low in many hard-to-reach communities in Cameroon. In Bakassi, about 85% of pregnant women (PW) do not attend clinics (ANC) with almost 95% giving birth at home with Traditional birth attendants (TBAs). These low uptake of ANC services increases the risk of MTCT of HIV as prevalence of HIV amongst PW is above 15%. Furthermore, cultural beliefs, coupled to the insecurity and low literacy levels makes PMTCT/ANC service uptake to be very low (15%). We sought to pilot a project which capacitated low-literate women and TBAs to raise awareness on the importance of ANC, link pregnant women to clinics and follow up lost PW who were tested HIV positive.

Description: This project was piloted in 02 health areas in the Bakassi Health District. To inform communities about the project goals, advocacy meeting were held with community leaders. Forty TBAs and low-literate women were trained on community strategies to increase ANC uptake, effective linkage strategies for positive PW. This was followed by community awareness campaigns and follow up. The project was implemented from April 2015-March 2016.

Lessons learned: Representatives from 25 villages attended 02 advocacy meetings. Forty TBAs and community women were capacitated to lead community activities to increase ANC/PMTCT uptake. A total of 6290 women, 5051 men and 504 PW received education on PMTCT and the importance of ANC. From the PW who were educated and referred, 120 were received at ANC1 and 71 tested HIV positive. A total of 306 people were tested during 03 VCP campaigns organised by the low-literate women. From the 306 tested, 161 were men and 145 were women. Forty persons tested HIV positive (07 men and 33 women). Strengthening community systems and TBAs offers opportunities to reach PW and eliminate transmission of paediatric HIV.

Conclusions/Next steps: Ways of task shifting in post-conflict communities should be encouraged to reach vulnerable populations and increase HIV service uptake. Interventions that aim at empowering community members to conduct rapid HIV testing and community dispensation of ARVs in post-conflict areas will be exploited in the next phase of our projects.

THP0483
Optimism and acceptance of longitudinal community response to a HIV combination prevention package in Zambia, the HPTN071 (PopART) study
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Background: Community HIV care providers (CHiPs) delivering a combination HIV prevention package directly to households is part of the intervention being tested in the HPTN071 (PopART) trial in Zambia and South Africa. Using qualitative research methods, we evaluated community responses over time in a Zambian intervention communities.

Methods: Longitudinal qualitative data (2014-17) from 4 Zambian urban communities receiving the full intervention package included eight Focus Group Discussions, eight household drop-in discussions, three in-depth interviews with traditional healers, 128 observations of door-to-door delivery, 20 community observations and over 400 researchers reflections on community responses. Group discussions and interviews were transcribed while observations and reflections were captured in structured report forms. Thematic and inductive analysis was conducted.

Results: The intervention initially met with some resistance emanating from fears of HIV disclosure within households and mistrust of staff, study motives and conduct. However, communities also hoped that the intervention might reduce HIV transmission and stigma and encourage HIV testing in men. Community concerns about men and traders missing out on the door-to-door delivery were confirmed by observations showing lower intervention uptake from men, which resulted in amendments to working hours. As the intervention progressed, community members seeking out and appreciating for: detailed HIV information, relatively private and confidential services, enabling less contact with the local clinics (thereby reducing congestion). affording disabled people better access to services, linkage to other HIV services and a perceived reduction in mortality. However, stigma, acceptance of HIV-positive results and linkage to care remained challenging. Despite this, CHiPs, identified by uniforms and staff cards, became well known and rapport with and trust in them was evident. Indeed, cases of community members seeking out and requesting certain services from CHiPs increased over time. Familiarity and optimism nurtured during intervention years was accompanied by concerns about what would happen when the trial ended.

Conclusions: Community confidence in home delivery of HIV services took time to build. Once established, better community management of HIV played out into optimism and appreciation of home delivered services and increasing reliance on CHiPs. This represents a much supported novel direction for policy to achieve universal ART coverage.

THP0484
Engaging males who have sex with males (MSM) in community-based HIV prevention programs in South Africa: Examining positionalities as subjects and objects of scientific enquiry
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Background: It is critically important to engage key-affected populations in HIV preventive and treatment programs, especially in Africa. Among South African MSM, HIV prevalence ranges between 9.9% and 49.5% and unprotected anal sex is estimated to be 16-times more likely to transmit HIV, compared to unprotected vaginal sex. MSM community engagement, however, is hindered due to heteronormative healthcare spaces, which reinforces MSM as hidden, hard-to-reach and vulnerable for HIV infection. To overcome barriers to engaging MSM communities in HIV prevention efforts, researchers initially identify queer MSM who are socially visible and recruit them as outreach workers in research teams, thereby gaining access to their affiliated MSM social networks (e.g. respondent-driven sampling). There has, however, been limited attention paid to MSM’s positionalities, as objects (insiders within the targeted population) and subjects (outsiders within a research team) of scientific enquiry, in relation to MSM roles and experiences in clinical HIV prevention programs.

Methods: To examine MSM’s experiences during engagement in clinical HIV prevention programs, qualitative interviews were conducted between November 2015 and January 2017. Three participant-cohorts were recruited from and in collaboration with a leading South African clinical HIV prevention research centre: (1) community-based MSM (n=10; M=28.4; 25-31) from five Cape Town peri-urban areas; (2) MSM research participants (n=10; M=25.1; 21-31) who have previously been enrolled in clinical HIV prevention studies; and (3) staff members (n=10; M=31.3; 21-38) tasked with MSM community engagement. All interviews were audio-recorded, transcribed verbatim, verified and analysed thematically using grounded theory.

Results: As objects of scientific enquiry, MSM compete together for access to and mutual influence of the producing bodies of knowledge that form part of the scientific field. The objectified subject position of MSM qua scientific data is, however, challenged by emerging narratives of negotiation and repositioning of their own subjectivity in the scientific knowledge field. A sense of being objectified and objectified subject positions further demonstrate the power relations and struggle for visibility in HIV prevention research.
ment and development, especially among gender-conforming MSM. As subjects of scientific enquiry, MSM reported experiencing exploitation and limited transparent communication, related to differences in mutual understanding between MSM communities and research teams.

**Conclusions:** Without monitoring and evaluating MSM’ queer visibilities and safety as part of the research process, through reflexive and supportive participatory practices, we may be inadvertently reinforcing HIV-vulnerability among the most hidden (e.g.: heterosexual-identified MSM), within the broader population.

**THPED485**

**Key population-led health services are increasing access to HIV services among transgender women sex workers in Pattaya, Thailand**

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**Background:** Transgender women sex workers (TGSWs) experience multi-layer stigma and discrimination due to their gender, sexuality, and illegal work, which makes them highly vulnerable to HIV infection. Sisters Foundation, established in 2004 as the first transgender-led organization in Thailand, provides appropriate health and social services for TGSWs in Pattaya. Sisters also works directly with key stakeholders, including police officers and health care workers, to reverse negative stereotypes of TGSW through partnership-building activities, workshops, and research.

**Description:** Sisters integrated the key population-led health services (KPLHS) model into its drop-in Center (DIC) in 2015 through the implementation research. Well-trained transgender health workers provided health services they designed based on their understanding of TGSW’s needs. These included rapid HIV and syphilis testing, PEP and PEP dispensing, counseling on use of gender affirmative hormone treatment (GAHT), and monitoring of hormone levels. Regular quality assessment/quality improvement visits were conducted by public health sectors to ensure high-quality services. KPLHS was provided to TGSWs at Sisters’ DIC and through mobile clinics at cabaret venues, bars, and other hot spots. We evaluated data on KPLHS and community empowerment activities conducted by Sisters October 2016-September 2017.

**Lessons learned:** Sisters performed HIV testing for 604 TGSWs, 42% of whom 52% were successfully linked to antiretroviral treatment. Among HIV-negative TGSWs at high risk, 45% were reactive. Those undergoing 12 knowledge-sharing sessions on HIV, other sexually transmitted infections, and GAHT literacy to empower and increase knowledge and awareness among TGSW communities. GAHT counseling and hormone level monitoring were received by 285 TGSWs. Of 678 TGSWs tested for syphilis, 17 (2.5%) were syphilis reactive. Sisters provided legal assistance and referrals to 57 TGSWs who were victims of arbitrary arrest, gender-based violence, and discrimination regarding their transgender identity.

**Conclusions/Next steps:** Sisters successfully delivered KPLHS, building on their comprehensive social and legal services, to TGSWs at high risk for HIV in Pattaya. Hormone services integrated into HIV programming responds to high-priority health care needs of TGSWs and should be considered as part of a minimum standard of health care package tailored for TGSWs.

**THPED486**

**Addressing high burden of tuberculosis in First Nations communities through the high incidence strategy: An evaluation project in northern Saskatchewan, Canada**

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**Background:** In Saskatchewan, the burden of tuberculosis (TB) disproportionately affects First Nations living on-reserve. There are 70 First Nations in Saskatchewan with a population of 75,165 people in 2016. To address TB burden, the TB High Incidence Strategy (TBHIS) was developed in collaboration with community leadership. The purpose of this evaluation was to assess the effectiveness of the TBHIS implemented from 2013 to 2016 to lower the rates of TB.

**Description:** TBHIS is a multi-faceted, community-specific strategy developed in 2013 to reduce incidence of TB through a) community engagement, b) increasing public education, c) early case detection, d) active case finding, and e) addressing social determinants.

The strategy was piloted in three communities in northern Saskatchewan. Our findings were consistent with the TBHIS, rate of newly diagnosed or reactivation TB in all communities decreased. More LTBI cases were offered treatment and active cases were identified earlier; communities were knowledgeable about active TB but there are gaps in understanding LTBI and taking preventive medications; clients had higher attendance rate to TB appointments if clients were held in their communities; past negative experiences with TB treatment and impact of Indian residential schools influenced individuals’ health seeking behaviour; and poor housing conditions contributed to the burden of TB. Our findings empowered community level programming and inspired other communities to implement similar strategies.

**Conclusions/Next steps:** Based on evaluation results, we recommend the following: 1) reform health care delivery of TB by engaging primary care providers and adopting trauma informed practices, 2) engage communities by addressing their past negative TB experiences, 3) provide ongoing advocacy to address the social determinants of Indigenous health especially housing, 4) provide continuous education about TB and LTBI across all sectors of the communities.

**THPED487**

**GET TEST: Use of entertaining social networks for attracting hard-to-reach MSM to HIV testing and linkage to treatment**

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**Background:** GET TEST is an innovative project for Ukraine. It was active between January 2016 and September 2017. The main objectives of the project were to reach hard to reach MSM, who still wasn’t reached by earlier prevention programs, involving them in rapid diagnosis for HIV/STIs/hepatitis; detection the new cases of HIV/STIs/HBV/HCV; linkage to care and support; assistance in obtaining of ARVs.

**Methods:** The involvement of MSM for testing took place in three cities (Kyiv, Odessa, Dnipro) in two ways: 1) clients registered on testing at the www.gettest.com.ua, about which they learned through advertising, which we place on dating sites for MSM, mobile smartphone applications and social networks; 2) a social worker chosen web resources
where they communicated singly with MSM, invited them to pass the rapid diagnosis and provided consultation „peer-to-peer“. The social worker acted as a case manager and accompanied the client during take on the dispensary registration and motivated them to use ARVs.

**Results:** For the period from January 2016 to September 2017 3536 MSM have passed rapid testing for HIV, of which 214 persons received a positive HIV test result (6.1%). 151 MSM (76% of detected) were put at the dispensary registration in the AIDS centers, 126 persons (76% of those who were taken on register) began to receive ARV therapy. Also, for the period from August 2016 to September 2017, 449 sexual partners of MSM who previously have been tested in the GET TEST were reached by the project, of which HIV-positive status was detected in 41 MSM (9.3%).

**Conclusions:** GET TEST showed itself as an effective model to attract hard-to-reach MSM category among Internet users. Advertising campaign GET TEST helped us to get the target group's attention and get their trust on a different special commercial dating services where many hard-to-reach MSM searching sexual partners or selling sex. We’re focused on target group needs, reestablishment of the service provider image, and now and more attractive conditions of the service. We developed peer-to-peer case management which decreases stress and improves trust of MSM who never received services in our NGO.

### THPED489

**HIV community advisory boards for clinical trials in low- and middle-income countries: A scoping review of challenges**

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**Background:** Community advisory boards (CABs) for HIV trials have expanded substantially beyond high-income countries (HICs), now playing a role in low- and middle-income countries (LMICs). Much research has examined HIV CABs in HICs, but fewer studies have examined CABs in LMICs. The purpose of this scoping review is to summarize the challenges of CABs for clinical HIV research studies in LMICs.

**Methods:** We searched five databases (PubMed, Embase, Global Health, Scopus and Google Scholar), examining CABs in HIV research studies in LMICs. Two reviewers independently reviewed articles for inclusion. Data were extracted regarding country, membership, activities, funding sources, research foci and challenges. Thematic analysis was used to identify the challenges of implementing CABs for HIV research in LMICs.

**Results:** Our search identified 853 citations, of which 38 were selected for further analysis. Most studies (29) were published from 2008 to 2017. The five countries with the greatest number of studies included South Africa (12), China (9), Zimbabwe (4), Thailand (4) and India (4). The U.S. National Institutes of Health was the main source of support for CABs. CAB activities included reviewing clinical trial protocols, providing community literacy activities, and facilitating qualitative research related to clinical trials. Key challenges of implementing CABs for HIV research in LMICs included:

1. Limited knowledge of science among community members, which contributed to poor communication between researchers and communities.
2. Poor CAB management, e.g. lack of formal structure for participation and absence of CAB leadership.
3. Incomplete ethical regulations that led to exploitation.
4. Unbalanced power relationships between HIV researchers making decisions and local communities participating in studies.
5. Competing demands for time that limited participation in CAB activities, and
6. Language barriers between research staff and community members.

**Conclusions:** HIV research studies frequently use CABs to review clinical trials. Our results suggest several challenges with implementing CABs as part of HIV clinical trials in LMICs. These findings can help inform training and related activities to enhance HIV CABs in LMICs.
Combining social science methods with mechanisms for community empowerment for the codesign of effective digital health interventions in HIV: Lessons learnt from the H2020 EmERGE project

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Background: The European Commission’s H2020 programme has funded a consortium of 13 organisations including a European-wide civil society organisation, local community partners, clinicians, academics and technology developers to codevelop, implement and commercialise a digital health platform for HIV care in 5 countries. The platform enables HIV-specific patient data on results, appointments and medications held in the clinical database to be sent via a clinician-led, ‘virtual clinic’. Service delivery points namely DICs are considered as safe places for FSWs where they get counselling, condom, STI case management, HIV testing and psychological support including space for rest, bathing and recreation. In Bangladesh, a representative from sex worker community replicated the DIC model in Dhaka, central part of the country in December 2016. Self-financed and managed DIC offer few services, at contributory price such as food, and make some clothes, make-up, and jewelry available for FSWs. This community led structure support peer education and selling condom to integrate with HIV prevention program. Furthermore, this DIC works as referral point and facilitating advocacy with multiple service providers to ensure health, legal and psychosocial needs of sex workers.

Lessons learned: During April–November, 2017, the Community DIC earned 2,220 USD. Whereas the initial investment was only 80USD for rent and utility cost. Such a cost-effectiveness measure became a major issue of well-being of the FSWs. Such economic empowerment initiatives with high community ownership are highly effective in reducing the HIV vulnerability of KPs.

Conclusions/Next steps: Community led initiatives can have positive impact on the lives of sex workers in low socio-economic settings. It has also been proven effective towards sustainability and to contribute SDG goal of health and well-being.

THPED492

Two steps forward, one step back? Critiquing the repeal of a mandatory disclosure law in NSW, Australia

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Background: Mandating pre-sexual HIV disclosure is a relatively common legislative response to HIV that has been extensively criticised as counterproductive to HIV prevention efforts as well as an unreasonable intrusion into the right to privacy of people living with HIV (PLHIV). In the Australian state of New South Wales (NSW), a mandatory disclosure law first passed in 1985 has been the target of community advocacy over many years. In 2016, the NSW government agreed to repeal the law but ultimately chose to refashion it into a new provision criminalising risky sex. Despite community concern, the new law was passed in 2017.

Methods: We examined the proposition that the change in the law has improved the legal landscape for PLHIV in NSW. Drawing on doctrinal legal analysis and statutory interpretation methods as well as discourses from HIV activism and social research, we compared the pre- and post-reform legal landscape for PLHIV.

Results: While the repeal of the mandatory disclosure law is welcome, this law has only rarely been applied to PLHIV and has in recent years been qualified by a complete defence based on reasonable use of risk-reduction practices. Under the new law, safe sex itself is mandated but disclosure is not required. The law requires PLHIV to use ‘reasonable precautions’ to prevent transmission but does not define what these are, leading to uncertainty around the legal requirements imposed on PLHIV. The absence of a defence of informed consent means the new law potentially criminalises all sex that carries a risk of transmission, even where both parties are informed of and agree to accept that risk, a new intrusion on the sexual autonomy of PLHIV who do choose to disclose their status.

Conclusions: Opportunities for substantial legislative reform are rare. Despite extensive criticism and sustained advocacy, the NSW mandatory disclosure law remained on the statute book for more than thirty years. While the new law removes the requirement for pre-sexual disclosure, it has created a new intrusion into the sexual lives of PLHIV by requiring that all sex, even with disclosure, meet an undefined standard of ‘reasonable precautions’.
Compromise and action: The engagement of 30 cities in Brazil to Fast Track their response and reach 90-90-90 by 2020

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Background:
(i) Over 50% of the world’s population live in cities. In Latin America, the proportion is even larger: over 80%. Projections demonstrate that by 2020, 9 out of 10 Brazilians will live in urban areas;
(ii) The federative governance structure of Brazil empowers States and municipalities with independent budgets and framework for implementation;
(iii) compromise at Federal-level has not been enough to halt the epidemic; despite its efforts, Brazil has about 40,000 new HIV infections/year and about 12,000 deaths;
(iv) competing challenges are presented to cities, i.e. violence (over 60,000 people were assassinated in 2017), corruption, epidemics (such as zika and yellow fever).

Description: UNAIDS used the movement of Fast Track cities to gather support of Governors, Mayors and local level administrations to accelerate the response. Over 30 priority cities and the National Front of Mayors signed the declaration. The population in these cities is of 40 million people combined. This way, a network was formed at country-level and lessons can be shared.

Lessons learned: The Fast Track cities initiative is an excellent advocacy tool:
(i) for civil society to demand action at local level;
(ii) for the Federal structures to engage more with local level;
(iii) internally within the administrations, the Paris Declaration has become an instrument for health workers to ensure that HIV is in the agenda;
(iv) UNAIDS and the Joint Team on HIV/AIDS have used the declaration both a political tool to initiate dialogue and also to provide support at local level. As a result several innovative initiatives have been implemented, including:
   (i) expanding access to HIV testing, including self testing, with focus on gay men and other MSM
   (ii) PrEP demonstrative implementation projects;
   (iii) comprehensive health service dedicated for transgender women and men;
   (iv) decentralization of HIV care to primary services; among others.

Conclusions/Next steps: The Sustainable Development Goals Objectives aim to leave no one behind. To be able to reach these goals, action needs to be taken at local level. Further engagement will be promoted with the cities via the National Front of Mayors.

Who’s on deck? Building the leadership bench of women living with HIV in the federal policy advocacy arena

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Background: Though women living with HIV (WLHIV), inclusive of women of transgender experience, face unique advocacy concerns at the intersection of HIV, gender and sexual and reproductive health and rights, spaces of influence within the federal policy environment have remained largely inaccessible, leaving the most pressing advocacy concerns of WLHIV under resourced and often ignored.

In response, Positive Women’s Network - USA, launched the PWN-USA Policy Fellowship, a yearlong training and leadership development program in federal policy advocacy. The goal of the fellowship is to increase participant’s ability to engage effectively in federal policy advocacy and to support a growing pipeline of WLHIV who are shaping policy, fighting stigma and discrimination, and generating a new discourse that calls for upholding full rights and dignity for all people living with and vulnerable to HIV.

Description: Participation in the fellowship was open to all women living with HIV (WLHIV), inclusive of women of transgender experience. Each fellow successfully met the criteria of WLHIV under resourced and women of transgender experience.

Lessons learned: Each fellow completed a pre-fellowship assessment evaluating their understanding of the branches and functions of the federal government, the legislative process, policy research and analysis and frameworks for advocacy interventions. Fellows also completed evaluations after each training session for ongoing programmatic feedback and completed a 6-month assessment designed to evaluate their knowledge, skills and shifts in positional power in advocacy spaces.

Conclusions/Next steps: Fellows who prior to participating expressed some to little understanding of policy advocacy not only have increased knowledge and skills, but also have demonstrated heightened engagement in the policy advocacy environment.
THPED495
Mobilizing civil society for the HIV treatment cascade: Measures of democracy and its impact on diagnosis rates among PLHIV

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Background: Civil society organizations (CSOs) play an essential role in the global HIV/AIDS response. Past studies have described the beneficial role of CSOs in meeting the UNAIDS 90-90-90 target. but, have not explored how political conditions, which influence the ability of CSOs to organize, have an impact on the cascade. This study explores the relationship between measures of democracy and its association with diagnosis rates among people living with HIV (PLHIV).

Methods: This study analyses data derived from the Economist Intelligence Unit’s Democracy Index (EIUDI), UNAIDS country estimates for PLHIV and PLHIV who know their status, World Bank’s data on nominal gross domestic product (GDP) per capita and country population, and country estimates for PLHIV and PLHIV who know their status from other independent sources. An estimated HIV prevalence variable was constructed by dividing the estimated PLHIV population with the total population of a country. The analytic sample comprised countries where data on the estimated number of PLHIV and PLHIV who know their status was available (n=111).

Results: Of the 111 countries in the analytic sample, the mean democracy index score was 5.93 (out of 10), median estimated HIV prevalence was 0.20% (IQR 0.10–0.65), median GDP per capita (in thousands, US dollars) was 4,888 (IQR 2,111–17,797), and mean PLHIV who know their status is 67.1%. Preliminary analysis on the five component measures of the EIUDI (i.e. electoral process and pluralism, functioning of government, political participation, democratic political culture, and civil liberties) revealed multicollinearity, and thus the composite democracy index score was used as the measure for democracy. Multivariate analysis by linear regression revealed that democracy index scores (β=2.15, SE=1.01, 95% CI 0.15–4.15), estimated HIV prevalence (β=1.25, SE=0.55, 95% CI 0.16–2.34), and GDP per capita (in thousands; β=0.36, SE=0.11, 95% CI 0.15–0.57) were positively associated with diagnosis rates among PLHIV. Further research on the impact of political cultures on the ability of CSOs to organize is warranted.

Conclusions: Though an indirect means of measuring the impact of civil society on HIV diagnosis rates, the results suggest that democratic political cultures favouring civil society mobilization are associated with higher rates of diagnosis among PLHIV. Further research on the impact of political cultures on the ability of CSOs to organize is warranted.

THPED496
Social media utilization among HIV/AIDS organizations: A survey of the online community created by groups improving HIV health

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Background: Organizations improving the health of individuals with HIV have to balance individual care, community development, scientific advancement, and advocacy. Social media has been a cost-effective mechanism to help accomplish these objectives. Current social media advisory groups recommend groups focus on frequent content, direct consumer relevant material, and the incorporation of personal content into social media feeds. Social media has proven to be a powerful tool to recruit members, spread messaging, and enact positive change. Thus, we aim to evaluate how HIV/AIDS organizations utilize this space, with the goal to provide groups with cost-effective priorities when utilizing social media platforms to improve the organization’s image, member recruitment, and community engagement.

Methods: We evaluated organizations committed to HIV health based on lists from the World Health Organization, International AIDS Society and other umbrella HIV societies. In January 2018, utilizing a blinded browser, we reviewed the top 100 search results of the formal institutions name on both Google and Bing to determine the placement of social media content regarding the institution. Then we studied the institutional Facebook, Twitter, and YouTube accounts for both quantity and content posted from January 2016 to December 2017. We categorized content into institutional announcements/promotion, health education, community/individual stories, research, and forwarded posts (e.g. retweets). Posts could be allocated to more than one category. A qualitative analysis compared institutions to determine both unique aspects and opportunity gaps.

Results: 103 institutions were evaluated with subgroup analysis by region and primary organizational mission. Over 6,000 Twitter and Facebook postings were categorized. We found that all large international organizations utilized multiple social media platforms on a regular basis (more than once a week). Across the institutions, content generally focused on advocacy, and organizational/program promotion. Based on the mission of the organizations, there was a wide variety of the messaging associated with individual posts, including incorporation of hashtags and usernames.

Conclusions: Based on these findings we would recommend organizations prioritize the following items: 1) Increase patient stories and images, 2) Forward/Retweet relevant content from similar organizations, and 3) Utilize more novel communication modalities like videos.

THPED497
Civic engagement to end AIDS: Identifying predictors of voting and advocacy participation among community-based HIV service organization clients and staff

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Background: Internationally, civic engagement of HIV service users and providers has promoted a rights-based approach to combating structural HIV risk. However, scant research has examined HIV advocacy engagement or civic engagement within community-based HIV service organizations (CBHSO). This study examines advocacy participation and voting behavior among clients and staff of a large CBSHO in a major U.S. city.

Methods: CBHSO staff (N=454) and clients (N=244) completed an anonymous survey about advocacy participation and voting following the 2016 U.S. Presidential election. Descriptive statistics captured rates of voting and advocacy activities. An ordered logistic regression model identified predictors of advocacy engagement. Logistic regression identified predictors of voting behavior.

Results: Among clients (70%) and staff (84%) who reported they were eligible and registered to vote, 87% of clients and 93% of staff voted in the 2016 U.S. presidential election compared to the 67% voting rate for all registered voters in New York State. Voting was positively associated with advocacy engagement (odds ratio 7.2), being lesbian, gay or bisexual (OR 2.9) and cis-female (OR 2.4) among clients, and with advocacy engagement (OR 2.9) and being cis-female (OR 3.3) and negatively associated with homelessness (OR 0.50) among staff. 64% of clients and 87% of staff participated in advocacy around health policy. For clients, advocacy was positively associated with being non-cisgender (OR 5.7), and older (OR 3.3). For staff, advocacy was positively associated with being employed (vs. volunteer) (OR 6.8), and lesbian, gay, or bisexual (OR 1.6), and negatively associated with being cis-female (OR 0.64), and younger (OR 0.48).

Conclusions: Voting was mediated by involvement in advocacy, especially for marginalized clients and staff members. Successful structural HIV interventions in agencies need to target civic engagement by involving clients and staff in advocacy around HIV policy issues.
**THPED498**

Social cohesion events: Suriname Men United's experience with an innovative outreach approach to reach new men who have sex with men and transgender people in Suriname


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**Background:** Men who have sex with men (MSM) and transgender people (TG) in Suriname experience stigmatization and marginalization that affect their uptake of HIV services. As part of the FHI 360 LINKAGES project, which is funded by USAID and PEPFAR, foundation Suriname Men United (SMU) has sought to address this issue through innovative outreach approaches. One approach is a one-day social cohesion event held specifically for MSM and TG.

**Description:** The purpose of social cohesion events is to strengthen MSM and TG's self-empowerment and increase their awareness of sexual health in a safe, informal setting, with the aim of increasing uptake of HIV services. The events have a central theme chosen in consultation with MSM and TG. They are conducted as workshops or entertainment events. Social cohesion events have specific structures: attendees are registered, guided to an information booth where they receive one-on-one information about sexual health, commodities and referral to HIV testing and other services, and participate in the planned activity. Lastly, attendees are approached one-on-one with information on HIV testing which are available on-site. After the event, the attendees are proactively contacted and encouraged to get tested or to make use of other services.

**Lessons learned:** Key population engagement in choosing the central themes for social cohesion events ensures active participation. Compared to other outreach methods, social cohesion events had the highest contribution (43 percent) to SMU’s newly recruited MSM and TG.

**Conclusions/Next steps:** The including of a human rights approach and development of a low-threshold, user-friendly health service increased the access of LGBTIQ community. Health professionals promoted the “LG-BTG Visibility Day”, promoted several strategies to mobilize and improve the dialogue between health professionals and the LGBTIQ community living in this specific slum from Rio de Janeiro. Recreational and educational activities were implemented, as well as HIV-testing and treatment promoted.

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**THPED500**

Impact of HIV on infant- and young child-feeding practices and modelling the impact of resultant stunted growth on child mortality in Buhweju district, Southwest Uganda

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**Background:** The HIV pandemic in Uganda amidst worsening severe food insecurity has increased the risk of stunting and child mortality particularly among households of people living with HIV. This study aimed to assess whether there were differences in infant- and young child-feeding (iYCF) practices among HIV-positive mothers and those of unknown HIV status. The study also modelled the impact of stunting on child mortality in the southwest region of Uganda.

**Methods:** Seventy-eight HIV-positive mothers of children aged 0-23 months were recruited at health centers that provide prevention of mother-to-child transmission (PMTCT) services. These mothers were matched (based on their child’s age and area of residence) to 78 mothers of unknown HIV status from the general population. The Infant and Child Feeding Index (ICFI) was used to estimate the proportion of children receiving the recommended standard of iYCF. The Lives Saved Tool (LST) was used to estimate the impact of stunting on child mortality and cases of stunting averted.

**Results:** Half of the mothers (50%) used pre-lacteals. 34% of the children were exclusively breastfed, and only 26% of the mothers practiced appropriate introduction of complementary foods. Compared to the mothers of unknown HIV status, the HIV-positive mothers were significantly more likely to introduce complementary foods before their children reached the recommended age of 6 months (p < 0.05). A majority of the children (88%) did not receive the recommended standard of iYCF, and feeding practices were significantly less likely to be in line with the recommended iYCF practices among HIV-positive mothers compared to those of unknown HIV status (p < 0.05). The high impact LST model estimated that 1,297 children under 5 years would be saved and 24,850 cases of stunting averted in the study district.

**Conclusions:** There are large disparities in iYCF practices between HIV-positive mothers and those of unknown HIV status in rural areas of Uganda. These can be attributed to lack of knowledge about the recommended iYCF practices among health workers and mothers, breastfeeding discouragement, fear of mother-to-child HIV transmission, and missed opportunities to educate and counsel mothers on optimal iYCF practices.
**THPED501**

A behaviour-centred design approach to creating demand for oral PrEP among young women in Masiphumelele, South Africa

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**Background:** Worldwide, South Africa has the highest HIV incidence among adolescents. There is a critical need to address young women’s vulnerability to HIV through HIV prevention, including pre-exposure prophylaxis (PrEP), which women can control. We identified a need to generate awareness and demand for PrEP among this population.

**Methods:** The 3Ps for Prevention Study seeks to understand young women’s choices whether to use PrEP and how those decisions are made. Formative research using the behaviour-centred design framework was conducted in 53 households in Masiphumelele to inform a behaviour change communication strategy for PrEP, which included a 90-second video, inviting youth to ‘be part of the generation to end HIV’ (https://goo.gl/HD234D). Posters and brochures were also distributed. Impressions of the video were surveyed among 320 women (aged 16–25) and through 20 in-depth interviews of women enrolled in the 3P open label PrEP study.

**Results:** We uncovered several challenges that may hinder young women’s demand for PrEP and which guided message development, including: low concern about HIV, low sense of personal HIV risk, cultural norms that are unaccustomed to preventative pill-taking, concerns about side effects, and socio-economic stressors that limit personal agency and future-oriented thinking. The video was well-received: 71% (n=227) of women reported liking or really liking it and 68% (n=217) reported they were ‘definitely interested’ in learning more about PrEP after viewing it. Qualitative participants reported appreciating the invitation to join ‘the generation to end HIV’ found the video’s characters relatable, liked the focus on peer support and the positive angle on PrEP (e.g. ease of pill-taking and low burden). Printed materials were said to legitimise PrEP for some interviewees’ partners and family members, who were initially skeptical of a pill that prevents HIV.

**Conclusions:** Our initial research found healthy young women had low motivation to take a daily pill (with possible side effects) to prevent HIV, for which they didn’t necessarily feel at risk. However, young women liked a video and printed materials that leveraged an empowerment theme. Effective future PrEP demand creation strategies will require multiple communications with powerfully motivating messages, community awareness events, and engagement by healthcare providers and community workers.

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**THPED503**

Female sex workers (FSWs) as game-changers, take the challenge to organize towards ending HIV in Nigeria

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**Background:** HIV prevention interventions in the past targeting FSWs in Nigeria had been implemented by non-community members organizations for the community with little attention paid to addressing structural interventions that can create the needed support for HIV response for the Community. FSWs realized the need to change the current paradigm of HIV prevention and treatment management for them and therefore took decisive actions to make the much needed changes.

**Methods:** FSWs in Nigeria in 2015 grabbed the opportunity as presented by the Global Fund New Funding Model initiative to organize the inauguration of FSWs network in Nigeria. Discussions at the inaugural meeting included the need to self-organize to increase access of FSWs to HIV prevention services and STI management through demand for One-Stop-Shops (OSS) and how to improve the structural intervention needs of FSWs by directing national efforts to reducing violence, human rights abuses and harassments by law enforcement agents and clients/patrons. Additionally, strategies to institute safe guard measures for preventing HIV transmission were also highlighted. As take-off, representatives of FSWs were charged with the responsibility of organizing Focal Group Discussions (FGDs) at the state and community levels.

**Results:** 42 FGDs involving 1350 sex workers were held nationwide to step down the outcome of the inaugural meeting. The number of participants at each FGD ranged from 15 to 35. They requested that national stakeholders establishes OSS. These demands have resulted in the setting up of 24 OSS in Nigeria. Finally, FSWs have officially been an integral part of the Nigeria Response on HIV and have actively participated in both local and international activities, meetings and conferences. Highlighting and reinforcing the need to respect the human rights of FSWs, a national advocacy group led by FSWs and stakeholders have been inaugurated in 2017.

**Conclusions:** FSWs can mobilize and self-organize if and when given the opportunity and support. The FSW community in Nigeria would facilitate/implement tailored intervention for the community and make a difference for the national HIV response in Nigeria.
Participatory empowerment education to increase effectiveness of peer-led health promotion for HIV testing among men who have sex with men (MSM) and transgender (TG) populations: Evidence from Pakistan

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Background: Between 2005 and 2015 Pakistan saw an average increase of 176% in the number of new HIV infections. The low uptake of VCT services by MSM and TG populations continues to pose a serious challenge to HIV prevention in Pakistan. In the absence of evidence, there exists a policy vacuum around best practices for providing peer-led counseling for HIV prevention and treatment services.

Methods: A behavior change framework was developed to inform a training curriculum aimed at improving skills of MSM and TG field workers in promoting uptake of VCT services for HIV. Rooted in early Islamic scholarship, the curriculum applied the Integrated Behaviour Model, translated into culturally congruent concepts, to identify behavioural antecedents amenable to persuasive communication (Figure 1).

The training curriculum used participatory approaches and was pilot-tested with 15 TG and 29 MSM (n=44 outreach field workers from 6 CBOS across Pakistan). Participants were trained in using Participatory Reflection and Analysis (PRA) tools (timeline/daily routine, body mapping, and network diagram) for increasing critical awareness regarding HIV testing among target audience. Participants’ were assessed for knowledge about HIV transmission, self-efficacy for communicating effectively about HIV, and self-efficacy for using PRA tools before and after the training. Knowledge was assessed using 17 items with binary (1-True, 0-FALSE) endpoints. Self-efficacy was assessed using three items each for communication and PRA use. (scale: 1-Strongly disagree-5-Strongly agree). Knowledge scores were summed, and mean scores were obtained for self-efficacy. All scores were converted to percentages and differences between the average pre and post-scores were assessed using T-test.

Results: Participants’ average score for knowledge of HIV transmission increased by 11.36 percentage points, while scores for self-efficacy for communicating about HIV and using PRA tools increased by 36.36 percentage points and 52.87 percentage points, respectively between pre-test and post-test. All differences between average pre and post-test scores were statistically significant (p<0.001).

Conclusions: Participatory empowerment approaches are potentially well suited to Pakistan’s low-literacy context. Resource allocation for further research is needed to evaluate whether theory-driven, peer-led participatory health education for HIV prevention can yield greater uptake of HIV testing among MSM and TG populations in hostile outreach settings.

Community-based services for expanding HIV testing access, coverage and linkage to care from the perspective of combined prevention. A Ecuadorian experience

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Background: Although a concentrated HIV epidemic in Ecuador among MSM and Trans women (TW) (11% and 32% prevalence respectively-ENS-MSP, 2012), both populations face severe limitations in accessing HIV testing services in the Public Health Network. To strengthen collaboration between government and civil society, the National HIV Strategy and Kimirina Corporation designed, in 2015, the Community-Based HIV Testing Services Program (CBHTSP) in order to assess both the coordination mechanisms with the various levels of the Health Ministry and the HIV Strategy and its viability and acceptability. In 2016, the program was implemented in Quito and Guayaquil, where the highest number of HIV/AIDS cases are reported.

Description: Peer workers were trained in sexual health promotion, counseling and rapid HIV testing. HIV promotion and prevention activities were conducted in priority areas ("hot spots") identified through a Programmatic Mapping by peer workers and supported through Community Centers and Public Health Minister referral units. Two main objectives were identified: 1) increase early HIV diagnosis via “Community-Based Testing for Key Populations”; 2) increase timely linkage to care to health units.

Lessons learned: Local HIV strategies were linked to program monitoring and evaluation, permitting service coordination and provision of HIV prevention and testing inputs for MSM and TW. MSM (n=1118) and TW (n=1 258) participated in activities promoting/offering community-led peer HIV testing. A total of 4,084 rapid HIV tests were performed (3,645 among MSM and 438 among TW). Prevalence found was 1.83% (N=67) among MSM and 0.73% (N=10) among TW. All the people with an HIV-positive result was linked to the national health services.

Conclusions/Next steps: Peer community-led prevention and testing services close to key populations is acceptable, efficient, facilitates access to health services and may address barriers related to stigma and discrimination. The CBHTSP, which integrated combined prevention in the National HIV Plan, provided the opportunity to form alliances between the community and health providers to ensure coverage and improvement of care. This successful program may serve as a model for future community-led efforts to reach vulnerable populations.

Strategies to engage men in HIV testing and care through community mobilization activities in rural Mpumalanga, South Africa

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Background: While men are known to test for HIV and access ART at lower rates than women, there is strong evidence that community mobilization (CM) can improve engagement in health services. We describe
a CM intervention designed to address social barriers to HIV counselling and testing (HCT) and engagement in HIV care by implementing activities that engage communities in social change.

**Description:** CM activities were implemented by trained community mobilizers in 8 intervention villages in the Agincourt Health and Demographic Surveillance Site, a rural, high HIV prevalence setting in Mpumalanga, South Africa. Clinical monitoring data revealed that HCT rates were low for males 18-49. To address challenges with engaging men, stakeholder meetings were held with traditional leaders, ward councilors, church leadership, and community development forums to identify novel ways to engage men in CM activities and HCT.

**Lessons learned:** During years 1 and 2 of the intervention, 6,952 males aged 18-49 and 4,857 males aged 40-49 were identified as „new faces” at CM activities. Strategies for engaging men included holding pool tournaments, using bars as CM venues, and providing traditional food to participants while conducting workshops and activities around HIV testing and treatment as prevention (TasP). A male-only support group was formed in partnership with an HIV-positive community leader. Soccer tournaments were successful in reaching men by using soccer skills and teamwork to discuss themes of behavior change. HIV prevention. TasP and community building, „Fun Days” including music, free car washes, and provision of HCT were offered on weekends near main roads to encourage men to test for HIV. Community Mobilizers also recruited men from CM activities who wanted to test for HIV and coordinated with a local NGO, clinics, and the Bushbuckridge Department of Health to conduct HCT in the community.

**Conclusions/Next steps:** In rural South Africa, strategies to reach men outside of the clinic setting are critical to increase of HIV testing. Men ages 18-49 were accepting of HCT services when providers were males from outside villages. In addition, holding CM activities in on the weekends, in late afternoon/evening, and in male-friendly spaces was effective in engaging men to learn about HIV TasP.

**THPED507**

**Use of mobile vehicle to scale up uptake of VMMC in rural Uganda: Experiences from use of The AIDS Support Organization-TASO Rukungiri mobile vehicle**

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**Background:** TASO Uganda Limited-Rukungiri Center is supported by United States Agency for International Development-USAID to carry out VMMC in western Uganda. With the new target of 1,520 males to get VMMC by September 2018, it has increasingly become hard to get VMMC volunteers where VMMC camps are held. We identified the use of TASO Vehicle as a mobile van to take mobilization to communities. We examined the use of mobile van to mobilization of VMMC in January 2017 to December 2017.

**Description:** A branded TASO Designated Land cruiser with “TASO HIV prevention and Care services” was rolled out to help in the mobilization for VMMC volunteers. The land cruiser was mounted with a functioning public address system on top with SMC mobiliser and a Counsellor inside the vehicle to implement mobilization activities so as to get VMMC volunteers. The mobile vehicle is equipped with Information Education Communication-IEC Material to distribute while in the community. Those who get interested are carried to and from the VMMC sites form VMMC services.

**Lessons learned:** The mobile van benefits residents of the mapped areas where VMMC camps are planned as it has made access to information through IEC Material use much more available to residents in the catchment areas. 2,188 males have received VMMC services and followed up with (741 Males 5-15 years, 1,440 of 15-49 and 7 males >49 years. (TASO VMMC Annual report 2017). The mobile vehicle also serves as a mobile health education center in the community.

**Conclusions/Next steps:** The mobile vehicle is a feasible strategy for mobilizing VMMC Participants and recommended to Implementing Partners so as to cover wider areas and achieve VMMC Targets.

**Keywords:** USAID–United States Agency for International Development, VMMC-Voluntary Male Medical Circumcision, TASO-The AIDS Support Organization, TT-Tetanus Toxoid.

**THPED508**

**How to make an active community in indifferent society: Young people who use drugs response to the drug use criminalization in Lithuania**

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**Background:** In 2017 Lithuanian laws on drug use and possession were criminalized. Moreover, the latest data showed that in 2017, the increase in number of new HIV cases among PWID was as high as 64% in comparison with 2016. These changes triggered dissatisfaction among young people and as a response to this, the first community of young people who use drugs (PWUD) was mobilized. The group was supported with a small grant (SG) in the framework of the project “International Harm Reduction Consortium.”

The purpose of the given SG was to strengthen civil society advocacy in response to the increasing HIV incidence rates due to the present repressive drug policy in Lithuania.

**Description:** The SG project was implemented in Lithuania from June to December 2017. Key population involved in the activities - young PWUD. Activities implemented: young PWUD community mobilization, preparation of the rally as a response to the repressive drug policy; participation in the study visits, development of the national harm reduction strategy and submission of the appeal to the Parliament to support drug decriminalization.

**Lessons learned:** Young people from different communities of PWUD were mobilized and established an organization “Young Wave” (”YW”). The SG project showed that young PWUD with different drug habits can be united for one goal - response to the „draconic” drug policy. Advises and expertise from international partners helped to build a capacity and empower young PWUD to become drug policy advocates. “YW” got a several dozen requests from outer organizations/institutions to organize trainings/seminars/discussions on harm reduction in different settings; as well about sexual and reproductive rights (including HIV and other STDs).

**Conclusions/Next steps:** In a short time, organization ”YW” became the first young people NGO in Lithuania, working in the field of harm reduction, drug policy, human rights advocacy and education. And most importantly, “Young Wave” became a voice of young PWUD in Lithuania. Next steps, which are the continuation of the results of the SG project are as following: welfare and PsyCare activities during music festivals, trainings on harm reduction for party/festivals organizers, seminars for young people on sexual and reproductive rights at schools and during festivals.

**THPED509**

**Family dynamics and health-related quality of life of persons living with HIV/AIDS attending a comprehensive treatment and care center in Southwest Nigeria**

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**Background:** The advent of highly active antiretroviral therapy (HAART) has positive effects on the health related quality of life (HRQoL) of persons living with HIV/AIDS (PLHWA). However, the effect could be undermined if family correlates are not given due considerations. The support from the family is valuable to counter stigma as previous studies had shown positive relationship between social support and health outcomes. There is paucity of published literature on relationship between family dynamics and HRQoL of PLHWA in Nigeria where the burden of the disease is quite high.

**Couples- or family-centred approaches**
This study was carried out to assess the association between family dynamics and perceived HRQoL of PLWHA attending a comprehensive HIV treatment and care center in South-West Nigeria.

**Methods:** This data was extracted from a descriptive longitudinal study conducted to test the effect of HAART of the HRQoL of 216 PLWHA who were yet to commence HAART. Family functionality was assessed using a 20-point family APGAR scale categorized into functional (≥15) or dysfunctional (≤14) families. Other family characteristics assessed were marital status, current employment status, occupational class, average monthly income using the Nigerian minimum wage of N18,000 ($50 @ N300/dollar) to categorize income into those that earn equal and above or below the minimum wage. The WHO QoL-HIV was used to assess HRQoL. Data were analyzed using descriptive statistics, Chi-square and linear logistic regression at p=0.05.

**Results:** The mean age of respondents was 38±8.5 years with an F:M ratio of 1:2. About two-third (65.7%) of respondents were married. 86.1% were currently employed, 27.1% were in the high occupational class and 63.8% earned below the minimum wage. Over two-third (57.1%) came from functional families. Sixty-two percent perceived their HRQoL as being good and 72.2% were generally satisfied with life. Family life predictors of HRQoL were marital status, employment status, average monthly income and family functionality. Respondents from functional families were more likely to have good HRQoL than those from dysfunctional families (p = 0.001).

**Conclusions:** The study revealed positive relationship between family dynamics and HRQoL of PLWHA. Understanding the role of family dynamics and social support is important to combat stigma and discrimination and enhance unrestricted access to HAART.

### THPD510

**How will social norms about parenting influence parental support of adolescent girls and young women’s (AGYW) use of PrEP?** Perspectives from parents in Tanzania

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**Background:** Little is known about parents’ perceptions towards oral pre-exposure prophylaxis (PrEP). Yet, parental consent is necessary for adolescents to access sexual and reproductive health services in many sub-Saharan African countries and parents can be a key influence in AGYW’s access and use of health services. We explored how social norms, gendered and gendered parenting roles might influence parental support of AGYW’s PrEP use in Tanzania.

**Methods:** We conducted 4 focus group discussion (FGDs) (n=28) with female parents and 4 FGDs (n=27) with male parents in Mbeja and Dar Es Salaam in May 2017. To acquire parents with PrEP, a visual, standardized script of PrEP information and placebo pills was shared with participants prior to FGDs. Interviewers then explored PrEP perceptions and factors influencing parental support of PrEP use. thematic content and constant comparative analyses were used.

**Results:** We found overwhelming support among parents for PrEP availability for AGYW. Further, parents noted strong support for AGYW’s PrEP use, recognizing AGYW’s high risk of HIV due to limited power to negotiate preventative behaviors and frequent violence in sexual relationships. However, social norms around adolescent sexuality influenced parental support. Parents were wary of being viewed as condoning pre-marital sexual activity, while they worried that AGYW could be stigmatized as promiscuous. Further, respondents noted differential parenting roles of mothers versus fathers, which would influence the type of support they would be able to provide to AGYW. Men, in particular, noted shame and embarrassment in communicating with their daughters about relationships and sex.

Despite these concerns, parents expressed a willingness to support AGYW access to PrEP and sought strategies for supporting their daughters. Female parents described creating a supportive environment for PrEP use (e.g., ensuring AGYW has good diet) while male parents described offering logistical and material support (e.g., providing transport to health centers).

**Conclusions:** Programmers may need to consider the role of parents when designing programs to support AGYW’s PrEP use. Addressing social norms that hinder parental support of PrEP, and enhancing parents’ ability to communicate effectively with AGYW about sexuality, HIV risk, and PrEP - may be avenues to engage and garner parental support.

### THPD511

**From serodiscordant to magnetic: The feasibility and acceptability of a pilot psychoeducational group intervention designed to improve relationship quality**


**Background:** Serodiscordant or magnetic couples experience HIV-related issues that compound daily stressors. Psychoeducational couples group interventions can build coping skills and increase relationship satisfaction. However, most interventions for serodiscordant/magnetic couples are primarily aimed at reducing HIV transmission and most focus on heterosexual couples. Therefore, we used a community-based participatory approach guided by social action theory to engage gay male magnetic couples in the planning and piloting of a psychoeducational support group.

**Methods:** A quasi-experimental pretest/posttest design with no control group was used to enroll 12 gay men in same-sex magnetic relationships (i.e., six couples) to collaboratively design and participate in an 8-session psychoeducational support group. Participants attended two 3-hour planning sessions, followed by eight 3-hour group sessions, and two 3-hour evaluation sessions. Session evaluations were used to measure usefulness, interest, and quality of participation in the group. The Revised Dyadic Adjustment Scale (RDAS), where scores <48/69 indicate clinically distressed relationships, was administered at three time points (pre-intervention, post-intervention, and 3-month follow-up).

**Results:** The intervention was feasible (i.e., recruitment was <2 weeks, easy to coordinate and acceptable (i.e., all sessions consistently rated ‘very good’ or ‘outstanding’)). Relationship quality improved significantly in all couples, regardless of whether couples agreed on how to manage HIV within their relationship. RDAS prescores (M=36.75, SE=2.68) were significantly different from postscores (M=45.75, SE=2.68) and follow-up (M=51.75, SE=1.78). Participant consensus was that ‘magnetic’ was a more strengths-based term than ‘serodiscordant’, highlighting that ‘opposites can attract’ in terms of HIV status.

**Conclusions:** This study provides proof-of-concept for preliminary feasibility and acceptability of a psychoeducational group intervention for gay male magnetic couples; the study’s participatory approach may have contributed to these findings. It is useful to consider the degree to which changes in follow-up scores can be attributed to the group program and not time or other factors. A scale focused on relationship quality for gay men in magnetic relationships could have better captured this variable. This presentation will discuss how the participatory aspects created a foundation for a successful support group, alongside the group’s key components, and a need for more holistic tools of measurement pertaining to serodiscordancy in gay men.
THPED512
Role of family dynamics in impacting HIV care in Tanzania: Implications for intervention development

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Background: Having a chronic condition often involves burdensome medication schedules, clinic visits, and self-care activities. Such an illness can affect an entire family, and family plays a role in both shaping disease risk and providing support for care management. Despite the importance of family, research to understand how family affects HIV care in sub-Saharan Africa is scarce. The Familia Kwanza study is seeking to understand what role families play in supporting a family member living with HIV and to assess the burden of comorbid chronic conditions, including diabetes and hypertension, among this population.

Methods: From August-October 2017 we recruited a representative sample of 359 adults living with HIV from the HIV clinic at Muhimbili National Hospital in Dar es Salaam by selecting every third patient for inclusion. Participants completed a structured survey related to family relationships, HIV, and lifestyle (e.g., diet and exercise). We assessed family functioning using an adapted version of the Brief Family Relationship Scale, including a sub-scale for family cohesion (Cronbach’s alpha = 0.87). We used logistic regression to assess the association between male partner involvement in PMTCT and participant characteristics, HIV care, and family relationship satisfaction. Participants completed a structured survey related to family cohesion and engagement in care, disclosure, and diet, controlling for age, sex, marital status, and income.

Results: The sample comprised 77 males and 277 females with an average age of 45.8 years (SD = 9.8). The majority of participants reported having been enrolled in HIV-care for at least five years (n=258, 71.9%), and all reported being on antiretroviral therapy. High levels of family cohesion were associated with immediate vs. delayed entry into care following diagnosis (aOR = 1.46; 95% CI: 1.01-2.09), disclosure of ARV use to household members (aOR = 2.19, 95% CI: 1.09-4.41), and high consumption of fruit and vegetables (aOR = 1.78, 95% CI: 1.10-2.90). Eighty-eight percent of participants (n=316) reported receiving health-related familial support, including reminders to take medication (77.5%), financial support (71.8%), and preparing food during times of illness (60%).

Conclusions: The association between family dynamics and health-related outcomes suggest that family-centered interventions could potentially improve HIV-related care outcomes. Family-centered interventions are especially relevant for people living with HIV who have co-morbid chronic diseases, such as diabetes or hypertension, given the relationship between family and lifestyle.

THPED513
What really matters? Moving towards a greater understanding of male partner involvement in PMTCT

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Background: Across sub-Saharan Africa, male partner involvement (MPI) is positively associated with women’s retention and adherence to prevention of mother-to-child transmission (PMTCT). The conceptualization of MPI varies across studies and is often defined solely as the male’s attendance at healthcare visits. The objective of this study is to improve the understanding of MPI in PMTCT and conduct preliminary testing of a MPI scale.

Methods: In 2017, we conducted a convergent parallel mixed methods sub-study within the Mother-Infant Visits Adherence and Treatment Engagement (MOTIVATE) study (RO1HD0808477) in southwestern Kenya. We surveyed HIV-positive women enrolled in the parent study on ART at 12 months postpartum (N=200). Twenty male partners also completed a qualitative in-depth interview. Psychometric, descriptive, regression, and thematic analysis highlight the scale’s internal validity and specific behaviors and characteristics relevant to MPI in PMTCT.

Results: Among 200 women surveyed, 90% reported a stable male partner, and 96% of those had disclosed their HIV status to this partner. Only 43% of male partners attended at least one healthcare visit in the past year. The most commonly reported forms of MPI were encouraging a facility delivery and infant testing, followed by reminders about medication and HIV care (see Figure 1). Ten specific behaviors were used to establish an MPI scale (internal validity of alpha=0.90). Relationship characteristics associated with a higher MPI scale score include: cohabitating with the male partner (r=0.61; p<0.001); HIV status disclosure (r=0.50; p<0.001); and couple’s HIV testing (r=0.56; p<0.001). In addition, higher relationship satisfaction and social support are consistently correlated with higher MPI scale scores (see Table 1). In the semi-structured interviews, men concurred that reminders about care and medication are important. Men also discussed the importance of emotionally supporting their wives and helping with household chores in order to reduce stress, and the role of open communication within the couple.

Conclusions: As reported by both women and men, male partner involvement in PMTCT is not exclusively focused on male attendance at healthcare visits, but also includes other forms of instrumental, emotional, and informational support. This work furthers the conceptualization of male partner involvement in PMTCT.

Correlations between male partner involvement and characteristics of HIV-positive postpartum female survey participants and their male partners

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Correlations: Findings Percent (% / Mean (SD))</th>
<th>Correlation with Male Partner Involvement Scale (% and item) Coef. (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohabitating with male partner (yes):</td>
<td>179</td>
<td>82.7% (145)</td>
<td>51.1 (5.1 – 7.8)</td>
<td>0.006</td>
</tr>
<tr>
<td>Ever tested for HIV as a couple (yes):</td>
<td>179</td>
<td>95.9% (171)</td>
<td>15.0 (6.4 – 21.6)</td>
<td>0.000</td>
</tr>
<tr>
<td>My relationship makes me very happy (completely/ almost completely/ mostly):</td>
<td>180</td>
<td>52.2% (94)</td>
<td>11.2 (9.0 – 13.4)</td>
<td>0.000</td>
</tr>
<tr>
<td>How often can you depend on your partner? (all the time/most of the time/more often than not):</td>
<td>175</td>
<td>58.9% (103)</td>
<td>8.9 (6.4 – 11.4)</td>
<td>0.000</td>
</tr>
<tr>
<td>How do you feel valued/important (all the time/most of the time/more often than not):</td>
<td>178</td>
<td>63.5% (113)</td>
<td>9.0 (6.5 – 11.5)</td>
<td>0.000</td>
</tr>
<tr>
<td>How often do you encourage your partner not to give up? (all the time/most of the time/more often than not):</td>
<td>178</td>
<td>66.9% (119)</td>
<td>7.6 (4.9 – 10.3)</td>
<td>0.000</td>
</tr>
</tbody>
</table>

(Frequency of male partner behavior in support of PMTCT as reported by HIV positive postpartum women)
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Background: Serostatus disclosure is critical to preventing HIV transmission in sexual partnerships. However, rates of disclosure remain low in South Africa, underscoring the importance of couples-based HIV testing and counseling (CHTC). Uthando Lwethu (“Our Love”) was an efficacious couples-based intervention that aimed to improve uptake of CHTC—a process that facilitates mutual disclosure. Another goal of the intervention was to improve positive relationship dynamics. Facilitating couples’ ability to communicate about HIV and fostering more equitable gender norms could confer additional benefits for couples, including potentially impacting intimate partner violence and health outcomes. In this analysis we identified whether the intervention improved relationship dynamics.

Methods: The intervention utilized two group (1 single-gender and 1 mixed-gender) and four couples counseling sessions delivered by lay counselors. Intervention content included communication skills, exercises to improve relationship quality and knowledge and awareness of gender dynamics. At 9-month follow-up, we collected data on relationship dynamics using validated scales, whether the couple received CHTC, and their HIV test results. For couples that engaged in CHTC, we fitted separate linear regression models for each relationship dynamic using couple-level sums. The key explanatory variable was randomization to intervention or control. Models controlled for relationship length.

Results: Of the 132 couples randomized, 310 completed assessments at the 9-month visit. Among couples who participated in CHTC in both groups (N=99 couples), intervention couples reported significantly higher levels of communication, partner equality, and more equitable gender norms compared to control couples. More specifically, intervention couples reported: more equitable power and decision-making, greater ability to communicate about HIV and fostering more equitable gender norms such that couples endorsed less need for: HIV-transmission information and support needs in their partner than their HIV-positive partners; and we sought to identify the specific needs of the former.

Methods: Positive Plus One is a mixed-methods study of SD couples. Participants (n=570), in ongoing (88%) or past (12%) SD relationships were recruited from clinics and organizations across Canada during 2016-17. Surveys were conducted in English (92%) and French (8%), on-line (85%) or by telephone (15%). Analyses employed descriptive and multiple regression, in-depth qualitative interviews with 44 individuals were thematically analyzed.

Results: Participants included HIV-positive (58%) and HIV-negative (42%) partners in SD relationships, of mean age 42 years (range 18-72). 45% of people identified as gay men, 23% as heterosexual women; 18% as heterosexual men, and 15% as otherwise. Participants were from all Canadian provinces. Participants quantitatively expressed a need for HIV-transmission information and support counseling (12%), and relationship counseling (21%). HIV-negative partners only reported a greater need than positive partners for HIV-support counseling (24% vs 14%, p<0.0001). Adapting for sociodemographic characteristics, the longer HIV-negative partners knew about their partners’ HIV-status, the less they required support (r= -0.21, p<0.01; r= -0.21, p<0.0001). More specifically, only a small proportion of study participants indicated a need for HIV information and support; however, support needs were higher among the HIV-negative partners. As relationships evolve, needs diminish. Funding for HIV-support programs typically targets positive individuals; as life expectancy rises, more experience SD relationships. We argue for a more targeted approach to increasing participation of negative partners in HIV-support programs.
Prevention of vertical transmission

THPED516
Understanding the barriers and facilitators to retention in the prevention of mother-to-child transmission care: A qualitative study of HIV positive women in Kenya

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Background: To understand the experiences of HIV positive women who previously participated in prevention of mother-to-child transmission (PMTCT) services and their male partners, and how these experiences influence their retention in PMTCT care.

Methods: This qualitative research was part of a mixed methods study that examined retention in PMTCT care among HIV positive women in three study sites in Central and Nairobi regions of Kenya. Forty women were selected for in-depth interviews from a sample of 548 HIV positive women identified in the larger retention analysis. In-depth interviews were also conducted with husbands of these women. A team-based approach was used to develop the codebook and content analysis was used to identify emergent themes. The Informational, Motivational, Behavioral (IMB) model was used to structure the interview guides, organize, analyze and explain the qualitative results.

Results: The facilitators of retention in PMTCT care included: supportive male partners; acceptance of one’s HIV positive status; disclosure of HIV positive status to spouse, family, friends; desire to have an HIV negative baby; psychosocial support and peer counseling; and positive provider attitudes. The barriers to retention in PMTCT care were: unsupportive male partners; denial of one’s HIV positive status; lack of disclosure to spouse, family, friends; internal stigma; financial pressures; negative provider attitudes; waiting and delays; negative perceptions regarding quality of care; stress; and a lack of PMTCT knowledge among participants.

Conclusions: This study demonstrates that the factors that enable or hinder retention in PMTCT care are complex and interconnected. As posited by the IMB model, possessing just one factor such as correct information of PMTCT, or having a supportive male partner, or receiving good quality care does not guarantee that an HIV positive woman will be retained in PMTCT care.

THPED517
Healthy moms and healthy infants: 12 years of successful mother to child HIV transmission prevention in a community health center in Bamako, Mali

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Background: Community clinics (CSCOMs) are the primary access point to healthcare in West Africa. While HIV testing is available in some CSCOMs, it is not consistently offered to all women seeking prenatal care. Even when offered, HIV test acceptance is extremely low (31%), often due to lack of supplies. GAIA Vaccine Foundation implemented a MTCTP program at a Bamako-based CSCOM in 2005. This study evaluates the program at the 12-year point.

Description: Starting in 2005, local clinic staff received formal training to encourage HIV testing and counseling. Staff systematically offered HIV tests to all women seeking prenatal care. Initially, HIV+ mothers were referred to a city hospital for treatment and GAIA covered transportation expenses, but in 2008, MTCTP treatment was provided directly at the CSCOM. All HIV+ women were provided with ARVs according to local protocols and encouraged to give birth at the clinic, where delivery costs were covered, and infants received ARVs immediately. Infant HIV testing was performed initially by antibody testing at 18 months, followed by PCR/Viral load.

Lessons learned: Counseling and HIV tests were offered to 18309 pregnant women over the 12 years, and 99% of women accepted HIV serorelevance rates among pregnant women at the clinic reduced dramatically from 4.7% in 2005 to 0.3% in 2017. During 12 years, 100% of infants born to MTCTP-adherent mothers were HIV-seronegative. Cost was a significant barrier to effective prenatal care and childbirth for HIV+ mothers-to-be. By providing these services free of charge, GAIA was able to encourage increased participation in prevention services.

THPED518
Systematic review of factors influencing access to HAART by pregnant woman living with HIV in Nigeria

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Background: Nigeria has the highest number of children acquiring HIV infection since 2005. Without urgent action, the global target, 90–90–90, is unlikely to be reached. The aim of our study was to systematically re-
view literatures to highlight the factors including the barriers and facilitators influencing access to Highly Active Antiretroviral Therapy (HAART) by Pregnant Women Living with HIV (PWLH).

**Methods:** Search for peer reviewed literatures was carried out in PubMed, Web of Science, Scopus and PsycoINFO databases from 2006 through 2017. Studies eligible for inclusion in the review were those that were carried out in Nigeria, which addressed policy, neonatal HIV and socio-cultural issues influencing access to HAART by PWLH. 21 studies were selected: 15 qualitative, 3 quantitative and 3 mixed methods studies. Data was extracted and summarized to highlight the barriers and facilitators influencing accessibility of PWLH to HAART.

**Results:** At individual, community, inter-personal and service provision levels, the data revealed 10 barriers and 5 facilitators. Key barriers identified were: localization of antiretroviral centers in the urban areas; fear of stigmatization; poor enforcement of HIV/AIDS Antidiscrimination law; expensive antenatal care and government’s failure to address stigmatization of PWLH. The two main facilitators identified included motivation of pregnant women to prevent their babies from having HIV and positive support from family members. Inaccessibility to HAART is mainly due to the fear of stigmatization from the public and only seven out of 38 states in the country enforce the HIV/AIDS Antidiscrimination Law. Economic recession, fertility rate, availability of antiretroviral medicines and numbers of patent medicine vendors are not prominent factors influencing access to HAART by PWLH.

**Conclusions:** Poor access to HAART by PWLH is the main issue causing increase in pediatric HIV prevalence in the country. The main limiting barrier is not only fear of stigmatization but defective government policy. Enforcement and awareness of the people about HIV/AIDS Antidiscrimination Law are not so solid in the country. We recommend mass sensitization of PWLH and the entire population on HIV/AIDS Antidiscrimination Act.

**THPED520**

**Developing HIV consulting skills among gynecologists in Russia**

**E. Artemenko**

FOCUS-MEDIA Foundation, Moscow, Russian Federation

**Background:** Project implementation has shown that gynecologists in Russia’s regions lack knowledge and skills to provide effective consultations for women on HIV issues. Often, gynecologists consider it their primary obligation to send a woman to an AIDS center for an HIV test, and to prescribe medication if necessary. Inadequate knowledge about HIV infection and poor consulting skills mean that they hold stigmatizing opinions about HIV-positive patients, which prevents them from providing effective care to patients.

**Description:** The Public Health and Social Development Foundation FOCUS-MEDIA has been implementing the project „Improving the skills of gynecologists in providing women with consultations on HIV” since 2014. The project’s aim is to prevent sexual and perinatal HIV transmission by training gynecologists in counseling, helping to reduce stigma and discrimination against HIV-positive women among gynecologists, and mobilizing local communities of HIV-positive women.

19 training events were organized in many of Russia’s regions, attended by more than 500 obstetrician-gynecologists, pediatricians, neonatologists, psychologists and other medical specialists.

The training module is based on the Manual for Obstetricians and Gynecologists - Counseling on HIV-Infection (E. Stepanova, 2014). The manual introduces specialists to the principles of pre- and post-test counseling for women. Each participant is given the Manual with ready-made consulting algorithms for further use.

**Lessons learned:** The results of the project show that stigma and discrimination against HIV-positive women are based on fear of infection while working with such patients. Lack of skills in counseling and cooperating with patients mean specialists fail to offer patients pre- and post-test counseling, leading to low adherence to ARV-based PMTCT (reducing the patient’s commitment to timely chemotherapy) aimed at reducing the risk of perinatal HIV transmission). Training in consulting skills improves their knowledge and stimulates partnership and patient-centered service delivery.

**Conclusions/Next steps:** To improve the project’s effectiveness, a training course for gynecologists to improve their skills was developed and certified. The 144-hour course is included in the curriculum of the Medical Educational Institution for improving doctors’ skills. The FOCUS-MEDIA Foundation will continue the project to motivate at least 80% of trained gynecologists to provide quality counseling to women of reproductive age.

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Financial incentives, micro-finance, and other economic approaches

**THPED522**

Financial education and improved financial management positively impacts transgender persons’ livelihoods and reduces high-risk behaviours in Indonesia

G.M. Halim1, Y. Setiyawati2, B. Zug-Castillo1, S.M. Afqar4

1International Labour Organization, Jakarta, Indonesia, 2Megawati Institute, Jakarta, Indonesia, 3International Labour Organization, Geneva, Switzerland, 4ILO, Geneva, Switzerland

**Background:** A needs-assessment for transgender organisations identified ‘over indebtedness’ as the most common problem that transgender workers faced. To build the capacity of a group of 23 transgender participants (who had the potential to replicate the training to other beneficiaries) the ILO organized a training-of-trainers. The majority of participants, (20), were transwomen who actively engaged in sex work, full time or occasionally.

**Description:** The training relied on ILO’s ‘financial education for families’ modules. Information updates about HIV and AIDS in the world of work, HIV-related labour policies and programmes complemented the training. The course also included practical training on how to replicate this training to others. Following the training, additional financial management assistance supported all participants.

**Lessons learned:** A short-term impact assessment three months after the training was answered by the majority of participants:

- pre-training none of the participants had financial management skills, only 13% were aware of their total monthly expenses and 78% were heavily indebted.
- post-training, they felt empowered and capable of planning for short, medium and long-term financial goals. 78% reported they regularly manage their finances, have less debt and more savings. These newly acquired abilities also altered their behaviour at work. While selling sexual services, the improved handling of their personal financial situation increased their bargaining power to reject clients who refuse to use condoms. Five trainees started planning a job change, and one transgender included buying condoms in her budget plan. Six participants replicated the training further to reach their communities.

**Conclusions/Next steps:** The capacity to manage their finances has a positive impact on the lives and behaviour of transgender persons in Indonesia. It empowers them to refuse high-risk sexual relations, practise safe sex and enables them to apply knowledge on HIV prevention.

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**THPED523**

Men’s perspectives on the impact of female-directed cash transfers on gender relations: Findings from the HPTN 068 qualitative study


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**Background:** HIV is an inherently gendered disease in eastern and southern Africa, not only because more women than men are infected, but also because socially constructed gender norms work to increase women’s HIV-infection risk. The provision of cash transfers to young women alone in such a context adds another dimension to already existing complex social relations where patriarchal values are entrenched.
Safe housing, social protection and other care and support for people affected by HIV

THPED524

Homelessness and incarceration are associated with elevated mortality rate among people living with HIV in Ontario, Canada: Findings from the CIHR-funded positive spaces, healthy places study

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Background: Social determinants of health (SDOH) are the economic and social environments that shape the health of individuals and communities. In people living with HIV, health outcomes including mortality are influenced by both individual and social-structural level factors. The objective of the current study was to examine SDOH with all-cause mortality among people living with HIV.

Methods: Study sample included 454 people living with HIV in Ontario, Canada who were enrolled in the Positive spaces, Healthy Places (PHSP) study, a longitudinal study examining housing and health outcomes. We verified mortality status of participants at 1-year, 3-year, and 5-year follow-up visits with information obtained from proxies (family members, partners, and friends), obituaries, and local AIDS memorial lists. We used logistic regression modeling to identify SDOH that were associated with all-cause mortality.

Results: Of these 454 people, 53 individuals (19 men who have sex with men [MSM], 10 women, and 24 heterosexual men) passed away during the follow-up period. Individuals who passed away were more likely to have low level of education, be unemployed or on disability, live outside of Greater Toronto Area, have suboptimal health, and report drug use, history of homelessness, and history of incarceration at baseline than those who were alive at 5-year follow-up. Results form time-updated multivariable logistic regression analyses showed that history of incarceration and homelessness (OR=2.1, 95% CI: 1.04 to 4.39) independent-ly predicted high risk of mortality among MSM. MSM with suboptimal self-rated health at previous visit (“Good”, OR=2.7, 95% CI: 1.14 to 6.48, “Fair/Poor” OR=5.1, 95% CI: 2.14 to 12.09) had higher odds of mortality than those who rated their health as “Excellent” or “Very good”. Among women and heterosexual men, those who rated their health as “Good” (OR=4.1, 95% CI: 1.44 to 11.47) or “Fair/Poor” (OR=4.9, 95% CI: 1.75 to 13.55) had increased odds of mortality than those who rated their health as “Excellent” or “Very good.”

Conclusions: Homelessness and incarceration may contribute to HIV disease progression and mortality. Intensive case management that increases retention in care and facilitates linkage to housing services may help to reduce excess deaths among people with HIV.

THPED525

Effect of family conferencing on psychological stress of caregivers: Single-blinded randomized control trial on caregivers of infected children attending a HIV clinic in North Central Nigeria over 3 months


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Background: HIV-infected children and their caregivers face both medical and psychosocial issues. The family plays an important role in any kind of treatment. Hence this study set out to explore the effect of family conferencing on the psychological stress of caregivers of HIV-infected children with a view to improving clinical outcomes and family support.

Methods: The study was a single-blinded randomized control trial of 114 caregivers. One group received family conferencing plus clinical care for the child and the other group received usual clinical care for the child only. An Interviewer administered questionnaire was used to obtain socio-demographic and clinical history of the caregivers. Their psychological stress was assessed using the Self Reporting Questionnaire-20 score (SRQ-20) at the beginning of the study and eight weeks after the family conferencing. Perceived Social Support (PSS - Fa) was used to assess family support while family function was assessed using family APGAR score (Adaptability, Partnership, Growth, Affection and Resolve).

Results: A total of 106 caregivers were analyzed with 50.9% of them having psychological stress. The mean SRQ -20 score at baseline was 5.02 (± 2.75) and 4.80 (± 3.4) for the intervention and control groups respectively which reduced to 3.38 (±2.70) in the intervention arm after the family conferencing. The odds ratio for psychological stress among those receiving the family conferencing was 0.35, 95% CI: 0.13-0.93 compared to caregivers who did not receive the intervention. Family size, function and support all had significant association with psychological stress. (p-value = 0.045, p value 0.0071 and p-value = 0.001 respectively)

Conclusions: Family conferencing was found to reduce the mean SRQ-20 scores which implies a reduction in psychological stress of caregivers of HIV infected children. Psychosocial well-being of the caregiver may improve care of the child and subsequently improve clinical outcomes.
Development and poverty alleviation

THPED526
Postnatal depression in women with HIV in Zimbabwe

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Background: Mental health is an important feature of both HIV infection and pregnancy. Depression influences maternal coping and adjustment as well as subsequent child outcomes. We investigated the relationship between poverty and depression, parenting stress and common mental disorders in Zimbabwe.

Methods: Biological mothers of 0–24 month old infants enrolled in the CHIDO cluster-randomised trial (n=562) were assessed using the Edinburgh Postnatal Depression Scale (EPDS) for depression, Shona Symptom Questionnaire short form (SSQ) for common mental disorders, and Parental Stress Index short form (PSI-SF). Household socioeconomic status (SES) was generated by principal component analysis of material education, employment, housing type, sanitation facilities, water source and household assets. We used logistic regression to model the association between SES and the three outcomes, adjusted for infant’s sex and age (0 to < 3m, 3 to < 6m, 6 to < 12m, 12 to < 18m and 18 to 24m). Robust standard errors were used to account for clustering by clinic as the primary sampling unit.

Results: Compared to mothers of high SES (40%), 55% of the mothers with low SES scored above the cut off for postnatal depression (AOR=1.84). Mothers with low SES (44%), had a higher prevalence of common mental disorders compared to 31% in those of high SES (AOR=1.69). Similarly 40% of those with low SES had stress, compared to 24% of those with high SES (AOR=2.12). Lower SES was associated with postnatal depression (p<0.05), common mental disorders (p<0.08) and parental stress (p<0.01).

Conclusions: Socio-economic status was significantly associated with all measures of mental health. Poverty reduction may be important for management for women in low resource settings, to assist with managing their HIV care, pregnancy related challenges and child caring needs.

Interventions to reduce stigma and discrimination

THPED528
On air with positive living youth outreach: How HIV-positive youth in Lesotho are using radio and community outreach to empower their peers and combat stigma

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Background: With an HIV prevalence rate of 24%, no one in Lesotho is unaffected by the disease. Yet, stigma and misinformation abound, the two perpetuating one another in a deadly cycle. Both factors cause a fear of disclosure and contribute to further infections. In 2017, eight 22 to 24-year-old Basotho HIV advocates formed Positive Living Youth Outreach (PLYO), aiming to provide health education and share life stories on HIV/AIDS, sexual and reproductive health, and other issues, by speaking at community centres, schools, health clinics, and on media outlets. The goal of PLYO is to spread awareness, decrease stigma, and raise the confidence of HIV-positive youth in Lesotho.

Description: One of the core activities of PLYO is a weekly radio show, “Positive Living”, supported by Baylor College of Medicine Children’s Foundation - Lesotho, during which PLYO members select HIV-positive youth and healthcare professionals to talk about their experiences, provide education on HIV and general health, and more. Since January 2017, PLYO have also given monthly health talks at health facilities and schools. Participants encourage members of their youth networks to participate in PLYO activities; to date, over 30 youth have presented on the radio. PLYO members were also invited to present at Radio Days Africa 2017, the biggest radio conference on the continent, to share their experience starting a community-based radio show. PLYO members have also been featured on national and international media.

Lessons learned: PLYO has proven transformative not only in the lives of its members, but also in the lives of their immediate peers and community. All of the eight core committee members are now employed as peer educators/ambassadors by non-governmental organizations dedicated to fighting HIV/AIDS. Members report feeling free and more confident after sharing their story on air. Listeners call in to ask questions they fear raising in other contexts.

Conclusions/Next steps: PLYO has formed and registered its own non-governmental organization and plans to continue various forms of advocacy and HIV education targeting young people. PLYO is an example of a youth-focused and youth-led initiative that is changing the narrative surrounding HIV-positive youth both for their audience and, crucially, for the youths themselves.

They also noted that they sought more immediate healthcare for STIs and felt more comfortable talking with their primary care provider.

Lessons learned: Community benefits agreements have emerged as a new approach to broaden our collective vision in addressing health equity and structural drivers of health, including HIV. The development of broad coalitions is key to bringing developers to the table as key new partners to structurally meet the needs of those at high risk for or affected by HIV.

Conclusions/Next steps: As CBAs are further developed as a health-equity tool, there is a need to increase awareness of said possible agreements amongst community members at-large. We also need to build up the capacity of communities to negotiate agreements. Health departments, community coalitions, and HIV/AIDS-related organizations should integrate CBAs into their planning tools and strategic plans.
Interventions for healthcare providers to improve treatment access and reduce stigma and discrimination towards MSM-TG

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Background: In India, men who have Sex with Men (MSM) and Transgender (TG) population continue to be criminalized and are highly vulnerable and marginalized. Stigma, high HIV prevalence, and violence are associated with their sexual identity. Studies at Humsafar Trust conducted in health care have indicated lack of knowledge and unjust outlook towards MSM-TG issues and sexual health needs of the community. Additionally, due to the fear of being stigmatized and discriminated, MSM and TG face hesitance to access health services, further adding their vulnerability to HIV.

Description: The Humsafar Trust, a community-based organization is Sub-Recipient for Global Fund Round-9 funded Project, MSA, which focuses on building capacities and improving policy environments for MSM community across 27 states of India. Over the period of two years 2016-2017, ten training programs were conducted with 238 healthcare providers (Doctors, counselors and paramedical staff) were trained across 10 Indian states using the standard module. The standardized module included discussion interaction with community members, and group work emphasizing issues related to sexual health needs of MSM-TG community.

Lessons learned: The aim of the intervention was to increase knowledge related to sexual and reproductive health (SRH) issues and building an awareness of issues faced by MSM and TG community. Apart from sexual health concerns, community health concerns like challenges while accessing care and treatment, harassment, delay in providing health care, and other mental health concerns were also discussed. At the end of these training, health care providers reported a better understanding of sexual health and community issues faced by MSM and TG groups.

Conclusions/Next steps: Community-led training programs are key in creating and fostering rational attitudes toward MSM-TG as they focus on promoting health/human rights and overall well-being of marginalized communities. Enabling environments and a better understanding of community health issues (SRH) furthers empowers the community to seek healthcare services and other services thus reducing their vulnerabilities. Programmatic and policy implications must consider the incorporation of these models into national programs. It is important to engage healthcare providers in policy development, advocacy initiatives, and to create an enabling environment for MSM and TG Communities.

Intersectionality of stigmas in Senegal: Differences in stigma outcomes among people living with HIV, transgender women, and cisgender men who have sex with men

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Background: Stigma potentiates HIV risks through limiting engagement in HIV prevention, care, and treatment services. Stigma is prevalent among cisgender men who have sex with men (cis-MSM), transgender women, and has been associated with HIV infection and the limited uptake of services along the HIV treatment cascade across Sub-Saharan Africa. Stigma elimination remains one of the core pillars in achieving an AIDS-free generation, but there are limited data characterizing effective interventions or the role of gender or HIV-related intersectional stigmas.

Methods: People assigned the male sex at birth and reporting anal sex living with HIV were enrolled into a 24-month longitudinal cohort in Senegal and engaged in an integrated stigma mitigation intervention. Sociobehavioral questionnaires and biological HIV monitoring were administrated approximately every 3 months. Longitudinal analyses were conducted using multivariable logistic regression for repeated measures with a focus on characterizing differences in stigma patterns among different populations.

Results: In total 191 participants were followed including 121 cis-MSM participants and 51 transgender women. At baseline, 40.3% (73/181) of participants were living with HIV. Fear of seeking health services reduced over 24 months (p<0.001) and was associated with HIV status adjusted odds ratio(OR) 3.2

Developing a national strategy for addressing HIV stigma in Scotland: An effective tool in addressing HIV stigma

Humsafar Trust, Capacity Building, Mumbai, India

Abstracts

Background: Scotland is the first country in the world to address HIV stigma in a national strategy with the aim to create an enabling environment for MSM and TG Communities. It is important to seek healthcare services and other services thus reducing their sexual health and community issues faced by MSM and TG groups.

Lessons learned: The community-led work required a highly coordinated approach linking community members, clinicians, service providers and academics, and mediating varied priorities held by stakeholders. This work received widespread support by addressing government policy, creating political leadership, challenging inequalities, presenting best practice, and prioritizing community involvement. The strategy received support from Members of Scottish Parliament, clinicians, NGOs and statutory services. The launch campaign was endorsed by the First Minister of Scotland and Scottish celebrities. By adapting global targets for the Scottish context we have informed evidence-based programmes that take into consideration local barriers related to geography, political will, and the diversity of the population.

Conclusions/Next steps: Establishing a national strategy to address HIV stigma mobilized community and other stakeholders, reinvigorating interest and resources to address stigma. By creating links between national strategies and agreed global targets, we have refocused how best to tackle stigma and placed the elimination of HIV stigma high on the agenda of policy-makers, stakeholders and service-providers.
THPED532
Reducing the negative impact of empty ARV bottles on environment by recycling them into Artifacts as communication tools, income generating household products and souvenirs for future generations

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Background: My daughter and I have been on ART since 2009. I would dump all our empty bottles in the toilet or use them to light our charcoal stove. In Uganda, this is the only stigma free disposal means for many adolescents and young adults living with HIV as the bottles are usually dumped in the late hours when no one is watching. For the clients that don’t usually carry their medicine in the bottles, the hospital is tasked to dispose the bottles off which has also been very expensive and not safe for the environment especially the fumes from the incinerators.

Methods: Through Pill Power Uganda, a partnership with different treatment and care centers was created to mobilize adolescents and young adults struggling financially and with adherence challenges to create pill power units.

Pill Power Units are peer support groups of ten adolescents and young adults trained for five days in recycling empty ARV bottles to enable them deal with their stigma and are inspired to tell their HIV stories in their communities. The centers sponsor the five days training and ensures that all clients return their empty ARV bottles so that they are available. Through outreachs and different display opportunities, together, we market the information and skill-sets, presented in scenarios relevant and relatable to our targeted demographic.

Results: Three units were created thus 19 adolescents and 11 young adults were trained for five days in recycling empty ARV bottles to enable them deal with their stigma and are inspired to tell their HIV stories in their communities. The centers sponsor the five days training and ensures that all clients return their empty ARV bottles so that they are available. Through outreachs and different display opportunities, together, we market the information and skill-sets, presented in scenarios relevant and relatable to our targeted demographic. A pilot survey was conducted on 100 adults trained for five days in recycling empty ARV bottles to enable them deal with their stigma.

Conclusions: Recycling empty ARV bottles has not only supported the recycling and care centers was created to mobile adolescents and young adults living with HIV as the bottles are usually dumped in the late hours when no one is watching. For the clients that don’t usually carry their medicine in the bottles, the hospital is tasked to dispose the bottles off which has also been very expensive and not safe for the environment especially the fumes from the incinerators.

THPED534
Unexpected benefits of a targeted web series on HIV and sexual health for "hidden" MSM populations in Singapore

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Background: Sexual health and HIV education programmes targeting MSM need to reach out to "hidden" subsets viz. youth, minority races and recreational drug users ("chem-sex"). These populations often test infrequently whilst continuing to have high-risk practices. There was an urgent need to address this issue in a manner that is effective yet respectful of prevailing socio-political sensitivities. We selected our platforms, mediums and themes carefully in order to meet our objectives.

Description: PLU (People Like Us) was conceived as a 6-episode web series, each episode lasting 5 minutes. Written to contain vital safer-sex information and skill-sets, presented in scenarios relevant and relatable to our targeted demographic. A pilot survey was conducted on 100

Conclusions: Recycling empty ARV bottles has not only supported the key persons living with HIV but has proved to be an all round appro-ach and tool in the fight against HIV and AIDS.

Conclusions: Overall, there were significant decreases in stigma observed but clear differences in stigma patterns with HIV status and gender identity among participants in Senegal. While intersectionality of stigma as determinants of HIV have been understudied in much of Sub-Saharan Africa, these data highlight the need to consider specific strategies to address multiple intersecting forms of stigma as a means of improving HIV-related outcomes among cis-MSM and transgender women Senegal.
members of the MSM community to ensure that the scenes, topics and characters were recognisable and relatable, and that the platform, medium and themes were acceptable. Important sexual health messages were sent in a visually-attractive package, that would also circumvent traditional media channels and conservative media law in Singapore. Great care was taken to ensure authenticity of representation in terms of age, race, language, and socio-economic backgrounds of the actors, and also the appropriateness of venues and locations.

Lessons learned: Statistically PLU was an unqualified success in many ways:
- Singapore’s first web series targeting gay and other MSM
- Nominated for 7 film festivals, winner of 3 awards
- Viewed approximately 400,000 times
- At only $0.13 per reach, it was a fraction of the cost of our previous online ($5/reach) and offline ($14/reach) campaigns.

More interestingly, we were able to determine that 30% of views came through pornographic sites that had unexpectedly tagged our web series. This taught us that greater thought and care during planning and design in ensuring relevance pays off in spades in terms of take up rates.

Conclusions/Next steps: Planning for Season 2 has started, where we would like to explore some of the themes more deeply, as well as some of the more novel channels for dissemination such as hook-up apps. Measuring information retention via surveys will allow us to fully measure the success of this programme.

### TPED535

**Anticipated HIV stigma and HIV testing among Chinese men who have sex with men: A longitudinal cohort analysis**


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  *Wan Jiaotong-Liverpool University, Suzhou, China,
  *London School of Hygiene and Tropical Medicine, London, United Kingdom,
  *Eastern Virginia Medical University, Norfolk, United States,
  *University of North Carolina at Chapel Hill, Chapel Hill, United States,
  *Rutgers School of Public Health, Piscataway, United States

**Background:** Anticipated HIV stigma is associated with multiple negative health outcomes among men who have sex with men (MSM). Previous studies have not observed factors associated with changes in anticipated HIV stigma over time. This study examines the association between reductions in anticipated HIV stigma and behaviors with a focus on HIV testing.

**Methods:** In July 2016, MSM ≥16 years old who self-reported as HIV-negative or with unknown status were recruited into a prospective online cohort in China. Data on sociodemographic, sexual behaviors, HIV testing (facility-based testing and self-testing), level of engagement in community events, and anticipated HIV stigma (a 7-item Likert-scale ranging from one (low) to four (high)) were collected every three months for one year. Reduction in anticipated stigma was a dichotomous measure (yes/no) calculated by comparing the mean score from the 7 stigma items at the last follow-up to the baseline score. To examine the relationship between behaviors and reduced stigma, we conducted a series of bivariate and multivariable logistic regressions, controlling for age, education, income, marital status and baseline anticipated stigma score.

**Results:** Among 879 MSM completing all follow-ups, the mean age was 25.3±6.5. Most participants completed high school (65.3%, 574), were never married (87.6%, 770), and had an annual income less than 9200 USD (76.2%, 670). 51.6% (454) men had decreased anticipated stigma scores over the year. 66.7% (586) of participants have been tested for HIV, with approximately half receiving a facility-based test (45.4%, 399) and half receiving a self-test (52.8%, 464). Reductions in anticipated stigma were associated with having more than one HIV test in the past year (Adjusted odds ratio [AOR]=1.47, CI: 1.05-2.05) in the past three months, and with increased engagement in community events in the past year (AOR=1.28, CI: 1.02-1.60).

**Conclusions:** Our result suggests that HIV testing, particularly regular HIV testing, could decrease anticipated HIV stigma among MSM. Encouraging LGBTQ community engagement activities would also be an effective method to lower the anticipated HIV stigma.

<table>
<thead>
<tr>
<th>HIV testing frequency in the past year (ref: never-tested)</th>
<th>OR (95%CI)</th>
<th>P</th>
<th>AOR (95%CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once</td>
<td>1.30 (0.91, 1.85)</td>
<td>0.150</td>
<td>1.30 (0.90, 1.87)</td>
<td>0.170</td>
</tr>
<tr>
<td>More than once</td>
<td>1.56 (1.15, 2.12)</td>
<td>0.005</td>
<td>1.60 (1.16, 2.20)</td>
<td>0.004</td>
</tr>
<tr>
<td>Ever HIV tested in the past three months</td>
<td>1.44 (1.09, 1.88)</td>
<td>0.009</td>
<td>1.53 (1.15, 2.03)</td>
<td>0.004</td>
</tr>
<tr>
<td>Ever HIV tested in the past year</td>
<td>1.46 (1.10, 1.93)</td>
<td>0.009</td>
<td>1.48 (1.11, 1.99)</td>
<td>0.009</td>
</tr>
<tr>
<td>Ever HIV self-tested in the past three months</td>
<td>1.43 (1.06, 1.92)</td>
<td>0.020</td>
<td>1.45 (1.06, 1.97)</td>
<td>0.020</td>
</tr>
<tr>
<td>Ever HIV facility-based tested in the past three months</td>
<td>1.37 (1.00, 1.89)</td>
<td>0.051</td>
<td>1.47 (1.05, 2.05)</td>
<td>0.023</td>
</tr>
<tr>
<td>Community engagement level increased in the past one year</td>
<td>1.42 (1.05, 1.92)</td>
<td>0.022</td>
<td>1.28 (1.02, 1.61)</td>
<td>0.032</td>
</tr>
</tbody>
</table>

**Bivariate and multivariable logistic regression of anticipated stigma changes and behaviors among MSM in China (N=879)**
**THPED536**

**Stigma-reduction m-health programming and measurement: Evaluation study of most-at risk and most-in need populations in urban India**

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**Background:** Adolescent and young key populations (AYKPs) are disproportionately affected by HIV and have been largely excluded from national HIV response in India. Internalized stigma remains pervasive for adolescents and young MSM and TGs, impeding utilization of HIV testing and other health services. While many stigma interventions have been carried out worldwide, few have reached to the most unreached A/YKPs. An intervention study was undertaken to assess impact of integrated intervention (m-health app and telephonic counseling) in reducing self-stigma among A/YKPs in urban India.

**Methods:** A mix method pre-post study design was undertaken at baseline and endline at 12 month. A cohort of 127 was retained at end line out of 167 participants (15-24 years) in urban Delhi. Self-stigma was measured using validated stigma scale in Indian settings. The Cronbach’s alpha showed good internal consistency (I = 0.71). Further stigma scale was placed in three categories (using likert scoring) into low, medium and high. Bi-variate analysis was conducted using Chi-square test. Qualitative data was analyzed using deductive content analysis approach.

**Results:** Majority of adolescent MSM and TGs reported high and moderate levels of self-stigma (74%) than their younger counterparts (58%) at baseline (p<0.001). Study results showed intervention was successful in gradual decline of self-stigma more among adolescent than young key populations from high stigma to moderate (p<0.001). Similarly, decline in internalize stigma was found more among MSM than TGs (p<0.01). Overall, reduced self-stigma was significantly associated with telephone counseling and information through m-health app. More than 60 % of MSM and TGs who reported low stigma undertook telephonic counseling session (p<0.001).

**Conclusions:** This technological intervention along with telephonic counseling has potential to be scaled up as a way of providing confidential and acceptable services to most at risk and most in need populations. Study demonstrated that combined use of m-health app along with telephonic counseling was powerful in reducing self-stigma more among adolescent than young MSM/TGs. Therefore, reaching early adolescence provides window of opportunity for faster reductions in stigma since it is internalized, reinforced and sustained early. Also, stigma reduction for TGs requires more sustained and concentrated effort and action.

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**Harm reduction**

**THPED537**

**Low demand for harm reduction services and assistance for young people who use drugs in Makeyevka, Ukraine**

**H. Danylevych**

**NGO, Donetsk, Ukraine**

**Background:** The level of involvement of young people who use drugs (PWUD) in the Harm Reduction Project (HRP), conducted in Makeyevka, in 2017, was significantly low (only 8%) in comparison with total number of HRP clients. NGO “Amicus Union” conducted a qualitative study to determine the reasons why young PWUD do not use HRP services.

**Methods:** A mix method pre-post study design was undertaken at baseline and endline at 12 month. A cohort of 127 was retained at end line out of 167 participants (15-24 years) in urban Delhi. Self-stigma was measured using validated stigma scale in Indian settings. The Cronbach’s alpha showed good internal consistency (I = 0.71). Further stigma scale was placed in three categories (using likert scoring) into low, medium and high. Bi-variate analysis was conducted using Chi-square test. Qualitative data was analyzed using deductive content analysis approach.

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**THPED538**

**Post-discharge peer telephone support program to help complex clients transition from hospital to community**

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**Background:** Through collaboration between a community-based organization and an HIV hospital, we designed and piloted a peer telephone support program for complex clients being discharged from hospital. Peer interventions may be a desirable and cost-effective means to support continuity of care in complex clients, such as those who are actively using substances. The objective of the program was to ease the transition from hospital to community for people living with HIV who use drugs.

**Description:** The pilot was implemented from early-2017 to early-2018 in an urban Canadian city. People living with HIV, in hospital, actively using substances, and struggling with antiretroviral medication adherence were invited to participate. Participants set discharge goals with a nurse concerning antiretroviral medication adherence, substance use, and a self-identified goal (e.g., housing, social connectedness). These discharge goals were then shared with a ‘peer volunteer’ (also living with HIV and lived experience of substance use). The participant and volunteer met once pre-discharge, then connected by phone for six weeks post-discharge. Five peer volunteers aged 28-60 (four gay Caucasian men and one heterosexual Caribbean woman) were trained and each completed 2-3 matches, a phone log for each call, and attended individual supervision per match. Two group supervisions were also held, to share successes, challenges, and strategies for peer support.

**Lessons learned:** Participants and volunteers agreed that shared identities engendered rapport. Volunteers maintained a scope of practice, keeping a realistic sense of their role and referring to other services as needed. Clients who appeared to be self-motivated (i.e., initiated contact) participated more actively in the program than more passive participants. Volunteers identified that discussing shared social interests alongside HIV and substance use concerns led to greater engagement, as would a collateral contact to follow-up with if the participant was non-responsive.

**Conclusions/Next steps:** This pilot peer support program has established a strong working relationship between a hospital and a community-based agency, to continue collaborating for care transition via peer support.

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**Note:** The services provided in the HRP do not meet their needs. Older PWUD mostly inject opiates and stimulants, while the young PWUD use synthetic drugs. HRP doesn’t provide any specific services for the synthetic drug users and that’s why young PWUD do not see the intent to use HRP services.

- Lack of knowledge/no knowledge about existing HRP services
  - The group of young PWUD is very closed and hard to reach for the outreach workers. The lack of trust creates a barrier to reach young people and involve them into HRP services.
  - Counseling and advices from older PWUD are considered as unwanted and usually ignored.

Young and older PWUD generations avoid contact with one another because of the different drug consumption habits. Indeed, contact is needed, because older PWUD have more experience and knowledge about drug use, overdoses, HIV and other STDs.

**Conclusions/Next steps:** Harm reduction services to young PWUD in Makeyevka are ineffective. To make it attractive and beneficial, the following steps should be taken:

- to provide harm reduction services, which meet young PWUD needs;
- to reach young PWUD online (Facebook, Telegram);
- to empower young PWUD, who are already in HRP services to become peer-to-peer educators and reach more young PWUD.

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**Note:** The following reasons of why young PWUD do not use HRP services were determined:

- Lack of knowledge/no knowledge about existing HRP services
- Young and older PWUD generations avoid contact with one another because of the different drug consumption habits. Indeed, contact is needed, because older PWUD have more experience and knowledge about drug use, overdoses, HIV and other STDs.
- Counseling and advices from older PWUD are considered as unwanted and usually ignored.

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- to provide harm reduction services, which meet young PWUD needs;
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- to empower young PWUD, who are already in HRP services to become peer-to-peer educators and reach more young PWUD.

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support. This presentation will discuss the program’s approach to training and supervision while highlighting the experiences of participants and volunteers, for other clinical and community-based agencies to consider adaptation of this partnered peer support program.

THPED539
Dispelling the myths and fallacies fuelling deadly drug policies in Southeast Asia

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International Drug Policy Consortium, Bangkok Office, Bangkok, Thailand

Background: Southeast Asian countries have amongst the highest rates of HIV prevalence amongst people who inject drugs in the Asia-Pacific, fuelled by the fact that they are also home to the most punitive drug policies in the world, which plucked to extreme depths with the widespread killing of people suspected of drug use and supply in the Philippines. A significant factor driving such policies, which block or hamper HIV prevention treatment and care interventions for people who use drugs, is lack of evidence-based understanding about drug use and harm reduction. The International Drug Policy Consortium (IDPC) introduced a training programme in 2017 to address this gap with a primary objective of supporting the implementation of harm reduction approaches and rights protection for people who use drugs.

Methods: IDPC developed a training module to provide evidence-based education about drugs and drug use to dispel myths and fallacies about the 'evil' nature of drugs, eg. people who use drugs suffer irreversible brain damage and commit violent crimes. The module was delivered at a workshop in Malaysia by members of the Asian Network of People who Use Drugs (ANPUD), for participants from civil society, health services, and legal services sectors in Southeast Asia. Other modules from the IDPC training toolkit, on harm reduction and decriminalisation of drug use, were delivered by both ANPUD and a lawyer from the Philippines.

Results: Evaluation feedback from the workshop reflected the importance of learning from trainers who are themselves people who use drugs and experienced in the provision of harm reduction and drug treatment services. In contexts where lawyers are able to defend the rights of people who use drugs, their willingness to assist is not assured therefore requires additional advocacy.

Conclusions: High levels of stigma and discrimination against people who use drugs requires both evidence-based education about drugs targeting policymakers, practitioners and those who are able to ensure the promotion and protection of those rights, as well as ongoing advocacy for an enabling policy and legal environment for the HIV prevention, treatment and care of people who use drugs.

Traditional and complementary health care approaches

THPED540
The association between medical pluralism and treatment adherence among patients initiated on antiretroviral treatment in rural South Africa: A prospective cohort study

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Background: Medical pluralism, the use of multiple sources of healthcare, is common in contexts with high HIV prevalence, including sub-Saharan Africa. With expanding access to ART and the advent of universal ‘test and treat’ policies, there is urgent need to establish the effect of medical pluralism on intermediate healthcare outcomes among users of ART, particularly ART adherence. To date, robust study designs have not been used.

Methods: Secondary analysis was carried out using data from a prospective cohort study conducted in rural South Africa, (2009-2012), with participants enrolled at ART initiation and followed up six-monthly through 36 months. Medical pluralism and ART adherence were measured at each follow-up visit through time-varying self-reports of healthcare-seeking behavior and ART adherence, respectively. Survival analysis was conducted, with Kaplan-Meier and smoothed hazards plots. Maenttel-Haenszel and Cox proportional hazards were used to estimate crude and adjusted effects.

Results: A total of 362 participants (64.6% female) were included, and 137 observations contributed 7275 person-years of follow up and 144 adherence failure events, 41 with pluralism. The crude adherence failure rates among those exposed and unexposed to medical pluralism were 35.6/1000 person-years and 16.8/1000 person-years, respectively. In multivariate analysis, medical pluralism was associated with increased hazard of adherence failure than non-pluralism (Adjusted Hazard Ratio (aHR) 1.60, 95%CI 1.10 - 2.32, p=0.013). Partial compared to complete knowledge of ART, aHR 2.04, 95%CI (1.45-2.89), p< 0.001, and presence compared to absence of ART-related side effects (aHR 2.35, 95%CI 1.53 - 3.59, p< 0.001) more than doubled the hazards of adherence failure.

Conclusions: In this analysis from time of ART initiation to first adherence failure, there was a significant association observed between medical pluralism and adherence failure, after controlling for covariates. This study suggests that medical pluralism is a risk factor for adherence failure, and should be systematically measured in future studies of ART adherence, both observational and experimental. Fear of drug-drug interactions and the lack of systems coordination between ART and non-ART providers may be responsible for these effects. The success of ART utilisation in HIV prevention and ‘test and treat’ programs will continue to depend of high levels of adherence.

THPED541
Patterns of religious coping and anxiety among persons living with HIV/AIDS in Cape Coast, Ghana

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Background: Sub-Saharan Africa has the highest prevalence of HIV/AIDS globally and mounting evidence shows that Persons Living with HIV/AIDS (PLWHIV) experience significant levels of anxiety which impair their quality of life. Religious coping has been identified as the widely used resource to cope with psychological distress associated with HIV/AIDS. However, there is sparse literature on the use of religious coping and anxiety among PLWHIV in Ghana. This study examined the patterns of religious coping and its relationship to anxiety in PLWHIV in Cape Coast, Ghana.

Methods: A cross-sectional study conveniently sampled 138 PLWHIV seeking health care at the Cape Coast Teaching Hospital during a period of three months. The Brief RCOPE was used to measure the patterns of religious coping, whiles the anxiety questions on the Hospital Anxiety and Depression Scale (HADS-A) were used to screen for anxiety. Descriptive statistics were used to analyze all categorical data. Person Product-Moment Correlation coefficient was used examine the relationship between the patterns of religious coping and anxiety.

Results: Seventy-nine percent (109) of the respondents were female, males were 29 (21%). The mean (SD) age was 44.12 (11.30) years, the mean (SD) years since HIV diagnosis was 4.15 (3.36) years, 39.9 percent were married, and 45.7 percent identified themselves as Pentecostal/Charismatic Christians. One hundred and twenty-five (90.6%) use positive religious coping. 84 (60.6%) experienced normal levels of anxiety and 28 (20.3%) PLWHIV reported abnormal levels of anxiety. A moderate positive relationship (r = .330, n = 138, p< .0005) was found between negative religious coping and anxiety.
Conclusions: The results suggest that HIV/AIDS related anxiety is generally low among PLWHIV but high among those without formal education. Predominant use of negative religious coping is associated with high levels of anxiety. This suggests that assessment of religious coping and anxiety should be integrated into the treatment plan of PLWHIV to enhance their overall quality of care. Psychotherapy for symptoms of anxiety and negative religious coping should be adopted for PLWHIV. Consistent HIV/AIDS education should be given to PLWHIV with no or less formal education. Additional findings, implications for clinical practice and further studies are discussed.

**THPED542**

**Prevalence of traditional medicine use by pregnant HIV positive women in an urban setting in Zimbabwe: A cross sectional study**

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**Background:** Due to increased cultural beliefs, many HIV-positive pregnant women continue to use antiretroviral medicines whilst using traditional medicines (TM) during pregnancy. This might interfere with antiretroviral drugs used for prevention of mother-to-child transmission. Information regarding types of traditional medicines being used by HIV-positive pregnant women and the extent of use in Zimbabwe has not been documented. This study was thus aimed at determining the prevalence of TM use by HIV-positive pregnant women.

**Methods:** A cross sectional study was conducted using an interviewer administered questionnaire on 280 conveniently sampled, HIV-positive pregnant women who visited City of Harare clinics in Zimbabwe from October 2017-January 2018. They were English or Shona speakers in their second or third trimester, and between the ages of 18-49 years. Collected data was coded and captured using REDCap and Stata was used to analyse the data. Ethical approval was obtained from the University of Zimbabwe.

**Results:** Of the 280 women interviewed, 272 (97.2%) were using Truvada® and 7 (2.5%) were not using any antiretroviral medicines. 70% of the women had been diagnosed as being HIV-positive in 2017 during antenatal care booking. 15% (43.9%) of women however, admitted to using traditional medicines during pregnancy and at delivery, whilst 124 (42.7%) did not. The 25-34 age group had the highest number of users (n=56, p=0.03), while only 6 (4.5%) were between 41-49 years. Women used traditional medicines in the third trimester mainly to facilitate child birth (n=94, p=0.04), treat/prevent HIV-related illnesses (n=24, 17.4%), protect the baby (n=9, 6.5%), prevent vaginal tears (n=6, 4.5%), and speed up labour (n=5, 3.6%), to mention a few. The medicines used included Aloe vera, Chamomile, Fadogia ancylantha, and Ficus carica. All the women however, did not inform their healthcare workers that they were using traditional medicines.

**Conclusions:** This study showed that the prevalence of traditional medicine use by HIV-positive pregnant women is 49.3%, which is high. Concurrent medicine use could facilitate failure of PMTCT programs due to drug interactions. Determination of the exact effects that these medicines may have on ARV drug levels is however still on-going.

**Access to appropriate healthcare services, including for co-infections and co-morbidities**

**THPED543**

Exploring the drivers of users cost as a barrier to accessing HIV testing from Rural Malawi

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**Background:** HIV testing is free in Malawi. However, HIV testers incur high direct non-medical and indirect costs likely to deter or delay access to testing. We examined drivers of users cost and explored potential solutions to increase testing uptake in rural Malawi.

**Methods:** We estimated a multivariable fixed effect Tobit regression model with a log-transformed dependent variable on baseline household survey data (n=749) collected in 2016. The data were for a cluster randomised controlled trial investigating the impact of HIV self-testing in four high HIV prevalence districts.

**Results:** On average, the mean cost was US$2.45 (95% CI US$2.21- US$2.70). Both supply-side (test location and efficiency of testing delivery) and individual-level (gender, age, wealth and education) factors affected user costs incurred for HIV testing (Table 1).

Older adults, men, and those with higher levels of education incurred significantly higher costs than youth, women, and less educated participants. Wealth quintile, however, had no consistent trend on expenditure. Participants who used community-based testing incurred 34% lower costs than those who used facility-based testing, especially when the visit was specifically for the purpose of HIV testing. For each additional hour spent travelling or waiting to be tested, participants’ average costs increased by 4%.

**Conclusions:**

- This study identified a number of modifiable supply side factors, notably, long travel and waiting times contribute to high opportunity costs. Further decentralisation of the primary care network, providing testing within communities, and increasing patient throughput at HIV testing facilities by increasing investment in rooms and staff each have potential to increase uptake of testing services. More flexible test-
ing options, such as community and facility-based HIV self-testing, may further reduce the opportunity cost of seeking testing and has potential for expanding testing access, especially for men.

**THPED544**

**Barriers to healthcare and prevention among MSM in the Middle East and North Africa**

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**Background:** HIV new infections in the MENA region are still on the rise, and though prevalence is relatively low (0.1%) the prevalence among MSM is quite high (3-5%). With restrictive and criminalization laws bounding MSM and TG lifestyles, and a conservative society, HIV prevention, testing and condom use are still challenged. Stigma and discrimination make it harder to access health services.

**Methods:** An online survey of 40 minutes was carried out in 6 MENA countries to 128 MSM to inquire about health behaviors, discrimination and access to prevention and medical services.

**Results:** The age range of the sample was 16 - 43, most of which have a higher education which would imply have access to HIV prevention tools, knowledge or are capable of affording medical care. 78% of participants have received discrimination from a health care provider and a not surprising 72% do not discuss their behaviors or sexuality with their physician. 40% of MSM do not seek health services as they trust are not private. Of the sample study 12% are living with HIV. Barriers to testing include not realizing the importance of the test, fear of stigma simply for asking for the test or for being outed as MSM. More than one third of the study sample has ever contracted an STI, 40% of whom did not seek medical care, which gives way to advanced infections and more transmission. 75% of the study group have ever been engaged in condomless sex and mostly did not have condoms available or the partner did not like to use condoms, which insinuates poor condom negotiation skills.

**Conclusions:** As a concentrated epidemic among MSM, the numbers only suggest the situation will worsen. HIV prevention programs should specifically target MSM and focus on their needs. Health care providers are to be oriented on the negative effects of discrimination. MSM programming around condom use and HIV testing and condom negotiation are vital to better control new infections and teach individuals the responsibility of their health and their community health. in other words to bridge the gap between the populations and healthcare and service providers.

**THPED546**

**HIV care is fine, but what if I get the flu?**

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**Background:** In Guatemala, a concentrated epidemic within a highly stigmatizing social context creates an environment fraught with challenges for reaching, testing, and linking vulnerable men who have sex with men (MSM) and transgender women (TW) with HIV testing and care. As part of USAID’s Combination Prevention Program in Guatemala, the Pan American Social Marketing Organization commissioned an ethnographic study in 2016-2017 to understand the sexuality, identity construction, health care seeking behaviors, and MSM/TW-health provider relationships to design consumer-focused strategies to facilitate access to HIV services.

**Methods:** This ethnography was conducted in the two Guatemalan Departments with the highest HIV prevalence (Guatemala and Escuintla) among a sample of 24 MSM and 26 TW. The study included in-depth interviews that integrated complementary data collection instruments. Results were validated in a focus group with the target population.

**Results:** While there are criticisms of public health services and some organizations, the quality of HIV services available is generally considered satisfactory more so for MSM than TW, mostly because the last suffer from higher stigma and discrimination in the public sector. Organizations are friendlier because they were created to serve these populations. HIV services are considered available and accessible at least in the urban areas, but they are seen as highly specialized to HIV. In contrast, MSM/TW lack a place to go where they can receive appropriate, integrated and gender-friendly health care services, for general and daily health issues such as the ‘flu’. This leaves them with little alternatives that results in a lack of service provided or self-medication. Additionally, participants emphasized the need for including mental health as part of the HIV services for a more holistic and human approach.

**Conclusions:** The MSM/TW populations recognized many advances in the provision of gender-friendly HIV services, but these are not reflected in the provision of integrated health care. Vulnerable populations are reliant on the specialized HIV services provided by NGOs or HIV clinics, but have no appropriate options for primary care and mental health, and so there is need for synergy and appropriateness of healthcare services for MSM/TW.
THPED547
Factors associated with non-vaccination in people living with HIV (PLH) in Argentina

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Background: Argentina health care system guarantees free access to vaccines for the general population, and particularly for people with immuno-compromising conditions such as HIV infection. Despite prevalence of vaccination is high in this group, there are still PLH who do not receive the recommended vaccines. Thus, there is a need to identify factors that affect access to vaccination among PLH.

Methods: Data for the present study was drawn from an online survey conducted between December-2017 and January-2018, which examined sociodemographic information received last year and attitudes towards vaccines. The survey included several vaccines, but for this study, we considered only those who self-reported receiving influenza and pneumococcal vaccines. Attitudes were examined through an ad-hoc designed 5-item Likert scale: “I prefer not to have all mandatory vaccine and choose to what diseases get vaccination for”, “I’m concerned that vaccines are not safe or produce side effects”, “vaccines are not effective”, “vaccines are poison”, “vaccines are a business”. Using multivariable logistic regression, this study examined the prevalence of and factors associated with non-vaccination.

Results: A total of 1025 PLH completed the survey. Median age was 37 (IQR: 29-40), 71.2% were male. We found 17.9% (n=183) of influenza and pneumococcal non-vaccination. A bivariable logistic regression showed that factors associated with non-vaccination were: younger age (OR=0.96, 95% CI 0.96-0.97), being male (OR=0.69, 95% CI 0.59-0.87), being homosexual/bisexual (OR=0.68, 95% CI 0.48-0.97), living outside from Buenos Aires Metropolitan Area (OR=0.73, 95% CI:0.52-1.01), not receiving information about vaccines (OR=0.32, 95% CI:0.23-0.45) and having a negative attitude towards vaccines (OR=2.44, 95% CI:1.74-3.42). In multivariate analysis, older age and receiving information were associated with more probability of being vaccinated, and having a negative attitude remained highly associated to non-vaccination.

Conclusions: Although we found a small percentage of unvaccinated PLH, it is relevant to work with this population in order generate corrective actions. Approximately half of PLH had negative attitudes toward vaccination, which was identified as the most important factor associated to non-vaccination. Therefore, interventions that address knowledge and knock down myths about vaccination, particularly for young PLH, could be critical to increase vaccination rate.

THPED548
HPV self-sampling acceptability and preferences among HIV-infected women in Botswana

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Background: HIV-positive women have increased risk of cervical cancer, however, screening coverage remains low in many high-burden countries like Botswana. Self-sampling has proven to effectively detect high-risk human papillomavirus (hrHPV) and increase screening participation in low-resource settings, especially among women who are hard to reach and or are reluctant to have a speculum exam. The objective of this study was to describe the acceptability, experiences, and preferences of HPV self-sampling among HIV-positive women.

Methods: We recruited HIV-positive women ≥25 years attending an infectious disease clinic in Gaborone, for an hrHPV self-sampling study. Women self-sampled with a flocked swab and had a speculum exam for a provider-collected cervical sample: samples were tested using Cepheid GeneXpert HPV. Descriptive statistics were conducted on interviewer-administered questionnaire responses. Open-ended questions were thematically categorized and compared across groups.

Results: We recruited 104 women, all of whom were on antiretroviral therapy. Most (94%) women had a history of visual inspection or pap screening, and 39 reported a previous negative experience with a speculum exam (Table 1). Over 90% agreed that self-sampling was easy, comfortable, and expressed confidence in doing it correctly (Figure 1).

![Speculum exam](image)

<table>
<thead>
<tr>
<th>Speculum exam</th>
<th>Self-sample</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speculum exam</td>
<td>45 (4.4)</td>
<td>44 (4.2)</td>
</tr>
<tr>
<td>Self-sample</td>
<td>104 (100%)</td>
<td>104 (100%)</td>
</tr>
</tbody>
</table>

| Age, mean (sd) | 45.2 (4.4) | 44.8 (8.3) | 45.1 (8.3) | 0.43 |
| Secondary or higher education (vs. none or primary) | 51 (60.7) | 17 (85.0) | 67 (65.0) | 0.04 |
| Single, never married | 60 (71.4) | 14 (70.0) | 74 (71.1) | 0.89 |
| Urban residence | 40 (51.2) | 16 (80.0) | 56 (56.7) | 0.02 |
| Previous screening history | 80 (95.2) | 18 (90.0) | 98 (94.2) | 0.37 |
| Previous negative screening experience | 29 (34.5) | 10 (50.0) | 39 (37.5) | 0.20 |
| No or little confidence about correctly self-sampling | 10 (11.9) | 0 (0) | 10 (9.6) | 0.14 |
| Somewhat confident about correctly self-sampling | 15 (17.9) | 2 (10.0) | 17 (16.3) |     |
| Extremely confident about correctly self-sampling | 59 (70.2) | 18 (90.0) | 77 (74.0) |     |

(Characteristics of HIV-positive women by preferred HPV screening method (n=104))

Although 12 women reported a problem handling the swab or transport medium, only three samples were inadequate. Nearly all women (95%) were willing to self-swab again; however, only 20 (20%) stated their preference for future screening was self-sampling over speculum exam. We
found no differences in willingness or preferences by screening history, but urban-residing women and those with higher education were more likely to prefer self-sampling. Self-sampling was preferred because it was more convenient, easier, less embarrassing and less painful. Speculum exams were preferred because of trust in providers’ skills, being able to see where to swab, and women’s low confidence to sample correctly.

Conclusions: Self-sampling for HPV is acceptable among HIV-positive women in Botswana. However, speculum exams were still preferred largely due to strong trust in providers’ skills and women’s low confidence for self-sampling correctly. Self-sampling may be an important alternative to provider screening, though education and support to self-sample will be critical to program success.

**THPED549**  
Higher rates of vaccination among PLH compared to general population in Argentina

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**Background:** Argentina guarantees all vaccines included in the National Immunization Schedule, which are mandatory at all stages of life for general population. In addition, there is a specific vaccine program focused in people living with HIV (PLH), who are among the groups more at risk of presenting complication or dying of preventable infectious agents. However, levels of vaccination in PLH and differences from rates in general population (GP) have still not been explored.

**Methods:** Data for the present study was drawn from an online survey, conducted between December 2017 and January 2018, which aim to investigate the prevalence of vaccination in PLH in Argentina. This study examined prevalence of dT, HVB, Influenza and Pneumococcal vaccination and compared them with the results of a national survey in GP conducted in 2013 (Tercera Encuesta Nacional de Factores de Riesgo para Enfermedades No Transmisibles).

**Results:** The final PLH sample included 1025 participants and the national GP survey comprised 3,266. PLH receive vaccine information from their HIV provider in 85%, while in GP only 27.9% from a healthcare provider (70.6% referring had received information from the media). Rates of vaccination were uniformly higher among PLH for all the vaccines (dT 66.1 vs 50.3%, HBV 70.6 vs 21.7%, Influenza 75.1% vs 51.6% and pneumococcal 68.2% vs 16.2%). Differences remained the same in all gender, and educational level groups. Age differences were observed only among PLH, with higher rate of HBV vaccination among young PHL and influenza among older PLH.

**(Table 1: Comparison of vaccination prevalence in general population and PLH in Argentina)**

**Conclusions:** PLH in Argentina show a high rate of vaccination, being higher than GP, particularly for HBV and pneumococcal vaccines. Infectious diseases specialist specialists are the main source of information. However, this data highlights the gap of information for GP and requires reconsidering the vaccination strategy for this population.

**THPED550**  
Adversities, social support, resilience, and health-related quality of life among people living with HIV in Guangxi, China

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**Background:** Adversities such as HIV-related stigma, comorbidity, and lower socioeconomic status (SES) can negatively impact health-related quality of life (HRQoL) among people living with HIV (PLHIV). Resilience is an individual’s ability to cope or adapt in the face of adversities. Social support can reduce effects of adversities and enhance resilience. Given there is a general dearth of research on the mitigating role of resilience and social support between adversities and HRQoL among PLHIV in China, the aim of the study is to examine the associations between several adversities and HRQoL, and whether individual resilience and perceived social support can help mitigate the negative effects of adversities on HRQoL.

**Methods:** Cross-sectional data from 2,987 PLHIV in Guangxi, China were analyzed. Participants reported their perceived HRQoL, individual resilience, perceived social support, HIV-related stigma, comorbidity, SES, as well as background characteristics. Path analysis was performed in SAS 9.4 to identify the associations of interest.

**Results:** Considered together, HIV stigma (β=-0.18, p < 0.001), lower SES (β=-0.29, p < 0.001), and comorbidity (β=-0.11, p < 0.001) were negatively associated with HRQoL, while resilience was positively associated with HRQoL (β=0.38, p < 0.001). Resilience buffered the negative effects of HIV stigma and lower SES on HRQoL. HIV stigma had an indirect effect on HRQoL through resilience (β=0.09, p < 0.001), and lower SES had an indirect effect on HRQoL through resilience (β=-0.04, p < 0.001). Perceived social support was positively associated with resilience and had an indirect positive effect on HRQoL through resilience (β=-0.33, p < 0.001). Perceived social support buffered the negative effects of stigma on resilience given stigma had an indirect effect on resilience through perceived social support (β=-0.04, p < 0.001).

**Conclusions:** Interventions to improve the HRQoL among PLHIV in Guangxi need to focus on reducing their HIV stigma, helping them find possible ways to improve their livelihoods and coping with comorbidity, enhancing perceived social support, as well as fostering their individual resilience.
**Results:** Using multivariate analysis to control for confounding factors, source of income was statistically significant in determining having or not having an STI. (P < 0.001). Those who were unemployed and who had a significantly higher rate of infection than all the other sources of income, at 49%. Other variables that were significant included having an STI before (P < 0.001), number of sexual partners in the last three months. (P < 0.001). Unavailability of adequate medicines in health centers also contributed to recurrence of STIs in the district. Specific ethnic groups were also associated with having STIs.

**Conclusions:** Significant factors associated with sexually transmitted infections in Murehwa district are: having had an STI before, source of income, and number of sexual partners. Unavailability of adequate medicines in health centers is also a key factor contributing to recurrence of STIs in the district.

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**THPED552**

**Anal cancer screening in HIV-infected youth at an urban community health center: Performance evaluation**

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**Background:** Anal cancer incidence in HIV-infected MSM is between 70-144/100,000. Cytological screening of the anal canal may allow detection of precancerous dysplastic lesions or treatable early invasive disease and reduce incidence of invasive anal cancer. The New York State AIDS Institute “Anal Dysplasia and Cancer Guideline” recommends anal cytology at baseline and annually in HIV-infected MSM. HIV-infected youth are less likely to be engaged in care and/or achieve viral load suppression. Given the challenges faced by this population in accessing care and other related services, we investigated anal cancer screening rates for patients ≥12 years in order to identify adherence to guidelines and racial, ethnic, or gender identity disparities.

**Description:** This is a quality improvement initiative to assess adherence to anal cancer screening guidelines in HIV-infected youth ≥12 years in a New York City community health center that specializes in care of LGBT and HIV-infected patients. We conducted a retrospective chart review and analyzed data for patients ≥12 years who accessed HIV care from January 2016 to December 2017 (n=158). Variables included age, race, ethnicity, gender identity, last viral load and anal cytology.

**Table 1** shows the prevalence of anal cancer screening rates January 2016-December 2017.

<table>
<thead>
<tr>
<th>Total</th>
<th>Anal Cytology Performed (%)</th>
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<tbody>
<tr>
<td>N=158</td>
<td>87 (51.3%)</td>
</tr>
</tbody>
</table>

**Gender**

- Male, n=117: 65 (55.6%)
- Transgender Female, n=39: 16 (41%)
- Female, n=2: 0

**Race**

- White, n=29: 19 (65.5%)
- Black, n=71: 25 (35.2%)
- Other, n=20: 13 (65.0%)

**Ethnicity**

- Hispanic, n=48: 39 (81.4%)
- Non-Hispanic, n=49: 23 (46.9%)

**Last Viral Load**

- ≤200 copies, n=173: 73 (70.9%); ≥200 copies, n=32: 8 (25%)

81 patients had anal cytology performed (51.3%). 60 (61.7%) had abnormal results (22 ASC-US, 22 LSIL, 5 HSIL). 50% with abnormal results had high-resolution anoscopy performed.

**Lessons learned:** This first report of anal cancer screening in HIV-infected youth shows that abnormal anal cytology findings are common. Nearly 50% of this population failed to receive anal cancer screening as per guidelines. Disparities in anal cancer screening were observed across sub-populations in this age group.

**Conclusions/Next steps:** Monitoring of clinic-wide data is necessary to evaluate all aspects of HIV-related care and expose gender/race disparities. Next steps include reinforcing guidelines with healthcare providers, developing workflows that facilitate anal cancer screening (e.g. self-collected samples), follow-up of abnormal findings, and development of patient education materials.

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**Policies regarding HIV services and programmes**

**THPED553**

Beyond 90-90-90: The legacy of the 2014 International AIDS Conference in Melbourne and Victoria, Australia

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**Background:** The selection of Melbourne, Victoria to host the 2014 International AIDS Conference created a unique policy opportunity to accelerate the state’s HIV response. Against the backdrop of a new Australian HIV strategy, the goal of the AIDS 2014 Legacy Statement to end new transmissions of HIV by the end of 2020; and approximately 300 new notifications per year and 8000 people living with HIV (PLHIV) in Victoria, the Victorian Government sought to identify and implement new policies, programmes, and initiatives.

**Description:** The Victorian HIV response is built on partnerships between community, government, clinicians, and researchers. The Department of Health and Human Services (DHHS) convened an HIV working group from these groups to optimise the state’s response. The working group identified the development of a state-specific HIV strategy to create an enabling environment for system-level reforms. Between 2012 and 2017, in partnership with stakeholders, the government undertook a series of reforms and innovative initiatives, including establishing Australia’s first peer-led community-based rapid point-of-care testing service (PRONTO) and pre-exposure prophylaxis study (VicPrEP); funding an expanded PEP study (PHEP); funding the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance (ACCESS); repeal of an HIV-specific provision from the Crimes Act; funding mainstream express testing clinics; developing an HIV doctor training program; joining the Fast-Track Cities Initiative (FTCI); releasing the Victorian HIV Strategy 2017-2020; and establishing an HIV cure research consortium.

**Lessons learned:** Hosting the International AIDS Conference reignited and accelerated the local and national HIV response. AIDS 2014 facilitated the strengthening of Victorian partnerships, identification of new opportunities and renewed commitment to achieve the virtual elimination of new HIV notifications by the end of 2020. Hosting the first meeting of FTCI at AIDS 2014, in partnership with the City of Melbourne, was integral to Melbourne and Victoria becoming Australia’s first and only member jurisdictions.

**Conclusions/Next steps:** Hosting the International AIDS Conference has been critical to development of the Victorian HIV Strategy 2017-2020, and underpins involvement in FTCI. DHHS has reconvened the HIV working group to guide the implementation of the HIV strategy with the aim of achieving the UNAIDS 95-95-95 goals for 2030.
THPED554
Health provider perspectives on implementation of same day ART initiation 6 months after policy change in South Africa

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Background: In September 2015, South Africa began implementing the universal-test-and-treat (UUTT) policy in hopes of attaining the UNAIDS 90-90-90 targets by 2020. Guidance for antiretroviral therapy (ART) initiation on the same day of HIV diagnosis for clinically stable patients was later provided following policy recommendation by the WHO in July 2017. We conducted a qualitative study to determine progress to UTT policy assimilation and examine health providers’ perspectives on implementation of same-day ART initiation 6 months after the policy change.

Methods: We conducted in-depth interviews with three clinic managers and four lay HIV counselors of four primary health clinics in Johannesburg (South Africa) between October and December 2017. The key informant interviews covered topics including current health system capacity, implementation processes, as well as patient treatment readiness. Interviews were conducted in English, Sotho or Zulu, transcribed verbatim, translated to English and analysed thematically.

Results: There seems to be a disagreement across health care facilities and between counselor and nursing providers regarding implementation of same-day ART initiation. While nursing providers understood and highlighted the clinical benefits of early ART initiation, there was concern that, for some patient same day ART initiation may be too abrupt, and patients who are not afforded the space to process the new diagnosis are likely to disengage from care after the initial acceptance of ART. As a result the implementation of same day ART initiation is slow because of provider ambivalence, infrastructure and human resources limitations. The process for assessing patient readiness is poorly defined and inconsistent and mainly counselor dependent. Providers are unclear of the process to ensure patients who defer treatment return for ongoing counseling.

Conclusions: Our results highlight important gaps in the drive to achieve the second UNAIDS 90% (diagnosed patients on ART) target. Specifically, the study demonstrates the need for further engagement with health care providers about same day ART initiation implementation particularly infrastructural/capacity needs. Additionally, improved promotion efforts of same day initiation both in health care settings and in media communication is needed to increase patient demand for ART.

THPED555
The precarious balancing act between evidence and policy making: key factors that affect evidence use for HIV prevention policy

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Background: Policymakers face the complex task of considering a wide range of evidence on HIV prevention to inform policy and strengthen programming. This is additionally challenging for policymaking around MSM, prisoners and adolescent girls, as evidence must compete with beliefs and values. This abstract summarises the main factors affecting evidence in HIV prevention policymaking in eastern and southern Africa.

Methods: The study triangulated three sources of evidence: a knowledge synthesis of 63 published papers and 14 case studies on the role of evidence in health policymaking in the ESA region; survey responses policymakers (N=9), and interviews with key HIV policymakers (N=9).

Results:
- High-level policymakers do not have sufficient time to gather, read and synthesise evidence.
- All stakeholders describe challenges in finding expertise to address the inter-disciplinary nature of HIV prevention.
- Policymakers lack of access to research and journals constrains evidence informed decision-making.
- Staff relationships and power structures, attitudes towards evidence and research influence how available resources and capacity are deployed.
- Health policymakers support the use of evidence to inform HIV prevention policy, but this is less so at subnational levels and in non-health sectors.
- Beliefs and opinions about what counts as ‘good’ evidence are potent in the health sector, where evidence-based medicine is deeply influential and certain research, methodologies are more highly valued than others.

Conclusions:
- Public agencies are underfunded and overstretched, and human, financial, infrastructural and administrative capacities are fundamental factors shaping evidence use.
- Mid-level staff should be supported to gather and communicate evidence to high-level policymakers.
- Multilaterals play a powerful role in evidence generation, a feature of a sector which is almost entirely donor funded.
- Initiatives to provide access to journals can strengthen the use of evidence in policymaking.
- The disconnect between national and subnational and health and non-health sectors is an obstacle to effectively addressing the interdisciplinary nature of HIV prevention.
- Start early and engage continuously and responsibly throughout the research continuum for maximum policy influence, tackling persistent beliefs and opinions about the evidence base.

THPED556
National policy on nurse-initiated management of ART supports decentralization of HIV services in Namibia

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Background: Namibia’s Ministry of Health and Social Services (MOHSS) has provided antiretroviral therapy (ART) services since 2003. At first ART could only be initiated by a medical doctor and mainly in hospitals; this limited accessibility and increased indirect costs for patients. From 2008 MOHSS recommended decentralizing ART to primary health care (PHC) facilities where trained nurses could provide follow-up care to patients who had been initiated by a doctor. In 2012 the MOHSS introduced a policy on Nurse-Initiated Management of ART (NIMART), a task-shifting initiative to equip nurses to initiate and manage ART comprehensively. With USAID funding, IntraHealth International assessed how NIMART has contributed to expansion of ART services in Namibia.

Description: After NIMART training and all requirements are met, the supervising doctor declares the nurse competent in NIMART. The MOHSS training center issues a certificate of authorization. With ongoing support from HIV mentors and PHC coordinators, nurses provide NIMART at all levels of the health system. Our review focused on the expansion of NIMART from 2015-17 in 8 districts in northern Namibia that have 7 hospitals and 65 PHC facilities among them.

Lessons learned: During this period, 78 nurses completed NIMART certification and PHC facilities providing NIMART grew from 4 in September 2015 to 58 in September 2017. Currently, 42,713 clients are receiving ART in these districts. 43% from PHC facilities, up from 24% in September 2016. The number of clients started on ART increased from 390 in July-September 2016 to 707 in July-September 2017. Between July and September 2017 over 95% of ART initiations (1,250 clients) were conducted on the same day of HIV diagnosis for clinically stable patients.

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Conclusions/Next steps: The MOHSS NIMART policy has created an enabling environment for the efficient use of available human resources through task-shifting. Furthermore, quality of services is maintained through stringent certification requirements, continuous supervision and mentorship. This initiative makes a significant contribution to the UNAIDS 90-90-90 treatment targets by ensuring a greater number of individuals are initiated on ART and viral loads adequately monitored.

**THPED557**

Unclogging antiretroviral therapy clinics for people living with HIV. Success of community based delivery of antiretrovirals in Cameroon

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Background: Of an estimated 520,000 people living with HIV (PLHIV) in Cameroon, 251,952 were receiving antiretroviral therapy (ART) as of 31 December 2017. At the end of the year 2015, the care of PLHIV was essentially done at antiretroviral therapy (ART) clinics leading to their congestion, sub-optimal service delivery quality and poor retention on ART. We therefore sought to assess the feasibility of unclogging congested ART clinics through implementation of community-based delivery of antiretroviral (ARV) CBDA.

Description: We developed strategic documents to guide and ease implementation of CBDA which defined the role of the two key structures. On the one hand, the ART clinic was assigned as responsibilities: HIV diagnosis, referral of diagnosed PLHIV to community based organizations (CBO), supply of ARVs to the CBO, mentoring to ensure standards are practiced and maintained, conduct biological follow-up tests of CBO patient cohort. On the other hand, the CBO was in charge of delivering ARVs to referred patients in conformity with national guidelines and ensure their retention in care.

A patient considered eligible for CBDA was defined as an adult aged ≥ 20 years, on treatment for ≥12 months, clinically stable with a suppressed viral load or CD4 cell count ≥500 cells/mm³, not pregnant and on 1st line ART. A total of 73 CBOs who met the predefined enrolment criteria were conveniently selected for this experimental phase: be legally registered, have working space with ≥2 rooms, be an association of PLHIV affected by HIV or involved in the fight against HIV. The strategy was implemented over a 15 month period (1st October 2016-31st December 2017).

Lessons learned: A total of 7635 clients were transferred out from ART clinics toward the target. A patient considered eligible for CBDA was defined as an adult aged ≥ 20 years, on treatment for ≥12 months, clinically stable with a suppressed viral load or CD4 cell count ≥500 cells/mm³, not pregnant and on 1st line ART. A total of 73 CBOs who met the predefined enrolment criteria were conveniently selected for this experimental phase: be legally registered, have working space with ≥2 rooms, be an association of PLHIV affected by HIV or involved in the fight against HIV. The strategy was implemented over a 15 month period (1st October 2016-31st December 2017).

Conclusions/Next steps: Community-based delivery of ARVs is feasible in Cameroon and we recommend scale-up to reduce the workload in health facilities, improve retention on ART and access to ART for all.

**THPED559**

What would it take to build a stronger infrastructure to understand PrEP utilization?

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Background: The implementation of Biomedical Interventions (BIs) around the globe has given new life to a generation of advocates and grassroots mobilization around HIV prevention, with Pre Exposure Prophylaxis (PrEP) leading the way. Because PrEP users do not live with a given illness, it is important that health informatics and medical systems formalize methods to address and survey PrEP and other BIs. Callen-Lorde Community Health Center has initiated over 4000 people on PrEP since 2015 and has been formalizing data collection for the past 3 years. We discuss here our findings and challenges.

Description: Electronic health records (EHRs) and prescription data are the main sources of information about PrEP utilization, yet prescriptions alone can only tell one side of the story. A standardized EHR template (Figure 1) was developed to help providers have assurance on the care provided to patients, set reminders of care guidelines, and normalize PrEP care. Standardizing PrEP along other chronic conditions like diabetes care, hypertension care and even HIV care can help providers find confidence in the care provided and allow ease of incorporation into ordinary primary care. In 2016 Callen-Lorde set forth a policy guidance suggesting clear and consistent utilization of specific International Statistical Classification of Diseases and Related Health Problems (ICD-10) codes for BIs, which would further improve one's ability to understand healthcare utilization by various populations accessing BIs.

Lessons learned: EHR templates for PrEP are needed and well accepted. PrEP templates must include collection of sexual health, adherence recall, 3-site STI screening orders, HIV screening and counseling, and information about last screenings - if viable. Callen-Lorde recommends the usage for the following ICD-10 codes for BIs: Pre Exposure Prophylaxis (PrEP): Z20.6, Non Occupational Post Exposure Prophylaxis -Sexual Contact (nPEP), Z20.2; Non Occupational Post Exposure Prophylaxis -Non Sexual Contact (nPEP), Z20.828; Occupational Post Exposure Prophylaxis (oPEP), Z20.828 AND an additional code that signifies injury in the workplace, otherwise known as Y92 codes. See Table 1 for definitions.
Conclusions / Next steps: Ratification of medical care systems such as Electronic Health Records, Diagnosis coding and other systems to include BIIs are needed to streamline and integrate them into mainstream Primary Care.

Monitoring and evaluation was strengthened by updating and standardizing recording and reporting tools. Standardized refresher trainings were implemented to execute the revisions.

Lessons learned: Active participation of a wide group of stakeholders leveraged expertise to ensure development of comprehensive guidelines that met international standards while tailored to the local context. Strengthening quality guidance decreased discordant results to 0.3%. As the revised guidelines were implemented, strategies to provide services for hard-to-reach populations were identified. For example, the provision of facility-based extended-hours testing increased HIV case identification among men. Transitioning from parallel to serial algorithm required intensive coordination by training and supply chain management teams. Implementation of these policy changes standardized service delivery at facility and community testing sites, integrated HTS across primary care, led to the development of Linkage to Care and Partner Notification policies and ultimately reduced HTS burden at health facilities.

Conclusions / Next steps: Botswana’s experience of adapting the WHO HTS Guidelines is a significant step in reaching epidemic control of HIV, demonstrating the nation’s commitment to rigorous strategies that ensure all Botswanan know their status and have timely access to prevention and treatment services. Lessons learned from this process will benefit other countries implementing Treat All.

THPEDS61

Toward early diagnosis of HIV infection: A population-based case-control study of routine opt-out testing services in Taiwan

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Background: To achieve the World Health Organization goal that 90% of HIV infected people know their HIV status by 2020, it is critically important to emphasize on HIV testing services that are acceptable for people in their early stage of HIV infection. This population-based case-control study aims to investigate the role of different testing service scenarios in early diagnosis of HIV infection in Taiwan.

Methods: We analyzed the national HIV/AIDS registry database in Taiwan. Late diagnosis was defined as the onset of AIDS within 90 days after HIV diagnosis. We classified the testing services into three scenarios: facility-based routine opt-out testing services (e.g. antenatal care clinic, sexual transmitted infection clinic, blood donation, routine health examination for occupational health, in military recruitment, or in criminal justice system), facility-based non-routine testing services (e.g. client-initiated anonymous testing or provider-initiated testing at facility in non-routine contexts), and community-based testing services (e.g. outreach, campaign, or self-testing at home). Logistic regression was used to identify the protective factors against late HIV diagnosis, adjusting for age and different HIV risk factors.

Results: From 1984-2014, there were 28,711 domestic HIV patients. Among them, 6,350 (22.1%) were late diagnosed. Compared with late diagnosed HIV patients (cases), early diagnosed patients (controls) are more likely from facility-based routine opt-out testing services (38.7% vs 5.6%) and community-based testing services (3.6% vs 2.0%) (both p < 0.001) (Figure). Multivariate logistic regression showed that facility-based routine opt-out testing services (adjusted odds ratio [OR] = 0.23; 95% CI = 0.20 - 0.26) and community-based testing services (adjusted OR = 0.41; 95% CI = 0.33 - 0.50) were independent protective factors against late diagnosis (Table).

Conclusions: Facility-based routine opt-out testing service is a scenario that provides opportunity for early HIV diagnosis in Taiwan. Besides the community-based HIV testing services, facility-based routine opt-out testing service is another approach that warrants further expansion and refinement to better serve the need of people at risk of HIV infection.
AIDS advocacy must be seen as the responsibility of everyone, and unification of the broader Civil Society - not just those working with PLHIV.

**Background:**
AIDS Access Foundation, Bangkok, Thailand

S. Teemanka

**Coverage**

how AIDS advocacy supports universal health coverage

**Description:**

In the beginning of the Thai epidemic, PLHIV were severely marginalized individuals and, thus, had to form self-help groups with assistance from health NGOs. That network of support helped pressure the government to expand access to treatment as it became available. Despite the advent of effective ART, negative attitudes by health providers and cost of treatment still impeded access for PLHIV. Accordingly, in 2002, the NGO network and PLHIV campaigned for a universal health insurance program which covers every individual and every condition.

**Lessons learned:**

- Creating a sense of the people’s ownership of the national health insurance program which covers every individual and every condition.
- Such an advocacy effort requires systematic participation and unified objectives. The network needs to spearhead mobilization with the message that broader health coverage serves all Thais.
- A diverse network which represents multiple populations and patient groups is more effective for public advocacy than a single-issue-defined group.

**Conclusions/Next steps:**

- Progress in the AIDS agenda requires participation of the broader Civil Society - not just those working with PLHIV. AIDS advocacy must be seen as the responsibility of everyone, and universal health coverage is a viable strategy to begin with. That said, advocacy networks need to guard against powerful special interests which threaten to undermine a people’s movement for equitable and affordable health care for all.

**THPED563**

Treat All: WHO policy adoption and implementation status in countries

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**Background:**

With the 2016 consolidated ARV guidelines WHO updated and launched new policy recommendations on the clinical and service delivery aspects of HIV treatment and care, and raised the bar to treat all PLHIV regardless CD4 count (Treat All strategy).

**Methods:**

Data from country surveys and Global AIDS Response Progress Reporting (GARPR) have been triangulated and validated for the adoption and implementation of major HIV treatment policies within 139 low and middle-income countries (LMICs) and 35 focus countries for Fast Track (FT) support.

**Results:**

Global data are presented through November 2017:

- 70% of LMIC and 89% of FT countries have adopted a Treat All policy, while another 10% of all LMIC and 6% of FT countries plan to adopt Treat All before the end of 2017. This is in contrast to 33% of all LMIC adopting Treat All policy measured one year ago.
- By the end of 2017, 80% of all LMIC and 94% of FT countries will have adopted Treat All.
- However, implementation is just getting underway and only 59% (50%) LMIC have already put the policy for Treat All fully into practice and 86% LMIC have implemented treat all in a majority of treatment sites.
- Lifelong ART for pregnant women is nearly universally adopted and moving forward towards full implementation.
- By November 2017, 68% of LMIC and 83% of Fast-Track countries had adopted treat all for children (less than 10 years).
- Dolutegravir (DTG) is soon available at a lower price point combined in fixed-dose combination with TDF/3TC and many countries are moving to adopt DTG as part of first line treatment.
- 72% of LMIC adopted TDF/3TC or FTC/EFV as the preferred first-line therapy, whereas an additional 40% of LMIC are making shifts to DTG containing regimens.
- Routine HIV viral load monitoring is fully implemented in 58% of LMIC and partially implemented in 25% of LMIC.

**Conclusions:**

WHO has rapidly updated global guidance to reflect new science regarding the benefit of early HIV treatment and is now planning to update the ARV recommendations in 2018 to address new science and innovations.
TPHEd564
Scaling up harm reduction, but too slowly: Removing legal barriers to supervised consumption services in Canada
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Background: Use of non-sterile injection equipment accounted for 18.3% of new HIV infections overall in Canada (and 45.3% of new infections among Indigenous people) in 2014 (Public Health Agency of Canada, 2016). The opioid overdose crisis continues unabated, with more than 4000 deaths expected for 2017 (Government of Canada, December 2017). Supervised consumption sites (SCS) reduce both risks. However, until early 2017, there were only two SCS operating with a legal exemption from the federal Health Minister protecting clients and staff from drug possession charges.

Description: One barrier was the Respect for Communities Act, enacted in June 2005 by the then-Conservative government in response to a 2001 Supreme Court of Canada ruling compelling it to extend the existing exemption for Vancouver’s SCS “Inside.” The law established numerous unwarranted requirements, creating a veneer of legal “justification” for any government decision to refuse new exemptions. Advocates pressed the issue during the 2015 federal election. While the Liberal Party that ultimately won repeatedly declared its support during the campaign for SCS and harm reduction generally, it then balked at changing the law despite it being a clear impediment to scaling up SCS. Advocates lobbied and kept up public calls in the media for legislative reform; communities mobilized with direct action highlighting the worsening overdose crisis. In December 2016, the government finally introduced Bill C-37 to repeal the earlier law, substantially streamlining the legislative framework for SCS exemptions. The bill became law in May 2017.

Lessons learned: With a simplified legislative framework, administered by a government supportive of harm reduction and under sustained pressure to act, as of February 2018, there were 17 SCS in Canada offering services under a ministerial exemption; 10 additional sites had valid provisional exemptions and were undergoing renovations.

Conclusions/Next steps: Advocates welcomed the legislative reforms, but cautioned the government against maintaining unnecessary hurdles in its policy or practice in handling SCS exemption applications. Initial indications, including Health Canada’s own guidance material, suggest continued cause for concern, despite legislative improvements. The Canadian HIV/AIDS Legal Network is investigating whether, and which hurdles remain; results to be reported in June 2018.

THPed565
Barriers to transition from donor support to Uganda government ownership in context of PEPFAR’s ‘geographic prioritization’ policy: A qualitative study
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Background: Although transitions from donor HIV funding are becoming increasingly common, there is little research seeking to understand barriers to effective transitions of HIV funding from donors to local sources. Between 2015 - 2016, PEPFAR implemented the ‘geographic prioritization’ (GP) policy in Uganda whereby it withdrew direct support for HIV services in >800 health facilities and 10 districts with low HIV burden and intensified support in high-burden districts. The objective of our analysis was to explore local stakeholder perspectives on barriers to transition to Uganda government ownership of HIV services previously funded by PEPFAR.

Methods: A total of 106 in-depth interviews were conducted in June 2017 (round 1) and November 2017 (round 2) with national-level HIV program managers (n=26), representatives of PEPFAR implementing organizations (n=24), district health leaders (n=22), facility in-charges (n=18). HIV clinic managers (n=18) to elicit transition barriers. Sampling was based on 6 districts (Pader, Amuru, Bulambuli, Luuka, Sironko, Kampala), with an embedded case-study of 6 health facilities (4 from each district) with sufficient variation by ownership-type. Data were analyzed by coding and thematized analysis based on theories derived from Amaya (2014) transition framework (national context, country capacity, actor incentives).

Results: National context: While health facilities reported being informed well in advance of PEPFAR’s phasing out of support, participants described GP as misaligned with national-level priorities (national budget cycles, HIV strategic plans, national AIDS levy). Country capacity: The 10 transitioned districts were described as newly created with weak management capacity for devising transition responses. Facility-level participants described districts as unable to shoulder the financial burden associated with loss of PEPFAR support. Actor incentives: Participants reported that transition was accorded a low priority by district and central government actors given the absence of transition mitigation plans, suggesting leadership and governance deficits.

Conclusions: The low priority accorded to transition responses by government actors, weak district management capacity and a lack of alignment of GP with national context were identified as barriers to full country ownership of HIV services previously funded by PEPFAR. Civil society advocacy could enhance political commitment to transition causes. This study potentially informs future transitions from donor HIV funding especially in low-income countries.
Conclusions: We developed an actionable approach to shift financing towards a value-driven, indicator-based model. By focusing on the 'big picture' goals rather than deconstructed costs supported by quantified value messaging and its structured approach to translate this value framework to indicator-supported financing, it provides a platform to engage payers on and support integrated care delivery.

THPED567
Improving access to HIV testing & counselling services in men
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Background: HIV testing & counselling (HTC) services are freely available at all public health facilities in South Africa (SA) and are continuously being promoted through different media platforms to encourage individuals to know their HIV status. However, the uptake of HTC in men is lower than in women. Innovative approaches aimed at attracting men to HTC services are required to meet 909090 objectives.

Methods: Anova in partnership with Johannesburg Health District set up a male-friendly HTC site at a shopping complex in July 2016. with three other sites being subsequently opened in other areas across the District. The sites offer HTC to males aged 21 and above, close at 18:00 on weekdays, and 14:00 on weekends to cater for men who are unable to take time off work to access Primary Health Care (PHC) facilities. These locations (shopping complexes) were selected as men could access HTC while shopping, and on their way to & from work. The waiting time at the sites is around 30 minutes, catering for men who are unable to wait for a longer time as is usually the case in clinics. Health promoters mobilise men around the plaza, taxi rank, workplaces, etc. while Community health workers mobilise within nearby communities. HTC services are provided in line with SA DoH guidelines.

Results: From 1st July 2016-30th December 2017, 31,000 men received HTC at these sites, with 1751 diagnosed HIV positive. Overall 6% positivity yield. Of note, 32%, 22% and 20% of those who received HTC were aged 30-34, 35-39 and 40-49 respectively. The positivity yield was highest in 40-49 year olds (40%), with a yield of 8% in men aged 25-29 and those above 50 respectively.

Conclusions: HTC services can be attractive to men if offered at sites and times convenient for men and efforts should be targeted at men above 40 to increase their uptake of HTC as the positivity yield was found to be highest in this group.

THPED568
Trilateral cooperation between Brazil, Japan and Mozambique: Unifying practices and expertise to strengthen the decentralization process in Gaza and Nampula provinces in Mozambique
V. Cervantes1, J. Oliveira Dantas2, R. Alencar de Souza2, M.C. Gianna Garcia Ribeiro2, J. Ferreira Nunes Neto3, R. Paulo Moreira Nandene4, A. Manhique5, S. Samuel6, A. Silva6, M. Dunbar7, O. Mugurungi8, T. Mutasa-Apollo8, E. Gwavava9, I. Yacobson10, J. Peterson11, M. Fawzy12, K. Torjesen13, J. Mellores14, U. Parkhi15, 1Anova in partnership with Johannesburg Health District set up a male-friendly HTC site at a shopping complex in July 2016, with three other sites being subsequently opened in other areas across the District. The sites offer HTC to males aged 21 and above, close at 18:00 on weekdays, and 14:00 on weekends to cater for men who are unable to take time off work to access Primary Health Care (PHC) facilities. These locations (shopping complexes) were selected as men could access HTC while shopping, and on their way to & from work. The waiting time at the sites is around 30 minutes, catering for men who are unable to wait for a longer time as is usually the case in clinics. Health promoters mobilise men around the plaza, taxi rank, workplaces, etc. while Community health workers mobilise within nearby communities. HTC services are provided in line with SA DoH guidelines.

Results: From 1st July 2016-30th December 2017, 31,000 men received HTC at these sites, with 1751 diagnosed HIV positive. Overall 6% positivity yield. Of note, 32%, 22% and 20% of those who received HTC were aged 30-34, 35-39 and 40-49 respectively. The positivity yield was highest in 40-49 year olds (40%), with a yield of 8% in men aged 25-29 and those above 50 respectively.

Conclusions: HTC services can be attractive to men if offered at sites and times convenient for men and efforts should be targeted at men above 40 to increase their uptake of HTC as the positivity yield was found to be highest in this group.

THPED569
Monitoring strategies for HIV drug resistance in PrEP rollout settings
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2Incorporating DRT into ongoing surveillance for antiretroviral therapies is a concern as some antiretrovirals are used for both HIV prevention and treatment. Evidence on HIV drug resistance in PrEP seroconverters is limited and comes from PrEP efficacy studies with different HIV testing intervals and adherence support strategies compared to PrEP rollout. More data are needed to understand the risk of HIV drug resistance in real-world implementation.

Description: Approaches to HIV drug resistance monitoring may include:
1. Standalone research protocols that include drug resistance testing (DRT)
2. Adding DRT to ongoing PrEP demonstration projects
3. Incorporating DRT into national PrEP guidelines and policies
4. Incorporating DRT into ongoing surveillance for antiretroviral therapy failures/pre-treatment surveillance as part of national surveillance programs

es 1 and 2. Protocols were developed to assess drug resistance among a national sample of PrEP users (Kenya and Zimbabwe), and among select key populations, including men who have sex with men and sex workers (South Africa). DRT for seroconverters was also incorporated into existing demonstration projects in Kenya and South Africa, involving adolescent girls, young women, MSM and serodiscordant couples.

Lessons learned: Countries have varying degrees of resources and stakeholder engagement for integrating DRT for PrEP delivery, impacting the strategy for resistance monitoring. Countries are supportive of conducting a time-limited evaluation of drug resistance (Approach 1 and/or 2) in the absence of clear data and during early stages of PrEP rollout. The need for long-term monitoring (Approach 3 and/or 2) will be assessed after initial data are analyzed.

Conclusions/Next steps: As PrEP is implemented, early assessment of resistance risk is critical for understanding the implications for oral PrEP programs at scale. Approaches to drug resistance monitoring will vary and may evolve as new data are analyzed. The methods proposed by GEMS, along with its implementation support materials, will assist countries in developing policies that best fit their PrEP program needs and resources.

THPED570

“Nothing for us without us”- community ownership of treatment programs through monitoring of OI/ART services by PLHIV in Zimbabwe

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Background: The Community monitoring Programme in Zimbabwe is a good example of how community involvement in the national response can be achieved. Through this programme, PLHIV as major stakeholders in the national response are able to assess the state of affairs of ART and diagnostic equipment in health centres and ensure that corrective measures are taken by the service providers. The programme aims to:

- To assess the availability of ARVs in the OI clinics and discuss best practices and challenges of the ART Programme with health workers and clients
- To assess the state of diagnostic equipment for OI/ART services.

Description: PLHIV conduct interviews with health practitioners and clients of the ART programme through structured tools in a bid to triangulate the information collected from both sources. A report is compiled and shared with representatives of the policy makers from Ministry of Health, the National Laboratory and National Pharmacy, National AIDS Council and PLHIV at all levels. This is done by PLHIV themselves in the spirit of MIPA.

Lessons learned:

- OI/ART clients still travel long distances to access services but implementation of Community ART Refill Groups are assisting with access.
- The community monitoring programme has greatly assisted the Ministry of Health to unlock bottlenecks in the delivery system of ARVs, DBS and diagnostic equipment and enabled swift corrective action especially where bottleneck are a result of human error.
- PLHIV were able to appreciate the workload that health practitioners have and the operational environment.
- The Programme has managed to put to the fore the state of diagnostic equipment resulting in prioritising diagnostic equipment such as viral load PIMA machines in the Global Fund Proposal.
- Meaningful involvement of PLHIV has been enhanced whereby PLHIV plan, implement, monitor and advocate for quality delivery of ART services.

Conclusions/Next steps: Community monitoring improves access to ART services and assists in bringing together the services providers and consumers towards a common goal in fulfilling the MIPA philosophy of “Nothing for us without us” Local teams set up for routine monitoring.

THPED571

Mobilizing local governments’ responses towards the welfare of hijras/transgender women in India: Steps towards improved social well-being of trans people

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Background: Local governments (district panchayat) are responsible for addressing the needs and priorities of all people in their constituencies. Given the critical lack of awareness and understanding of transgender people, integrating/implementing trans welfare policies or programmes at grassroots level is quite challenging.

Description: Voluntary Health Services (VHS), with support from the Global Fund, is implementing a four-year project (2014-18) titled Diversi ty in Action in India to reduce the impact of HIV on hijras/transgender women. A focus area of the project was to conduct policy dialogue with various key stakeholders, especially district panchayat leaders and political parties, on issues faced by hijras/transgender women. As a first step towards creating awareness about the issues and rights of hijras/transgender women, VHS conducted a series of policy dialogue meetings with 85 members of panchayats in 03 districts in Kerala. A promising outcome from these policy dialogue meetings was securing earmarked funds of INR 11 lakh (USD 18,000) for transgender welfare schemes by district panchayats in Kerala. Similarly, another outcome was the inclusion of transgender welfare programmes in the election manifesto of a dominant political party, the Left Democratic Front (LDF), in Kerala.

Lessons learned: Local governments play a crucial role in creating enabling and safe environments for their constituencies, including trans people. Active support and commitment from political parties and leaders have raised hopes for strengthening enabling environments for trans people and improve their social well-being.

Conclusions/Next steps: Trans communities from these districts will monitor the use of the earmarked funds and also follow up with the implementation of the trans-specific action plan announced in the election manifesto. The lessons learnt from this initiative will be helpful in designing and scaling up similar activities in others states in India.

THPED572

The case of Peru: Evidence-based sexuality education in the curriculum contributes to reduce inequalities and to prevent HIV in schools

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Background: In 2016, Peru finished the reform of the learnings and the revision of the educational curriculum to strengthen its impact in students life. Including their autonomy, decision making competency, self-care and HIV prevention. The incorporation of comprehensive sexuality education (CSE) in the curriculum was key to: respond to limitations in its conceptual and pedagogical treatment, call for political support, make the issue visible and reduce the resistance of conservative sectors.

It was an opportunity to consolidate gender and human rights approach thanks to the recognition of international cooperation in its role of evidence-based technical assistance.

Description: An intense process of political dialogue and technical assistance based on evidence aimed to MoH was launched by UNFPA and UNESCO to incorporate CSE in the curriculum, impacting at politi-
THPED573

Equal rights to health: Reducing discrimination towards persons living with HIV in healthcare settings in China

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Background: Persons living with HIV (PLHIV) face discrimination in accessing medical treatment in China. A 2011 study by China’s Alliance of PLHIV (CAP+) showed a person living with HIV would normally experience more than six denials of treatment or referrals to other hospitals before finally accessing the services. What are the reasons for this?

Description: The ILO and the China Center of Disease Control researched into the reasons for discriminatory attitudes of healthcare workers towards PLHIV and found two main reasons:

- Poor and unsafe working conditions healthcare care workers face; and
- Lack of training on the prevention of occupational safety and health (OSH) in healthcare settings and on the adoption of universal precautions.

The ILO and the China STD/AIDS Prevention and Control Association, adapted the ILO/WHO HealthWISE Training Manuals and translated it into Chinese. Four training workshops, covering 70 major hospitals, were organized to share the HealthWISE knowledge and tools with healthcare practitioners and guide them to prevent and manage occupational exposure to blood-borne pathogens, including HIV. 30 senior managers committed to improving OSH and human rights approaches as well as CSE as key axes to prevent unwanted pregnancies, gender-based violence and STI / HIV and AIDS. The training of teachers is key.

Lessons learned: Technical assistance based on evidence, face to face with officials of the education sector, at national and local level, was highly valuable to answer doubts as well as false concepts about CSE, sexuality, HIV prevention, current legal norms, and to sensitize them around the fundamental role of school in the protection and respect of adolescents human rights.

In the processes of reviewing the curriculum it was key to involve the different areas of the MoE, not only basic education, in order to ensure normative coherence, enrich the proposal from an interdisciplinary perspective, generate consensus regarding the changes to be proposed and ensure the subsequent approval and/or implementation of the curriculum and CSE as key part of it.

Conclusions/Next steps: To support the progressive implementation of the curriculum as planned by the MoE maintaining gender and human rights approaches as well as CSE as key axes to prevent unwanted pregnancies, gender-based violence and STI / HIV and AIDS. The training of teachers is key.

THPED574

A human rights approach to successfully change national aviation laws to enable people living with HIV to train as pilots

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Background: People living with HIV are restricted from gaining required certification to train as Commercial Aircraft Pilots (CAP) based on medical assessment guidelines set out by the European Aviation Safety Authority (EASA). Although EASA allows for membership states to deviate from these guidelines, whilst maintaining a high level of safety, the United Kingdom had refused to grant medical certificates to first-time applicants living with HIV. Without coordinated efforts toward updating the policies on medical assessment, the Civil Aviation Authority (CAA) would be in opposition of the Equality Act 2010.

Description: HIV Scotland, the national HIV policy NGO, worked with community members, clinicians, media, and politicians to outline the human rights implications and identifying existing evidence that illustrated that the CAA policies were not in accordance with current medical evidence and international best practice. The British HIV Association and the National Gay Pilots Association provided national and international evidence that supported a change in this policy that people living with HIV on effective treatment did not have neurocognitive impairments that would impact on safety, and therefore should be granted a medical certificate to enable applicants to become a pilot.

Through work with journalists and community activists who were directly impacted by this policy, we were able to raise the profile of this story whilst highlighting contemporary information on HIV. The campaign created opportunities for political leadership and was supported by Scotland’s First Minister.

Lessons learned: This community-led work illustrated that by using human rights principles, and partnering with relevant organisations, we were able to advocate to change policy to be in accordance with current medical evidence. This approach allowed the CAA to deviate from the EASA regulations by awarding medical certificates to people living with HIV who would otherwise pass a medical examination.

This has resulted in people living with HIV being able to take up training programmes to become CAPs in the UK.

Conclusions/Next steps: By creating links between human rights legislation and the CAA policy, and by building an effective media strategy, we were able to place this discriminatory policy high on the agenda of policy-makers and stakeholders which lead to the discrimination being overturned.

Policies related to treatment access, including intellectual property policy

THPED575

Success of inter-associative advocacy strategies for access to dolutegravir in Morocco

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Background: Dolutegravir (DTG) is an ARV developed by ViiV. Commercialized since 2014, it has become considered one of the best ARVs and is now recommended as alternative first line by WHO. However, access remains limited in developing countries due to price barriers. A voluntary license (VL) negotiated by ViiV and generic companies through the Medicines Patent Pool (MPP) gives access to generic DTG in 52 countries. As a middle-income country (MIC), Morocco was initially excluded from the license.

Description: Moroccan authorities conducted unsatisfactory negotiations with ViiV with a too high end price of US$ 1500 pppy while generic companies were announcing prices of US$ 44 pppy. Unsuccessful ne-
gottiations would have given the ability to Morocco to issue a unilateral compulsory license (CL) and produce and/or commercialize generic DTG despite patent protection.

Two Moroccan CSOs, ITPCMENA and ALCS partnered to advocate to ViV, Ministry of Health (MoH) and MPP for access to generic DTG.

3) Advocates met bilaterally ViV’s representatives to demand the integration of Morocco in the VL advancing that Morocco could otherwise issue a CL.

2) Advocates had several encounters with the MPP to discuss access strategies for Morocco.

3) Advocates asked the MoH to issue a CL or formally ask the MPP to be integrated in the VL. They supported the MoH to formally request from ViV its integration to the VL.

On the occasion of AFRAVIH 2016, ViV announced the inclusion of Morroco to its license.

Lessons learned: Morocco did not issue a CL however discussions with Moroccan authorities introduced the idea that it was a possible strategy. On the other hand the probability that Morocco could issue a CL prompted ViV to accept inclusion of Morocco in the VL to avoid losing its market altogether. Finally, discussions with MPP encouraged them to push for Morocco’s inclusion in the VL. The strategy of ITPCMENA and ALCS to advocate towards multiple actors enabled access to generic DTG for Morocco.

Conclusions/Next steps: Following civil society's efforts, Morocco now has access to generic DTG. ITPCMENA and ALCS are currently advocating for the immediate inscription of DTG in the therapeutic guidelines as a first line ARV therapy.

THPED576
Mercosur-European union free trade agreement: Impact analysis of TRIPS-plus measures on public purchases and domestic production of HIV and hepatitis C medicines in Brazil

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Background: The European Union (EU) and Mercosur countries are negotiating a free trade agreement (FTA) containing a chapter on intellectual property rights (IPR) with TRIPS-plus measures that can negatively impact access to treatment. The study assess the public health impact of TRIPS-plus measures on public expenditures on medicines and sales of domestic production in Brazil, with focus on antiretroviral (ARV) medicines used in the treatment of HIV/AIDS and medicines used for hepatitis C.

Methods: We applied the Intellectual Property Rights Impact Aggregate (IPRIA) Model to estimate the impact of TRIPS-plus provisions on the public expenditures and domestic sales of medicines in Brazil. We simulated five different scenarios to estimate the impact of including the two main TRIPS-plus provisions proposed by the EU both separately and together (patent term extension and data exclusivity). We also simulated the impact of removing a TRIPS-plus provision that is already included in Brazilian law.

Results: The results show an increase in public expenditures with purchase of medicines and a reduce in sales of domestic production in case of adoption of TRIPS-plus provisions and savings in public resources and increase in domestic production sales in case of removing already existing TRIPS-plus provision. The figures are summarised on table 1.

Conclusions:

1. Strategies adopted to negotiate price and remove patent barriers (TRIPS flexibilities) have reduced the negative impact of IPR on access to ARV allowing for the treatment of more people with small increase in total expenditures.

2. The adoption of TRIPS-plus measures proposed by the EU, besides the increase in public expenditures and reduction of domestic sales, would also reduce the policy space currently available to adopt measures to reduce the negative impact of IPR on health policies. That could lead to higher increase in public expenditures and decrease of sales by national producers in the whole pharmaceutical market.

3. Public expenditures on medicines have been increasing in the past years, consuming rising shares of the total public health budget as a result of incorporating medicines under market exclusivity. The adoption of new measures that increase market exclusivity is detrimental to the sustainability of the public health system.

THPED577
Assessing the effect of test and start policy on HIV treatment uptake in Nigeria: A segmented regression analysis

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Background: Nigeria has an estimated 3.2 million people living with HIV (PLHIV but only 1,050,594 clients are on antiretroviral treatment (ARTs) as at December 2017. In 2016, Nigeria approved the implementation of the Test and Start policy as a means to increasing access to ARTs and as a means of prevention. We assessed the effect of this policy on initiating newly identified HIV positive clients into treatment.

Methods: Data on HIV treatment were pooled across 10 states between July 2015 and December 2016 representing pre-policy period and between January 2017 to June 2017 representing post-policy period. Segmented linear regression was used to analyze the effect of the intervention as shown by Yt = α +γ + δ t + ε t χ , Yt captures the baseline level of the outcome at time t, γ estimates the growth rate in ART uptake independently from the intervention; δ estimates the immediate impact of the intervention and χ reflects the growth rate in outcome, after the intervention.

Results: A total of 31,631 and 27,402 clients were initiated on treatment in the pre-policy and post-policy periods respectively. Segmented regression analysis showed that at baseline, on the average, 7,684 (3) clients were newly initiated into treatment monthly. There was no significant month-to-month change in the number of clients newly initiated on treatment in the pre-policy (t = 0.110) period, however there was an insignificant decline in the post policy period (t = 0.29). In addition, there was no immediate effect of the policy on initiation of new clients into treatment (t = 0.122; p=0.570).

Conclusions: The test and start policy in Nigeria has not yielded any significant increase in the number of new clients initiated into treatment. This directly mitigates the possibility of Nigeria attaining the second "90" of the UNAIDS 90-90-90 goal which aims to ensure that 90% of HIV positive clients are initiated on treatment. Robust evaluations of implementation strategies are urgently required to identify the gaps and consequently design appropriate and effective interventions.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Time period</th>
<th>Variation in ARV expenditure compared to base scenario (BRL)</th>
<th>Variation in expenditure on medicines for hepatitis C compared to base scenario (BRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt 2</td>
<td>2015-2050 for ARV and 2016-2051 for hepatitis C</td>
<td>-2,054,436,157.85</td>
<td>-16,862,109,838.52</td>
</tr>
<tr>
<td>Alt 3 (5-years DE)</td>
<td>2,932,784,149.22</td>
<td>31,451,109,948.91</td>
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<tr>
<td>Alt 4 (6-years DE)</td>
<td>3,707,795,390.84</td>
<td>44,639,096,730.75</td>
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<td>Alt 4 (6-years DE)</td>
<td>4,995,190,744.80</td>
<td>63,049,677,743.86</td>
<td></td>
</tr>
</tbody>
</table>

(Table1. Summary of findings)
THPED578
Humanitarian crisis and access to HIV services in Nigeria: An analysis of national ART programme coverage from 2014 - 2016 in states with humanitarian crisis
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Background: The goal of Nigeria ART programme is to utilize available resources to improve ART coverage towards achieving the UNAIDS 90-90-90 targets. Nigeria has 983,980 patients accessing ART out of an estimated 3.2 million patients in 2016. This study analyzed the relationship between ART coverage and humanitarian crisis on national ART indicators in states affected by humanitarian crisis between 2014 and 2016.

Description: Nigeria has suffered severe humanitarian crisis which has resulted in disruption of services and displacement of persons from their communities in many states. The number of displaced persons rose from less than 400,000 in 2013 to above 1.9 million in 2016 and displaced persons are not included in the national ART. The selected states for this study are: Borno, Yobe, Adamawa, Taraba, Kaduna, Plateau, Benue and Nasarawa.

This study analyzed 2014 to 2016 ART coverage in the above eight states and compared the data with ART coverage in the following eight states with similar HIV burden but without humanitarian crisis: Oyo, Abia, Cross Rivers, Kano, Delta, Bauchi, Rivers and Ogun. The data were critically reviewed and described on the following indicators:
1. Facilities reporting ART services.
2. Patients currently on ART; and.
3. Patients Lost to Follow Up (PLTFU).

Lessons learned: In Indicator 1, the numbers decreased in 62.5 % and flattened in 37.5% of the states with humanitarian crisis while it increased in 50% and flattened in 50% of the states without humanitarian crisis.

In Indicator 2, the numbers decreased in 50%, flattened in 25%, increased in 25% of states with humanitarian crisis and increased in all the states without humanitarian crisis.

In Indicators 3, the numbers increased in 37.5% and flattened in 62.5% of the states with humanitarian crisis and decreased in 62.5% flattened in 37.5% of the states without humanitarian crisis.

Conclusions/Next steps: The result showed a relationship between humanitarian crisis and disruptions to ART services in the states with humanitarian crisis in Nigeria. This has implication for ART wide service gaps in Nigeria (70%).

Nigeria needs urgently a policy and guideline on HIV services for humanitarian emergencies to address the effect of Humanitarian crisis on HIV service gaps.

THPED579
Civil society mobilization for the Compulsory License in Perú
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Background: In Peru, less than 5% of the 30,000 PLWH that receive ARV treatment are on a combination with atazanavir, but in 2014, the procurement of this drug cost more than half of the budget. In 2013, Peru paid the highest price for atazanavir 300mg, compared to all the other countries in the region, and 435 times the price of the generic version, also available in Latin America.

Description: Acción Internacional para la Salud (AIS) led meetings and demonstrations pressuring the government to declare atazanavir public interest, and apply the compulsory license in order to optimize resources, contributing to the sustainability of the response. This demand was supported by many civil society organizations from Peru, Latin America and the world including the significant participation of PLWH.

The Government refused to grant the Compulsory License and asked Brazil for donations until the end of 2017. AIS and other CSO, sponsored by the Congress of the Republic, developed a bill that declares atazanavir to be of public interest, which is expected to be soon debated in plenary.

The company, holder of the patent in Peru, responded to civil society pressure with bias communication campaign. However, in 2015, it had to reduce its price by 35%.

Lessons learned: The compulsory licensing process can have as an intermediate result, significant savings in the purchase of medicines. Between 2015 and 2017, due to donations and price reduction, Peru saved more than US 13 million in the purchase of atazanavir.

During the company campaign to distort information, it was key to strengthen civil society organizations to maintain the pressure for compulsory licensing. The support of international organizations from developed and developing countries, was also of critical importance.

We work on intellectual property literacy, in particularly on TRIPS flexibilities with Government officials, politicians, and other stakeholders.

Conclusions/Next steps: In countries such as Peru, active engagement of civil society organizations should encourage the use of TRIPS flexibilities as the compulsory license to promote competition in the market, in order to have more affordable prices for ARVs and contribute to the sustainability of HIV response.

THPED580
Advocacy for gender affirmation care in the United States: Learning from the injectable estrogen shortage and its implications for HIV
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Background: Hormone therapy to affirm gender identity is a medically necessary intervention for many transgender individuals. From 2015 to 2017, a reliable supply of 40 mg/mL injectable estrogen was not available in the United States, and reports suggest that shortages have re-occurred for years and continue in 2018. Lack of access to hormone therapy poses a significant health equity issue for transgender women and presents a structural barrier to HIV prevention and care.

Description: In response to the U.S. shortage, an advocacy campaign was developed to emphasize the importance of injectable estrogen for transgender women, educate the transgender community about the health risks of seeking estrogen outside of clinical settings, highlight the failure of the U.S. Food and Drug Administration’s (FDA) and pharmaceutical companies’ ability to guarantee a supply of injectable estrogen, and outline ways to remedy the shortage. The campaign included a sign-on public comment, co-authored by two community health clinics and a global treatment advocacy organization, which generated 570 signatures. Other advocacy actions included meetings with FDA representatives, an issue brief, and mobilization efforts to encourage individuals to submit public comment. A short-term solution of restocking all formulations of injectable estrogen was proposed.

Lessons learned: Ineffective FDA and manufacturer responses to repeated estrogen shortages are due partially to a lack of research and approved prescribing guidance that recognizes transgender women as a population dependent on continuous access to preferred hormone therapy formulations. Long-term solutions are needed to address the lack of federally-funded research and, consequently, evidence-based practice, on hormone therapy for gender affirmation.

Conclusions/Next steps: The FDA ensures the safety and efficacy of estrogen for menopausal, cisgender women through on-label use in clinical trials, but allows off-label use of estrogen for transgender women to remain the standard of care. Such disparate treatment - formed by clinical trials, but allows off-label use of estrogen for transgender women, educate the transgender community about the health risks of seeking estrogen outside of clinical settings, highlight the failure of the U.S. Food and Drug Administration’s (FDA) and pharmaceutical companies’ ability to guarantee a supply of injectable estrogen, and outline ways to remedy the shortage. The campaign included a sign-on public comment, co-authored by two community health clinics and a global treatment advocacy organization, which generated 570 signatures. Other advocacy actions included meetings with FDA representatives, an issue brief, and mobilization efforts to encourage individuals to submit public comment. A short-term solution of restocking all formulations of injectable estrogen was proposed.
Policy analysis and indicators of policy effectiveness

**THPED582**
Better targeting of existing investments in prevention is needed to focus on interventions with proven impact: Prevention resources need to double by 2020 to reach Fast Track targets

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**Background:** The response to HIV/AIDS must address funding of efficient and effective prevention, treatment and discrimination reduction. The resource needs for prevention should be focused on the interventions/services with proven impact and for the population/location where needed. UNAIDS has promoted 5 pillars for effective prevention: investment in prevention for key populations (KPs). Condoms, Pre-Exposure Prophylaxis (PrEP), and voluntary male circumcision (VMMC) and cash transfers for young women and girls (CTFYWG) in high prevalence settings.

**Methods:** Available data from National AIDS Spending Assessments, GARP/GAM reporting and program coverage data for each service/intervention and estimated unit costs were used to estimate expenditures in 112 low- and middle-income countries (LMICs) by end-2013 and end-2014, which were the baselines for the 2015-2030 Global Resource Needs estimates to reach the End of AIDS as a Global Public Health threat by 2030. 2013/14 data was compared to 2020 targets.

**Results:** The estimated prevention expenditures totaled US$3.7 and US$3.7 billion in 2013 and 2014 respectively (17% and 17.5% of the total HIV resource availability in LMICs respectively).

The major international sources (PEPFAR and GFATM) disbursed $1.1Bn; $1.3Bn and $1.2Bn in prevention in 2013, 2014 and 2015. Only 36% in 2013 and 43% in 2014 were invested on the 5 pillars of prevention services (CTFYWG, VMMC and PrEP). Planned and $424m for VMMC respectively; additionally $350m and $314m on prevention of parent to child transmission of HIV (PMTCT); the rest in various services.

The estimated resource needs for prevention in LMICs by 2020 are $7Bn; $2Bn for condoms, $2Bn for KPs, $560m CTFYWG, $781m for PrEP, $485m for VMCC. $476m would be needed for PMTCT.

**Conclusions:** There is significant room to improve the allocation of prevention expenditures for a more efficient mix. It is unlikely that more resources from international sources can be made available. Prevention investments need to double by 2020 compared to 2013/14 improved allocative efficiency by stopping the expenditures in services with no proven impact can help bridge the gap by almost $2Bn per year. Tracking the resources for effective prevention requires granular programme data to be systematically and periodically monitored.

**THPED583**
A “foreign agents” law in Russia: Away from the “90-90-90” agenda

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**Background:** The 2012 Russian legislation obliges any NGO receiving foreign funding and performing ‘political activities’ to voluntarily register itself as ‘foreign agent’. The Russian authorities declared the Law as non-restrictive and serving only to enhance public awareness. NGOs-foreign agents need to meet entangled reporting requirements (estimated for the extra USD 4,000 annually), and to label all their information sources accordingly. Otherwise, they are subject to ridiculously high penalties (min eqv. of USD 5,000 for the Organization and 1,800 - for its Director as an individual). Over 150 NGOs have acquired this status since 2012. There are over 100 cases in the European Court of Human Rights on the subject.
The mean interval between HIV diagnosis to cART initiation decreased for acute HIV infection. The mean CD4 count was 318 (SD, 235) cell/µl and included, with a mean age of 32.6 years, 98.7% being male and 9.3% with trial (n=48) were excluded. (n=5), had been treated at another hospital (n=40), or enrolled in a clinical trial confirmed HIV diagnosis, to reduced morbidity and mortality among those who delayed cART initiation.

The linkage among newly diagnosed HIV-positive patients at a tertiary referral center in Taiwan

**Background:** Taiwan has adopted the “treat-all” combination antiretroviral therapy (cART) policy since 2015. Recent WHO guidelines recommend rapid initiation of cART, defined as cART initiation within 7 days after confirmed HIV diagnosis, to reduced morbidity and mortality among HIV-positive patients in 2017. The real-world data of rapid initiation of cART is still unknown in Taiwan.

**Methods:** Medical records of newly diagnosed HIV-positive patients seeking HIV care at the National Taiwan University Hospital between March 2014 and December 2017 were reviewed and information on clinical characteristics were collected. Patients who were aged < 18 years (n=5), had been treated at another hospital (n=40), or enrolled in a clinical trial (n=48) were excluded.

**Results:** During the 4-year study period, 614 HIV-positive patients were included, with a mean age of 32.6 years, 98.7% being male and 9.3% with acute HIV infection. The mean CD4 count was 318 (SD, 231) cell/µl and 35.0% of the patients (n=200) had CD4 counts < 200 cell/µl at diagnosis.

The mean interval between HIV diagnosis to cART initiation decreased from 128 days (SD, 231) in 2014 to 10 days (SD, 13) in 2017. The percentage of patients with rapid CART initiation increased from 16.6% in 2014 to 55.6% in 2017. The mean interval between HIV diagnosis to viral suppression (PVL < 200 copies/ml) decreased from 227 days in 2014 to 83 days in 2017. The median interval between HIV diagnosis to viral suppression were 107 days among patients who received CART within 7 days of diagnosis and 344 days among patients who initiated cART at least 30 days after HIV diagnosis. Before achieving viral suppression, a total of 37 incident cases of syphilis were identified; the incident rates were similar between patients who were rapid initiators of CART (16.7 per 100 person-years) of follow-up (PYFU) and those who delayed cART (17.1/100 PYFU) (p=0.23).

**Conclusions:** Increasing trends of HIV-positive patients initiated cART within 7 days of HIV diagnosis in Taiwan, which resulted in a shorter interval from HIV diagnosis to viral suppression. The high rates of syphilis before achieving viral suppression implied potentially onward HIV transmission among those who delayed cART initiation.

**THPED585**

**Not "Siri" but SIMONE! - technological and data-driven solutions to improve treatment retention rates among people living with HIV in Bolivia**

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**Background:** Hivos and partners have conducted continuous in-depth assessments to promote and increase retention rates of people living with HIV (PLWHIV) and key populations (KPs) across the HIV treatment cascade in Bolivia. These assessments identified different weak points across the care continuum, and in response a specialized HIV Information System software and online platform for Monitoring and Evaluation (called SIMONE) was developed to assist and identify the gaps and it was implemented since 2011.

**Description:** Currently, SIMONE links -online and on real time- the information received from the voluntary testing and counselling (VTC) points with the databases with the treatment and follow-up centers in charge of antiretroviral therapy (ART) provision. This linkage allows for personalized follow-up with each of the programme’s registered patient living with HIV.

**Lessons learned:** SIMONE is able to generate data that allows the programme to monitor the treatment and health status of patients over time, as well as measure program performance in health facilities and in different geographic settings. This information is available in real time for all users of the system in order to: promote transparency, allow early identification of ART abandonment cases generating automatic alerts for doctors, and facilitate data collection and analysis of all key HIV cascade indicators.

**Conclusions/Next steps:** SIMONE provides the country with updated and accurate information to:
- Maintain high ART retention rates.
- Design strategies to address any potential gaps in HIV treatment cascade.
- Enable evidence-based advocacy by civil society.
- Avoid stock-outs of medicines, resources and reactive.
- Comply with international public health reporting standards.

**THPED586**

**Religion in the United Nations (UN) political declarations on HIV/AIDS: An interdisciplinary, critical discourse analysis**

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**Background:** There is tension around issues of HIV and SRHR at the UN in negotiations that seek to achieve consensus on the text of Political Declarations on HIV/AIDS. The consequences of this are compromises in the text, which lead to limitations in national HIV responses and distorted funding flows. Religion is implicated as a source of this tension and conflict.

**Methods:** A policy analysis was undertaken of Political Declarations on HIV/AIDS adopted by the UN (2001, 2006, 2011 and 2016). A critical discourse analysis methodology (with a cultural studies lens) was applied, with analysis time frame 2010-2017. This study was framed as embedded research, conducted by an ‘insider researcher’ with dual positional-ity as an academic/researcher and practitioner within the UN.
Monitoring and evaluation of policies and their impact on people living with HIV and key populations

THPED587
Removing legal barriers to reduce HIV-related impacts on key populations in ten African countries

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Background: As part of the Global Fund’s Africa Regional HIV Grant for Removing Legal Barriers to Access, UNDP organized a partnership of organizations to reduce the impact of HIV and tuberculosis (TB) on key populations in ten countries (Botswana, Côte D’Ivoire, Kenya, Malawi, Nigeria, Senegal, Seychelles, Tanzania, Uganda and Zambial). Four sub-recipient (SR) organizations administer the grant; the AIDS and Rights Alliance of Southern Africa (ARASA), Enda Sante (ENDA), Kenya Legal & Ethical Issues Network on HIV and AIDS (KELIN), and the Southern Africa Litigation Centre (SALC). UNDP contracted the Program on Global Health and Human Rights (GHHR), University of Southern California to conduct the baseline assessment.

Methods: Using human rights as the framework for this evaluation, we conducted document and literature reviews, 44 key informant interviews and 16 focus group discussions with project implementers and beneficiaries.

Results: Across the region, the legal and policy environment poses distinct but related challenges ranging from bad and conflicting laws to insufficient knowledge, implementation and use of what good law exists. Key populations have a clear understanding of how their rights are being infringed, but their capacity and ability to organize varies by population and location. Stigma remains a key challenge. Cultural and religious leaders play vital roles in communicating messages about HIV and related issues both positively and negatively. With attention to the specificity of country contexts and populations, evaluating the impacts of policies on key populations requires looking not only at policies and their implementation or at how they are felt and understood within communities but the linkages between a range of factors and actors.

Understanding these interactions and the actions needed to both foster supportive policies and ensure their impact requires qualitative work that considers the combination of actors, existing and potential engagement and collaborations between government actors and key populations and different processes through which positive change might be achieved.

Conclusions: Lessons from this review can support efforts to implement human rights-based approaches to evaluation bringing into focus not only the effectiveness, relevance and sustainability of activities carried out but attention to equality and non-discrimination, inclusion, participation, and accountability.

THPED588
Does awareness of the 2010 Cross River state HIV/AIDS anti-discrimination law influence the experience of HIV stigma among people living with HIV/AIDS in Cross River state of Nigeria?

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Background: HIV stigma is an impediment to dealing effectively with the HIV epidemic. The Cross River State HIV anti-discrimination law was enacted to safeguard the rights of People living with HIV/AIDS (PLWHA) in the state. The law prohibits: individuals/institutions from denying PLWHA of their right to job, healthcare, admissions amongst other rights due to their status. However, the effectiveness of such laws in preventing enacted, internalized or anticipated HIV stigma amongst PLWHA have been largely unexplored. This study aimed to assess the impact of awareness of the law on the experience of HIV stigma amongst PLWHA in the state.

Methods: The study was carried out in two randomly selected local government area in Cross River state, Nigeria. All eligible patients attending the comprehensive HIV clinics in the areas from November to February were asked to participate. Data was obtained from 714 PLWHA through a validated, structured questionnaire. Domains of HIV stigma (anticipated, internalized and enacted) was measured based on agreement/disagreement to a 20-item statements based on participants actual/perceived experiences with stigmatization as described in the validated Berger’s HIV stigma scale. Descriptive statistics was carried out using frequencies proportion while inferential statistics was done with chi-square.

Results: Majority of respondents were female (52.70%) married (38.5%) with an average age of 39 years and a monthly income of below 50 USD ($/day466.63%). About half (55.0%) were aware of the HIV anti-stigma law with a minority (11.9%) having ever read its content. Those with tertiary education were more aware of the law compared to those with no formal education (69.0% vs. 41.2%; p < 0.0001). Males were more aware of the law than females (64.9% vs. 53.0%; p < 0.0001) with those accessing care in urban area being more aware compared to their rural counterpart (61.7% vs. 51.1%; p < 0.04). There was less experience of overall stigma among respondents who were aware of the Law compared to those not aware (36.1% vs. 41.0%; p < 0.002). On examination of the different domains of stigma, awareness of the law was significantly associated with fewer experience of enacted stigma (p = 0.013) and internalized stigma (p = 0.003). It was also associated with fewer perceived public attitude stigma – a proximate pointer to anticipated stigma (p = 0.01).

Conclusions: This study reveals there is socio-economic disparity in awareness of the law and that knowing about the law is associated with fewer reported stigmatizing experiences. Thus the law has a potential to enforce people’s PLWHA recognition of their human rights and reduce feelings of stigmatization.
THPED589
Independent multi-country review of community engagement in global fund grant processes: Lessons learned, key principles, and ways forward

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Background: Evidence shows that HIV programs are more effective when affected communities, including men who have sex with men, transgender people, sex workers, people who use drugs, and people living with HIV are involved in their design and delivery. The Global Fund’s strategy (2017-2022) includes an objective to support meaningful engagement of key and vulnerable populations and networks in Global Fund-related processes. To help achieve this meaningful engagement objective, the Fund commissioned CLAC (a collaboration among global key population networks) to carry out an independent study to solicit recommendations and identify key strategic actions and mechanisms to enable greater accountability by the Global Fund.

Methods: The study took place October to December 2016 and involved a desk review of current best practices, 90-minute interviews with 19 key informants nominated by CLAC and representative of all regions, diseases and population groups. The findings from interviews were synthesized into a working definition of meaningful engagement and a draft set of strategic recommendations. 7 one day in-country consultations were hosted to 102 participants in total to review the recommendations and provide additional country specific context.

The recommendations were summarized into five categories, with ten strategic actions and follow-up activities directed at the Global Fund and other partners.

Results: There was considerable consistency and agreement about what will foster better community engagement in Global Fund process. These included:
- Effective and proportional representation in planning and decision-making bodies and processes
- Adequate time and resource allocation to communities to understand systems, derive shared priorities, contribute to debate and discussion, and deliver programs
- Independent oversight of grant negotiations and implementation
- Ongoing efforts to strengthen the capacities of community organizations and community leaders, so that they are able to take on increasing responsibilities and have greater impact.

Conclusions: This independent review was conducted at the outset of the 2017-2019 funding cycle. Ongoing monitoring is required to ensure that the recommendations are being heard and acted upon. An agreed definition of meaningful engagement and a measurement tool would help to ensure that the meaningful engagement strategic objective is implemented, and the Global Fund is held to account.

THPED590
How does integrating HIV and TB services affect health outcomes for HIV-TB coinfected patients in Ukraine? Results from an impact evaluation

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THPED591
Effects of PEPFAR’s geographic prioritization on HIV and non-HIV services and health systems in Kenya: A mixed methods evaluation

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Background: PEPFAR initiated its Geographic Prioritization (GP) process in 2015 to prioritize its investments in high-burden areas. Seven counties in Northeastern Kenya were transitioned to government central support (CS) in September 2016. We conducted a mixed-methods study of USAID-supported CS facilities to assess the GP effects on HIV and non-HIV service delivery and health systems indicators.

Methods: A cluster-based survey of 230 health facilities (173 CS, 57 Maintenance) and analysis of DHIS2 data were combined with national-level qualitative interviews and longitudinal case studies of select facilities. Survey data from health facilities focused on shifts in PEPFAR support for health service delivery and systems. We also extracted four years of service delivery data from DHIS2 for select HIV and non-HIV services. Qualitative data described the GP planning and implementation process.

Results: Service coverage indicators show minimal effects of GP thus far and are confounded by health worker strikes. 10% of transitioned facilities discontinued provision of ART, but DHIS2 data show the number of...
patients currently on ART rising faster in CS facilities than in Maintenance following GP (IRR=1.020, p=0.016). Trends in HIV testing, outpatient visits, facility deliveries, and immunizations were either similar or showed CS facilities having better results. Only for ANC visits, which were heavily affected by strikes, were CS facilities worse off (9.67; p=0.042). Study data indicate that effects of GP in CS facilities have been greater, including more data health worker terminations, and less training and supervision for HIV services; viral load testing delays; discontinuation of outreach services; and decreasing access to care across population groups. Although county governments have partially stepped in to replace lost support, engagement and investments are uneven.

Conclusions: PEPFAR’s GP has not had immediate negative consequences for coverage of HIV or non-HIV services in facilities transitioned to CS in Kenya; however, the losses in health systems investments for HIV services suggest potential for delayed effects of transition resulting in future reduced access and care. As prioritization of HIV efforts receives greater emphasis, more attention must be paid to how to sustain investments in order not to jeopardize gains made thus far to reach 90-90-90.

THPED593
Evaluating the impact of the Affordable Care Act on HIV trends in the US
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Background: HIV remains a major epidemic in the US today. The Affordable Care Act (ACA) stemmed from the need to increase access to health care for more Americans by increasing health insurance coverage. The implementation of the ACA in 2010, and its subsequent expansion ensured that people living with HIV enjoyed greater health insurance coverage. We seek to highlight the impact that the implementation and expansion of the ACA has on the HIV trend in the US.

Methods: The National Health and Nutrition Examination Survey (NHANES) dataset was used to conduct the statistical analysis for this study. The NHANES dataset is cross-sectional and weighted to represent the entire US population. 4 cycles of data were collected: 2007-2008 (cycle 1), 2009-2010 (cycle 2), 2011-2012 (cycle 3) and 2013-2014 (cycle 4) and the analysis was conducted in SAS 9.4. We created 2 datasets, 2007-2010, and 2011-2014 merged by sequence numbers to compare HIV trends before and after the passage of the ACA. Two-sample T-Tests were used to compare the difference in means between HIV status by insurance status in the two datasets.

Results: In the 2007-2010 dataset, 73.3% had insurance coverage, and 0.86% of the population were HIV positive. T-Test results revealed no statistical difference between having insurance coverage and HIV status 95% CI (-0.172 - 0.004) with a p-value (0.0506). While in the 2011-2014 dataset, 78.8% had insurance coverage, and 0.89% of the population were HIV positive. T-Test results revealed significant statistical difference between having insurance coverage and HIV status 95% CI (-0.213 - -0.064) with a p-value (0.0003).

Conclusions: The results highlight the positive change in health insurance coverage and a decline in the HIV trend after the implementation of the ACA. The importance of increasing access to care in the fight against HIV cannot be overemphasized. It is therefore imperative that efforts be made to expand on the gains made by the ACA with the aim of providing coverage to all, especially the people living with HIV.

THPED594
Changes in HIV and Non-HIV service delivery outcomes at the subnational level associated with PEPFAR funding shifts in Kenya and Uganda

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Background: In 2014, PEPFAR changed its investment strategy within priority countries. This policy shift increased PEPFAR funds and support to some subnational units (SNU), while leaving investment unchanged—or virtually eliminated—in others, according to HIV disease burden. We aimed to identify shifts in HIV and non-HIV service delivery outcomes associated with changes in PEPFAR investment at the SNU level between 2015-2017 in Kenya and Uganda.

Methods: MEASURE Evaluation extracted quantitative data from relevant national HIV health information system databases (e.g., DHIS 2, TIBU [Kenya], iHRIS, etc.) between 2015-2017. Outcomes examined included HIV testing, initiation on ART, and adherence. ANC 4, or 4+ visits, confirmed malaria cases, and TB case detection rate. Qualitative interviews were conducted with health teams to better understand the trends observed. Longitudinal multivariate analyses were conducted to determine the level of statistically significant changes in study outcomes by year, by change in PEPFAR investment, and for an interaction effect between year and PEPFAR investment level.

Results: Preliminary analyses of data between 2015-2016 suggest changes in PEPFAR investment did not immediately affect the direction of trends observed in HIV or non-HIV outcomes at SNU level. However,
the magnitude of changes in outcomes observed in the post-PEPFAR prioritization period did significantly vary for some health outcomes by level of PEPFAR investment. For example, the proportion of newly identified HIV-positive individuals initiated on ART in Ugandan districts that lost PEPFAR funding increased significantly less than the same proportion in districts with maintained or increased PEPFAR support.

**Conclusions:** Because there were some significant differences in the magnitude of changes in health delivery outcomes (both HIV and non-HIV) associated with PEPFAR investment status at the SNU, findings suggest that shifts in PEPFAR investment (and by extension other large shifts in donor investment) may contribute to or worsen pre-existing health outcome disparities among subnational units within countries. However, as this study used aggregate SNU data, there could be a lag time between the implementation of investment shifts within countries, implementation of new interventions, and when changes in service delivery outcomes can be observed.

**THPED595**

The working group on criminalization of HIV exposure: A multisector partnership at the intersection of law, policy and science

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**Background:** Canadian criminal law requires people living with HIV to disclose their status before engaging in sexual activities that involve a “realistic possibility” of transmission. Although there is no evidence that criminalization effectively prevents transmission, criminal law is often used in the name of public health. Quebec has the second highest rate of prosecutions for HIV exposure in Canada. The mediatised D.C. case spurred a dialogue between Quebec’s key stakeholders on criminalization. To further this dialogue, the Working Group on Criminalization of HIV Exposure (WGCHE), a multisector partnership (MP), was established in 2011.

**Description:** As a MP, the WGCHE aims at solving a complex issue - criminalization of HIV exposure - by involving multiple actors and their specific expertise. The WGCHE advises the Ministry of Health and Social Services (MSSS) and the Ministry of Justice (MJ) on the interplay of justice and public health policies, in light of scientific data and legal principles. Its membership is comprised of twelve (12) public health experts, community members, lawyers, scientists, law enforcement and ministerial representatives (MSSS, MJ and Public Security).

**Lessons learned:** The WGCHE’s mandate evolved to reflect changes in the scientific and legal landscape. From ensuring that the latest scientific data is considered by the criminal justice system, it now aims to highlight the intrinsic relationship between public health, public policies and criminal law. Although prosecutorial guidelines have yet to be adopted, the WGCHE ensures that prosecutors have access to the latest scientific and legal findings by developing and offering them training courses and tools (ex: tables tracking the evolution of jurisprudence/sentencing).

**Conclusions/Next steps:** Over the years, the WGCHE has allowed for the accommodation of different visions, languages and missions, uniting stakeholders in the pursuit of a common goal. While criminal law is still being used in cases of HIV exposure, the WGCHE is engaged in a long-term dialogue to ensure that the latest scientific advances and public health prevention messages are taken into account. Important gains have been made, and improvement areas will be identified following Justice Canada’s recent report on the criminal justice system’s response to non-disclosure of HIV.

**THPED596**

Availability and affordability of ARVs: Observatory of access to medicines in Argentina

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**Background:** Civil Society has a key role in monitoring access and availability of ARVs in many countries. In Argentina, FGEOP holds an Observatory that contributes to monitor access to HIV and Hep C medicines in Argentina. Through the analysis of public purchases -since in Argentina State provides ARVs to 68% of the people living with HIV- and the impact of further policies.

The Observatory has been conducted since 2013, with annual conclusions related not only to availability, but also to affordability of treatments and sustainability of public budgets. This proposal is to introduce the specific methodology and the comparative results for 2016 and 2017.

**Methods:** The Observatory collects information from different sources related to public information, direct purchases and competitive bidding. The information collected is checked with the National AIDS Program official provided information, and compared with international studies and price publications related to generic prices in the world, for instance MSF or Liverpool University.

The information is systematized and related with other macroeconomic variables that can be related with most of middle income countries.

**Results:** The main findings of the Observatory show:

- a) there is a significant difference between prices from public bids or direct purchases,
- b) the introduction of new ways of purchasing can drop down prices,
- c) pediatric medicines are the most expensive,
- d) ARV’s prices rises in general 42%.

**Conclusions:** Sustainability of health provisions programs is at risk when big pharma and direct purchases increases the annual investment in ARV’s, this risk could be minimized by managing programs with predictability, strategic planning and prices reduction strategies in order to assure access to treatments for PLWH.

**THPED597**

A critical evaluation of drug policy environment in Ukraine: Implications for prevention and treatment of substance use disorders and HIV among people who use drugs

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**Background:** Over the past decade, policy improvements in Ukraine have contributed to advancing the treatment and prevention of substance use disorders (SUD). However, people who inject drugs continue to face disproportionate HIV risks in Ukraine, with HIV prevalence rate standing at 21.9% in this group in 2016. In 2017, through SAMHSU Ukraine Legal and Policy Project, we conducted a desk review of policy environment for SUD to identify drug policy impediments and to help systematize address existing challenges.

**Description:** The review offers a snapshot of advantages and disadvantages of Ukraine’s current systems of SUD treatment, prevention, education, and research and evaluates the degree to which the legal and policy environment supports treatment and prevention of HIV and legal protections for people with SUD.

**Lessons learned:** Ukraine has one of the largest networks of opioid substitution therapy sites in the region, with 177 sites serving 9,655 clients across 25 regions. Methadone, buprenorphine, vivotril, naltrexone, naloxone and disulfiram are authorized as part of SUD treatment. The country aims to meet the European standards in substance use care and has confirmed its commitment through various international agreements. However, the focus of SUD policies and response measures is shifted to prohibition and law enforcement, with treatment and social support...
under-prioritized. Evidence-based approaches to SUD treatment are applied on a limited scale, whereas HIV care is poorly integrated into psychiatric services. The SUD treatment curricula of graduate and post-graduate medical institutions are outdated, with content often based on knowledge operationalized during the Soviet era. The SUD care system continues to retain restrictive elements, as evidenced by mandatory patient registration that leads to multiple negative ramifications for SUD patients.

Conclusions/Next steps: Our study provides recommendations for the development of SUD system governance and coordination in Ukraine, including the structure of service providers, the scope of services to be offered in the context of substance-use driven HIV epidemic, human resources and financing issues, and standards of SUD care. This review serves as a basis for informing next steps and for establishing a national unit that would be responsible for effective policy development and organization of services for people who use drugs.

**THPEd598**

**Trends of greater vulnerability of black and mixed color men who have sex with men (MSM) to develop and die of AIDS compared to white MSM São Paulo State, Brazil**


Background: Highly Active Antiretroviral Treatment (HAART) is available in the Brazilian Public Health System since 1996 and its indication was expanded to all people living with HIV since 2013, also as a prevention strategy. Before HAART the trends of HIV infection (HIV+), AIDS cases (AC) and AIDS related deaths (ARD) were similar. Just lagging in time due to HIV infection physiopathology. After HAART the vulnerability to develop and die of AIDS became highly dependent on having or not an opportune access to HIV diagnosis and treatment. In the State of Sao Paulo MSM are one of the most vulnerable population for HIV/AIDS.

We compared the trends of HIV+, AC and ARD among white and black/mixed color (BMC) MSM to access disparities in their vulnerability related to HIV infection physiopathology. After HAART the vulnerability to develop and die of AIDS compared to white MSM São Paulo are one of the most vulnerable population for HIV/AIDS. We compared the trends of HIV+, AC and ARD among white and black/mixed color (BMC) MSM to access disparities in their vulnerability related to social and institutional racism, stigma and discrimination (R.SKD).

Methods: Trend analysis study performed through polynomial regression models using data from all mandatory reported events of HIV+, AC and ARD among MSM >13 years old from 2007 to 2016. The numbers of events as dependent variable (Y) were compared between White and BMC MSM using calendar year as independent variable (X). The goodness of fit via r² and p<0.05 were used to determine models and data appropriateness.

Results: 21,648 HIV+, 17,345 AC from 2007 to 2016 and 4,818 ARD from 2007 to 2015 reported among MSM were analyzed. Trends of HIV+ grew expressively and linearly among BMC and white MSM (Y=159x+54; r²=0.97;p<0.001) and (Y=228x+394; r²=0.96;p<0.001), respectively. AC trends for BMC MSM rose linearly all the period (Y=38x+928; r²=0.91; p<0.001) and trends for white MSM increased until 2012 and then decreased (Y=13x+153x+804; r²=0.89;p<0.003) (chart).

Deaths among white MSM remain stable and among BMC MSM presented increasing trends [Y=ax+110; r²=0.78; p<0.002].

Conclusions: There is an increasing vulnerability for HIV infection among White and BMC MSM not averted by current prevention strategies.

White MSM may have a higher access to HIV test compared to BMC MSM. Despite universal access to healthcare and HAART through a public policy, R.SKD seems to increase individual, programmatic and social vulnerability of BMC MSM to develop and die of AIDS when compared to trends among white MSM.

**THPEd599**

**Revisit methadone maintenance treatment service in Indonesia after 14 years**

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Background: In 1999, there were estimated 40,000 PWID in Indonesia. Surveys in early 2000, reported 50% HIV prevalence among PWID. Methadone Maintenance Treatment (MMT) Program was piloted by NAP in 2003 as part of harm reduction efforts, with scale up of services in 2006. In 2016 there are 92 MMT services, with 2000 clients across country. The maximum number of clients were 9,000 in 2010, and until 2016, the number of clients in MMT program continue to decrease, with 6 months retention in the program only 54%. MOH conducted s to explore contributing factors and develop recommendation for improvement.

Methods: In-depth interview, focus group discussion, literature review and observation were held with various stakeholders at national level, program implementer in hospitals (RS), primary health center (Puskesmas), NGOs, and Client in 3 cities (Jakarta, Denpasar, Makassar). The data or information collected includes: driving and inhibiting aspect of service utilization (based on clients and provider’s perspectives), and experience/lessons learned by providers in MMT program.

Results: There were two issues in reduced number of methadone clients.

1. Lack of new MMT clients; this results from the change in drug use trend from opioid to amphetamine. National PWID size estimation reduced from 70,000 in 2012 to 30,000 in 2016, that leads to lack of referral from NGO to MMT service.

2. Low retention; due to personal factors such as mixed drug use, bored, perception of more severe withdrawal symptoms and only shift the addiction to methadone, no role model. Health service factors such as tight criteria for take home dose, unmet need of addiction counseling, due to overburdened of health facilities.

Conclusions: MMT services needs to be maintained to continue providing service for the clients and anticipate the trend of drug use back to opioid. A comprehensive program needs to be redesigned to improve retention, such as program involving family to support MMT clients, network with existing psychological services to provide addiction counseling, evaluate and revisit the implementation of take home dose and adjust/update the MMT national guideline.

(Graph 1. Trends of AIDS reported cases in MSM by race-color, State of Sao Paulo, 2007 - 2016).
THPED600

“Without insurance and without Ryan White and without Virginia ADAP, I don’t know where I would be,” clients’ perspective on the Virginia AIDS Drug Assistance Program’s Affordable Care Act Implementation

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Background: The Virginia AIDS Drug Assistance Program (ADAP) offered to purchase Affordable Care Act Qualified Health Plans (QHPs) for low-income people living with HIV (PLWH). The object of this study was to gain information about the process of enrollment, decision-making, and the experience of enrolling in health insurance.

Methods: English-speaking PLWH, ages 18-64 who were eligible for AIDS Drug Assistance Program-funded QHPs were recruited at three HIV clinics in Virginia. The goal was to enroll ≥25% of those who were eligible for ADAP-funded QHPs in two Virginia Department of Health planning districts. Participants were surveyed about demographics and socio-economic characteristics, and semi-structured interviews were performed. Descriptive analyses were performed for cohort characteristics. Using a Grounded Theory approach, codebooks were generated for the interviews by a single reviewer. The codebook was then refined until excellent reliability between two reviewers was achieved (kappa statistic ≥0.85). All interviews were coded.

Results: The cohort of 53 participants met our recruitment goal. All participants enrolled in an ADAP funded-QHP. Within the category “Impact to Care After Enrollment,” 77% of participants described a positive impact on their medication delivery and 71% described a positive impact on medical providers. The most common perceived and actual barriers to enrollment were concerns about privacy (87%), computer and internet access/literacy (69.2%), mental health (64%), insufficient assistance (62%), and physical barriers (60%). In terms of privacy, the concerns centered on QHP-mandated use of mail-order pharmacies. 67% reported that their ACA/QHP knowledge was formed from pharmacies. 67% reported that their ACA/QHP knowledge was formed on medical providers. The most common perceived and actual barriers to enrollment were concerns about privacy (87%), computer and internet access/literacy (69.2%), mental health (64%), insufficient assistance (62%), and physical barriers (60%).

Conclusions: To our knowledge, this is one of the first studies to examine barriers to enrollment and re-enrollment of QHPs under the ACA, specifically among PLWH. Our findings indicate that addressing privacy concerns may encourage enrollment. Given the high frequency of privacy concerns, further evaluation of logistics of mail delivery options, or the option to opt-out, would be constructive. Case managers and social workers are often the primary source of knowledge for patients about insurance options and their assistance is crucial for enrollment.

THPED601


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3HIV Monitoring Foundation, Amsterdam, Netherlands
4Perinat, Utrecht, Netherlands

Background: In 2014 the World Health Organisation (WHO) established validation criteria for elimination of mother-to-child transmission (EMTCT) of HIV and syphilis. Additionally, the WHO set targets to eliminate hepatitis B (HBV). We evaluated to what extent the Netherlands has achieved the combined WHO criteria for EMTCT of HIV, syphilis and HBV.

Methods: Data of HIV, syphilis and HBV infections among pregnant women and children (born in the Netherlands with congenital infection) for 2012-2015, and data required to validate the WHO criteria were collected from multiple sources: the antenatal screening registry, the HIV monitoring foundation database, neonatal registration of congenital syphilis diagnoses, and national HBV notification data.

Results: Prevalence of HIV, syphilis and HBV was stably low among pregnant women and children (Table 1). With a screening coverage of ≥99% since 2012, the WHO criteria of antenatal screening for HIV and syphilis (≥90%) was amply met in the Netherlands. All WHO criteria specific for HIV were also met: antiretroviral treatment of pregnant women of ≥90% (Netherlands: 96% in 2014 and 100% in 2015), case rate of HIV of ≤50 per 100,000 live births (0.57 in 2014 and 0.00 in 2015), and MTCT rate of ≤0.75% for 2014 and 2015 combined. For HBV all targets were accomplished as well: vaccination coverage for children was ≥90% (universal vaccination coverage 93.1% for birth-cohort 2014, birth-dose vaccination and immunoglobulin admission at birth to children of HBV-positive mothers ≥99% in 2014 and 2015), and prevalence among children was ≤0.1% (0.0% in both 2014 and 2015). For syphilis, data were lacking to validate the goal of ≥95% treatment of syphilis-seropositive pregnant women. Data on congenital syphilis were partly lacking and only included live born children, but the WHO goal of 150 cases/100,000 live births is not expected to be exceeded.

Conclusions: In the Netherlands, the antenatal screening programme has a very high coverage and the prevalence of maternal HIV, syphilis and HBV is low. Congenital infections are extremely rare. The WHO criteria for validation of EMTCT are met for HIV and HBV, but for syphilis more data are needed to prove elimination.

THPED602

Using the 2016 UN general assembly special session and the 2019 high level meeting on drugs to strengthen the HIV response for people who inject drugs

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Background: In 2014 Harm Reduction International established a global working group of harm reduction organisations and networks of people who use drugs to coordinate advocacy around the 2016 UNGASS on drugs.

Description: The Group agreed to advocate for:
- A health pillar within the UNGASS outcome document
- Commitments to harm reduction within that pillar

Our methods:
- Launching our 10 by 20 campaign, highlighting the disproportionate amount spent on drug control compared to harm reduction
- Launching a Harm Reduction Declaration. Working with high-profile signatories to ensure visibility at key events including the Dec 2015 PCP
- Inserting our messages into UN agencies’ pre-UNGASS reports

Methods: Data of HIV, syphilis and HBV infections among pregnant women and children (born in the Netherlands with congenital infection) for 2012-2015, and data required to validate the WHO criteria were collected from multiple sources: the antenatal screening registry, the HIV monitoring foundation database, neonatal registration of congenital syphilis diagnoses, and national HBV notification data.

Results: Prevalence of HIV, syphilis and HBV was stably low among pregnant women and children (Table 1). With a screening coverage of ≥99% since 2012, the WHO criterion of antenatal screening for HIV and syphilis (≥90%) was amply met in the Netherlands. All WHO criteria specific for HIV were also met: antiretroviral treatment of pregnant women of ≥90% (Netherlands: 96% in 2014 and 100% in 2015), case rate of HIV of ≤50 per 100,000 live births (0.57 in 2014 and 0.00 in 2015), and MTCT rate of ≤0.75% for 2014 and 2015 combined. For HBV all targets were accomplished as well: vaccination coverage for children was ≥90% (universal vaccination coverage 93.1% for birth-cohort 2014, birth-dose vaccination and immunoglobulin admission at birth to children of HBV-positive mothers ≥99% in 2014 and 2015), and prevalence among children was ≤0.1% (0.0% in both 2014 and 2015). For syphilis, data were lacking to validate the goal of ≥95% treatment of syphilis-seropositive pregnant women. Data on congenital syphilis were partly lacking and only included live born children, but the WHO goal of 150 cases/100,000 live births is not expected to be exceeded.
ITPCru, Saint Petersburg, Russian Federation, A. Petrova1, S. Prosvirina2, S. Golovin3, A. Ladonkin2

Monitoring of access to treatment and social services for people living with HIV and its impact on treatment adherence in Russia: Results of SIMONA+ community-based project

A. Petrova1, S. Prosvirina2, S. Golovin3, A. Ladonkin2

Background: Currently, only 35.5% of people living with HIV (PLHIV) in Russia receive treatment. Patients face problems, including drug shortages, regimen changes, treatment initiation deferral. These problems lead to poorer treatment adherence. In 2017, at least 21,903 patients chose to stop treatment, according to Federal AIDS Centre. A monitoring project SIMONA+ was implemented by the patient community Patients Control, with a goal to analyze barriers to specialized medical and non-medical services and develop recommendations, with a focus on vulnerable groups.

Description: The project was realized from June 2016 to January 2018 and consisted of two parts: monitoring and evaluating the quality of medical and non-medical services and implementing activities to improve the service quality, with a focus on key groups. Interviews were conducted with 2,387 patients from 13 regions. Researchers also used interviews with specialists, drug procurement data, as well as replies from government agencies. Based on the monitoring results, meetings with stakeholders and press-conferences were organized in several regions to address the problems identified.

Lessons learned: The research shows that 50% of respondents faced problems with treatment, 25.5% of patients stopped treatment for a long time period. Every third patient needs more information of HIV. Key barriers to HIV treatment, as identified by the analysis, include: lack of access to medical services, delays in delivery of ART, treatment regimen changes, social pressure associated with stigma and discrimination, and lack of awareness about different aspects of HIV among patients.

Conclusions/Next steps: Based on the results, recommendations have been developed for the Russian Ministry of Health, AIDS centres and non-profit organizations:

1) take measures to ensure all PLHIV have access to antiretroviral treatment;
2) ensure emergency funds in regional budgets to cover treatment gaps if they occur due to supply failures on the federal level;
3) promote full use of the existing register of PLHIV;
4) develop a network of infectious disease clinics in remote areas, i.e. decentralization of services;
5) develop non-medical services and ensure multi-professional approach to improve motivation and adherence to treatment. These recommendations serve as a basis for the activities of the Patients Control movement.

THPED604

An updated assessment of WHO guidelines of treating and preventing HIV infection.
Concerns on methodology and transparency

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Fundación IFARMA, Bogota, Colombia

Background: To update of the assessment of quality and reporting of “Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Recommendations for a public health approach second edition 2016” by World Health Organization (WHO)

Methods: Two individuals independently assessed the second edition of consolidated guidelines developed by WHO regarding the use of antiretroviral drugs for treating and preventing HIV infection, using the Appraisal of Guidelines for Research and Evaluation instrument (AGREE II). Supplemental material, when available, was examined, such as evidence reviews, feasibility, value and preferences reports.

Results: We established methodological deficiencies in domains 2, 3, 4 and 6 of AGREE II in the guideline quality assessment. On Domain 2 “Stakeholder Involvement”, is impossible to know if members of guideline development group are an appropriate match for the topic and scope. On Domain 3 “Rigour of Development”, the methods used to search for evidence were not available so neither the criteria for selecting the evidence nor methods for formulating the recommendations were clearly described. In Domain 4 “Clarity of presentations” we found strong recommendations despite low quality of evidence, for instance on oral pre-exposure prophylaxis to prevent HIV infection or use of integrase inhibitor in first line even thought the poor information about it safety. Last, in Domain 6 “Editorial Independence” we found the most worrisome issue related of the lack of transparency and credibility of recommendations, as well as we realize in a previous assessment of the first edition of this guideline. The Guideline Development Group members were not declared all conflict of interest, co-chair of Clinical Guideline Development Group, was board member of a pharmaceutical company that produce one of the recommend treatment. Other advisory members have receipt consulting fees or declared financial support through grants for research not only for pharmaceutical companies but also for funding body.

Conclusions: The overall assessment was 45% and keeping in mind the low quality of the guideline we do not recommend it. Since the independence and transparency of WHO is a matter of global controversy, countries must conduct a revision before the adoption of guidelines.
Interventions to increase demand, uptake, and retention of key populations for HIV services and programmes

**THPED605**
Empowering community-based organizations led by men who have sex with men to increase demand, uptake and retention in HIV prevention and treatment Côte d’Ivoire: Three years of cascade results

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2Heartland Alliance International, Côte d’Ivoire, Abidjan, Côte d’Ivoire

Background: According to a bio-behavioral study in Abidjan-Côte d’Ivoire, in 2012 the HIV prevalence among men who have sex (MSM) was 18%, almost five times that of men in the general population in the same city (4.1%, EDS-2012). Since 2011, Heartland Alliance International (HAI) and the US Centers for Disease Control and Prevention have empowered MSM-led organizations (MSMLOS) in Côte d’Ivoire to increase demand, uptake and retention in HIV/AIDS prevention, care and treatment.

Description: HAI provided technical assistance to MSMLOS on best practices at each step of the ‘prevention-treatment cascade’. MSM peer educators increased the offer of HIV testing services (HTS) in community settings and during home visits. MSM peer navigators led support groups for HIV-positives and provided case management and gender-based violence prevention and care. MSM were significantly involved in the selection of the health centers providing HIV care and treatment services sensitive to their needs.

Lessons learned: Overall, 12,646 MSM were reached through communication strategies between October 2014 and September 2017 (three years) and 45.6% of them (n=5,224) were tested for HIV. Of those tested, 8.7% (n=449) were HIV-positive of whom 70.1% (n=350) were linked to care, of whom 95.4% (n=334) started ART. Retention (0-6 months) was high (83.4%, n=242).

Conclusions/next steps: In 2018, HAI will target HTS using a risk assessment, expand to new sites and test partners of HIV positives. For linkage, HAI will start ART in the field. Transport support would further improve linkage. HAI will continue to use community-based, peer-led approaches to promote good health outcomes. Finally, there will be greater emphasis on trauma-informed psychosocial support and access to justice.

### Table 1: TABLE 1. HAI IMPACT-PROTECT 3 year Cascade Information MSM

<table>
<thead>
<tr>
<th>Semester</th>
<th>Reached</th>
<th>Tested</th>
<th>% Tested</th>
<th># HIV--positive % HIV-positive</th>
<th># ART start</th>
<th>% Start ART</th>
<th>% Retained 0-6 months</th>
<th>% Retained 6-12 months</th>
<th>Patients transferred or died not included in denominator</th>
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<tr>
<td>10/14-3/15</td>
<td>322</td>
<td>346</td>
<td>108</td>
<td>40</td>
<td>11.6</td>
<td>36</td>
<td>90</td>
<td>23</td>
<td>72</td>
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<td>4/15-9/15</td>
<td>2185</td>
<td>463</td>
<td>22</td>
<td>40</td>
<td>9</td>
<td>20</td>
<td>50</td>
<td>18</td>
<td>90</td>
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<td>10/15-3/16</td>
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<td>985</td>
<td>33</td>
<td>93</td>
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<td>93</td>
<td>52</td>
<td>36</td>
<td>86</td>
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<tr>
<td>4/16-9/16</td>
<td>3563</td>
<td>702</td>
<td>20</td>
<td>98</td>
<td>14</td>
<td>76</td>
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<td>2876</td>
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<td>11</td>
<td>31</td>
<td>70</td>
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<td>5764</td>
<td>45.6</td>
<td>499</td>
<td>8.7</td>
<td>334</td>
<td>95.4</td>
<td>242</td>
<td>83.4</td>
</tr>
</tbody>
</table>

**THPED606**
From incarceration to community-based drug addiction treatment in Asia

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1AIDS Care China, Running China, Shanghai, China. 2International HIV/AIDS Alliance, Brighton, United Kingdom. 3KHANA, Phnom Penh, Cambodia. 4Centre for Supporting Community Development Initiatives, Hanoi, Vietnam

Background: Faced with ever-increasing HIV and Hepatitis B and C epidemics amongst PWUD, several countries in Asia began to adopt harm reduction approaches over the past two decades. However, these harm reduction programmes operate only within the drug control framework where compulsory centres for treatment and rehabilitation remain as the predominant response to drug use. Despite efforts from the UN agencies urging the national government in East and Southeast Asia to close down these centres there is very little progress. Due to lack successful models of community-based drug addiction treatment that can be adapted to use nationally or regionally, some governments’ efforts trying to close these centres end up replacing them with new prisons or similar closed settings.

Methods: Since 2011, the Alliance has been piloting community-based treatment models in China, Cambodia and Vietnam. These pilot models started in close cooperation with the local police and health authorities. Over 400 opioids users were enrolled into these pilots. These pilots changed the local police’s practices through different models of agreement with the police whereby they stopped arresting people who use drugs and put them in prisons or compulsory rehabilitation centres. Results of these pilots demonstrated significant improvement the adherence of MMT, reduced new HIV infection and at the same time, reduced the consumption of illicit drugs and drug related crime. The Chinese government are now investing their own resources to replicate these pilots.

Results: Harm reduction was initially started in many countries in Asia purely as a way to control HIV among people who inject drugs. The community-based drug addiction treatment pilots have been proven to be effective not only in preventing new HIV infection, but also in reducing drug use and drug related crimes. The model was appreciated by the local police.

Conclusions: International HIV/AIDS Alliance will work with AIDS Care China who piloted the model in China and Cambodia to Thailand and Myanmar. These models primarily target only opioids users. The Alliance is exploring models that can serve other substance users in partnership with local police and public health authorities.
Facilitated Transition in closure of trials involving HIV positive participants in Uganda: A grounded theory study

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Background: Although the field of post-trial care is gaining recognition in clinical research practice, significant gaps exist in the area of post-trial ethical regulation. There is need to develop contextualized guidelines on HIV-related post-trial care in low income settings based on research with relevant stakeholders. This study aimed to understand the closure process of HIV drug trials involving HIV positive participants, and their transition from research-based to non-research based healthcare facilities in Uganda.

Methods: A qualitative grounded theory study was conducted with 21 adult HIV positive post-trial participants and 22 research staff from three clinical trials, between October 2014 and August 2015. Semi-structured interviews were used to collect the data. Ethical approval was gained from the UK and Uganda.

Results: The findings showed that HIV clinical trial closure is a complex transition process for HIV positive participants, involving three main phases. (i) The pre-closure phase represents events occurring before the actual trial closure but that influence post-trial care. These events include personal circumstances such as ill health and low-socio economic status, and structural factors such as care inequalities between research and public health facilities in a low-income context. (ii) The trial closure phase is when participants are exited from the trials and linked to non-research facilities. In this phase, participants undergo an emotional reaction, attributed to the fear of leaving better standards to lower standards of care, and to practical concerns associated with re-establishing in non-research care facilities. (iii) The post-trial phase represents events occurring after trial participants have been linked back to non-research facilities up to 12 months later. Here, participants experience psychosocial challenges such as increased stigma and financial needs. The different needs across the transition process require specific interventions. The transition process is presented as a conceptual model of ‘Facilitated Transition’.

Conclusions: The trial closure process of HIV drug trials among HIV positive participants in a low-income setting is complex and can be represented by the model of Facilitated Transition which suggests guidance in implementing a person-centered approach to post-trial care provision. Further research needs to be done to verify the model in other contexts.

Young key populations in Myanmar’s first national youth policy

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Background: In Myanmar sexual and reproductive health and rights information/services for young people are scarce, particularly for key populations (KPs). Until recently, there was no national youth policy. 

Description: During 2016 National Youth Forum young people called on government to develop a National Youth Policy. Ministry of Social Welfare led the process in partnership with other ministries, UN Agencies and National Youth Congress. It involved state public consultations with young people, including young KPs. Myanmar Youth Stars Network (MYS) - a network working with and for young KPs affected by HIV/AIDS, including MSM, sex workers, people who use drugs, and people living with HIV took part at national and state levels. The main advocacy messages were meaningful inclusion of marginalized young people to ensure HIV services are friendly for young KPs; ending HIV related stigma and discrimination; the importance of formulating a sustainable financing strategy; and young KPs should be identified as priority groups in the policy. In November 2017, the Government adopted the Youth Policy in Myanmar. Young KPs are priority groups for policy implementation. In 2018 relevant ministries, the UN and youth representatives will develop the National Strategic Plan detailing the package of health and social services available to young people, budgets available and progress indicators.

Lessons learned:
- Multi-lateral partnerships of public and private sectors and youth organizations can effectively influence policy to secure services and rights for young KPs.
- It is important to have a clear vision about anticipated policy change and language in the policy document and communicate consistent messages.
- Influencing by activists from young key populations movements is important at every stage of policy development.
- It is vital to keep broader movement of young key populations informed through diverse communication channels, including social media.

Conclusions/Next steps: The methodology used in influencing the policy development in Myanmar by young people from key populations community can be useful for national and regional policy development in other countries as well as internationally.
TPHED609
Evaluation of Integrated social marketing campaign to promote HIV treatment and health insurance coverage in Vietnam

B. Dao, V. Nguyen, C. Wong, C. Hoang, H. Nguyen

Background: In 2016, Vietnam still relied on donors for approximately 60% of funding for its HIV response. The country is facing a formidable challenge as these international contributions decline. Social health insurance (SHI) is one proposed solution to address this challenge. However, only approximately 35% of people living with HIV (PLHIV) were covered by SHI in 2015. In 2016, the USAID SMART TA Program led a social marketing campaign in Nghe An and Dien Bien provinces to encourage PLHIV to enroll in treatment and SHI, and reduce healthcare cost and community stigma and discrimination (ISD) against PLHIV. This descriptive qualitative study aimed to explore stakeholder and target audience members’ opinions of the campaign’s messages and communication channels, and provide insights for future program activities.

Methods: We conducted 23 in-depth interviews and eight focus group discussions with target audiences exposed to the campaign and relevant stakeholders in Nghe An and Dien Bien. Participants included 87 key informants from PLHIV and key populations vulnerable to HIV infection, family members and community networks surrounding PLHIV, health service providers, and representatives of local health authorities. Interview transcripts were imported and analyzed using Nvivo 7 software.

Results: Results show that to all participants the campaign’s messages were well-received and they increased awareness of the availability and benefits of HIV treatment as well as SHI. They also gained awareness of the vital role of reducing ISD to encourage PLHIV to integrate into daily social life and HIV interventions. Regarding communication channels, healthcare providers’ advice, loudspeakers, posters and leaflets were identified as the most effective methods while TV and radio were mentioned as less effective. Adding other channels such as text messages via mobile phone and social networks was also suggested.

Conclusions: Results from the study were indicative of the utility of social marketing to promote HIV treatment and SHI enrollment during a transition from donor-funded programs to country management. Multiple communication strategies should be used to reach different target audiences, possibly mobile phone and social networks to expand coverage to otherwise unreachable groups.

TPHED610
The peer navigation model successfully facilitates linkage of eligible key populations to treatment in India

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FHI 360, LINKAGES, New Delhi, India, *USAID, Project Management Specialist, New Delhi, India

Background: India adopted a ‘Test and Treat’ policy in April 2017, but operational challenges still constrain implementation at scale, especially among key populations (KPs) - female sex workers (FSW), men who have sex with men (MSM), transgender women (TG) and people who inject drugs (PWID). The national HIV prevention program for KPs (KP PLHIV) were covered by SHI in 2015. In 2016, the USAID SMART TA Program led a social marketing campaign in Nghe An and Dien Bien provinces to encourage PLHIV to enroll in treatment and SHI, and reduce healthcare cost and community stigma and discrimination (ISD) against PLHIV. This descriptive qualitative study aimed to explore stakeholder and target audience members’ opinions of the campaign’s messages and communication channels, and provide insights for future program activities.

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TPHED611
Improving care and treatment access for children and adolescents affected by HIV/AIDS in Zimbabwe through the expanded integrated model for paediatric AIDS care and treatment (EIP)

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Background: Children and adolescents are disproportionately affected by access issues to comprehensive HIV care. In 2014, Zimbabwe was a high burden HIV/AIDS country with 15.4% HIV prevalence, including 2.99% among children aged 0-14 years and 48% of eligible children receiving ART, in comparison to 85% of the adult population. A model to accelerate access to care and testing, particularly in underserved districts, was warranted.

Description: World Education’s Bantwana Initiative employed a combined community/facility approach to increase identification, enrolment and retention of HIV+ children and adolescents into a continuum of comprehensive care. From 2014-2017, EIP’s community-based interventions across 17 districts centred around training of community cadres to identify children for testing and link children/adolescents living with HIV to health facilities. Case management, parenting education and economic strengthening services engaged caregivers to promote children’s treatment adherence. Clinic-based training, mentorship and supportive supervision was deployed to build clinical provider capacity in diagnosing and managing paediatric cases, with Results Based Financing (RBF) to incentivize attainment of paediatric ART benchmarks. EIP supported HIV testing for over 460,000 children; initiated 10,904 children onto ART and increased HIV+ children enrolled in case management from 28% to 86%; provided 3,697 mothers with parenting education and economic resilience groups; trained 3,189 community health workers to support HTS linkage and follow-up; trained 217 nurses in comprehensive HIV service delivery, and provided RBF to 248 clinics.

Lessons learned: Effective engagement of key ministries, local leaders, and community cadres to mobilize communities around paediatric ART, coupled with strong clinical-community linkages contributed to increased community awareness of paediatric and adolescent HIV services. Together with Treat All policy shifts, EIP contributed to universal paediatric ART coverage in project districts, up from 42% coverage in project districts at baseline (2014). A case management approach demonstrated to be an effective strategy for follow-up of affected children and families.

Conclusions/Next steps: Emerging lessons underscore the need for expanding and tailoring HIV case finding and case retention modalities to promote good clinical and social outcomes particularly for adolescents affected by HIV/AIDS. We continue to hone ways to introduce more differentiated care options that better meet the needs of children, adolescents and other key sub-populations.
Case management approach to upscale antiretroviral therapy (ART) uptake among people who inject drugs (PWIDs) in HIV high prevalence states, Malaysia

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\(^1\)The Malaysian AIDS Council, Special Initiatives Project, Kuala Lumpur, Malaysia, \(^2\)The Malaysian AIDS Council, Programme, Kuala Lumpur, Malaysia, \(^3\)The Malaysian AIDS Council, Global Fund Project, Kuala Lumpur, Malaysia

Background: In Malaysia, despite decentralized HIV care with free ART for all, ART uptake only 37% (2016) across PLHIV. The Integrated Bio-Behavioural Survey (IBBSI) 2014 among Key Populations (KPs), showed HIV prevalence among 1,444 PWIDs is 16.3%, with only 37.8% had tested in the last 12 month for HIV and know their results, and 29.1% of them received ART.

Description: From July 2016, five NGOs from five states with the highest HIV prevalence among PWID (44.7%, 30%, 21.3% and 5.7%) are chosen to implement the Case Management Project funded by the Global Fund.

The case management approach aims to link PWIDs to the public primary healthcare clinics. Community case workers were trained on knowledge on HIV/TB/Hepatitis C/OST treatment and supportive counseling skills to link PWIDs from community to the local clinic. Collaboration standard operating procedures (SOPs) workshops between NGOs and key stakeholders from public clinics under the Ministry of Health were organized at all selected states in July 2016, aimed to increase the understanding of clinics to challenges and facilitating factors of treating HIV positive PWIDs, and streamline the referral process of PWIDs to health clinics. Case workers also serves as facilitators between PWIDs clients and clinics to minimize issues such as miscommunication, stigma and discrimination in the clinic.

Lessons learned: Twenty five case workers has been trained to understand client’s needs and the best strategy to link PLHIV among PWIDs to care. Collaboration with the clinics has increased the uptake of HIV screening and OST. However, challenges remained to HIV treatment enrollment as PWID faced additional challenges along the process, such as criminalization of drug use in the country and compulsory drug rehabilitation programme by Anti-Drug Agency, making high drop-out rate of PWID from clinic follow up for ART and OST. Only 22% of HIV+ PWID in the programme has initiated ART in 2017.

Conclusions/Next steps: Malaysian AIDS Council (MAC) will advocate for decriminalizing of drug use from the removing legal barriers activities. Invited on national platform of drug policy reform working group to explore voluntary based treatment centers and rights to access for treatment by PWID. The country is committed Drug Policy Reform.

Reaching the unreached through the use of social media application for service delivery

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Background: In today’s digital life, social media and social web-based platforms, provide new opportunities to more effectively reach and engage MSM and transgender populations with HIV testing and treatment. People who have Sex with Men (MSM) have been impacted extremely by high rates of sexually transmitted infections, including HIV as the community is stigmatized, marginalized and criminalized.

Description: Due to changes in outreach patterns and community access, if is difficult to reach at-risk individuals through existing physical outreach. Considering the current increase and availability of modern technology platforms, the organization took need-based initiatives to develop the use of social media application i.e. WhatsApp application for service delivery. Methodology adopted:

1. Community Sensitization and Consent
2. WhatsApp group: groups were made by community outreach workers with the purpose of coordination between outreach workers and community members, sharing organizations activities and health camp schedule, social humor and immediate crisis response.

Brazilian eHealth strategy for expanding, strengthening and monitoring ART adherence

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Background: The Ministry of Health (MoH) of Brazil developed Viva Bem app, in order to provide free tools for strengthening self-care and promoting adherence of people living with HIV (PLHIV) to treatment, and recognizing that technology has been achieving an important space in people’s lives about health care.

Description: The app concept came from the perception that treatment information influences self-care and adherence to antiretroviral therapy. The development was supported by PLHIV of different age groups, genders and social classes. The app uses data from logistic control and

[Adopted Methodology, Data flow and Glimpses of groups and services ]
laboratory tests (viral load, CD4 and HIV genotyping) systems, showing tests results, ART information and allowing users to create alerts for medical appointment, laboratory tests and vaccines. The app allows the users to report the quality of health services and side effects. All information is saved in the MoH database.

**Lessons learned:** Viva Bem was released in September 2017 and has not been yet widely released, however, it already has 3,200 active users and 235,000 pageviews. 81.3% of users have returned to the app in less than 14 days, with 20.4% searching for laboratory test results and 6.3% for information about their medications. Access is higher among young people aged 18 to 34 years (61%), of both genders and all regions of the Brazil (91% from the Southeast region). Feedback from users reinforce the need for greater dissemination of the app. They report the impact that information quality has on their self-care, leading them to make more appropriate decisions about their health care, thus improving adherence to treatment. The tool for access test results in almost 9 days (less than before the app creation) has been the most praised tool.

**Conclusions/next steps:** It is recommended to update the app with attractive, informative and useful content for its users and create functions that allow the app to collect more data about the use and about the impact of it in self-care and adherence to treatment, allowing create public policies and develop effective interventions with eHealth strategies.

**THPED615**

**Comprehensive model of the client involvement in HIV testing and treatment: USAID RESPECT Project Experience**

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1, 2

**Background:** The National PLHIV Stigma Index research (All-Ukrainian Network of PLWH, Innovative Programs Unit, Kyiv, Ukraine, All-Ukrainian Network of PLWH, Kyiv, Ukraine) resulted in 11% of them deliberately avoid hospitalization and 8% faced with obstacles in access to health services. As of January 1, 2016, the estimates totaled 290,000 of PLHIV in Ukraine (with about 130,000 registered with AIDS centers). As a part of the RESPECT Project, the Network implemented the Client Involvement to Testing and Treatment (CITT) Model aimed at decreasing HIV-related S&D at healthcare facilities (HCF) and reaching the UNAIDS targets 90-90-90.

**Description:** Six regions of Ukraine have been covered with the CITT Model. 73 pilots HCF from those regions implemented the following activities:

- Gender-sensitive policies and awareness campaign to decrease HIV-related S&D among healthcare practitioners.
- Legal and psychological counseling and assistance for PLHIV; collecting the PLHIV rights violation cases, protecting of the patient rights, and preventing self-stigmatization.
- Provider-initiated HIV testing and counseling (PTITC) according to clinical indications and risk behavior screening.
- Approved patient referral algorithm (different for each HCF, according to the local specific features and requirements) aimed at patient successful involvement in testing and treatment.

**Lessons learned:** The designed and piloted algorithms results are as follows: 5,513 people tested for HIV; out of them, 939 are HIV+ and 797 registered with AIDS service. The overall testing yield is at 17%. The following key findings and lessons learned can be stated:

1. To be efficient, an algorithm must take into account such factors like HCF organizational structure, local situation with ongoing health reform, availability of the rapid HIV test kits, and political factors
2. Trainings and policies for healthcare practitioners increase their motivation to providing PTITC
3. The role of a social worker is crucial in algorithm implementation.

**Conclusions/next steps:** The CITT Model has proved its effectiveness in Ukraine: its components have been approved by chief doctors of the pilot HCFs. Patient referral algorithms will be used under the USAID HealthLink Project to be launched by the Network in March 2018.
**THPED617**

Leveraging mobile technology through helpline counseling: An effective strategy for accelerating progress toward Ghana’s 90/90/90 targets for key populations

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**Background:** The USAID Strengthening the Care Continuum Project (Care Continuum), implemented by JSI, collaborates and builds Government of Ghana and civil society partners’ capacity to provide quality, comprehensive, and stigma-free health services for key populations (KPs) and people living with HIV (PLHIV). In Ghana, national policy guidelines protect and promote all basic, fundamental human rights and freedoms, including the rights of vulnerable groups.

**Description:** Innovative technology approaches are required to better link KP to HIV related services. The Care Continuum trained 16 Helpline Counsellors (HLCs) in stigma reduction and HIV-related issues as an innovative approach to improving KP information and access to HIV services through live, confidential phone-based counseling services across all five regions. The unique feature about the strategy is to provide private, confidential and accessible services to those that may not seek HIV services at facilities. The Helpline Counsellors (HLCs) are also volunteers who work at Anti-Retroviral Therapy (ART) and Sexually Transmitted Infection (STI) clinics, facilitate referrals to their units, provide testing and counseling. They also accompany KP positives to get their laboratory tests, to collect ART drugs, and to help them follow-up treatment and support adherence plans.

**Lessons learned:**
- KP referrals by HLCs accounted for 42% of all KP enrollment and initiation in treatment from April 2017 to September 2017.
- Helpline counsellors trained in stigma reduction provide quality confidential HIV services to KP.
- Recruiting volunteer professional counsellors at ART and STI clinics as HLCs is cost effective because they do not need much additional training.

**Conclusions/Next steps:**
- Scale-up training of more HLCs at ART and STI clinics to reach more KP and PLHIV.
- Training HLCs from private sector will expand options for KPs to access quality services.
- This HLC intervention can be scaled at low cost by the government since it builds from current professional volunteers.

**THPED618**

Dating App to prevent HIV: A Brazilian eHealth project with/for young gay people

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**Background:** In Brazil, smartphones and apps are majority used by the youngest ones (higher access in some regions and groups). In this context, the Close Certo project was developed during the Rio 2016 - Olympics and Paralympics games, a non-costs partnership with the Ministry of Health of Brazil (MoH), dating app Hornet, UNAIDS and UNESCO.

**Description:** A total of 18 young gay men from 15 Brazilian cities volunteered for the project. They previously took part in a youth leadership training. A special miniguide was prepared to support their performance online. Labels and hashtags indicated on their profile availability to chat (some opened-up their serostatus). During 49 days, over 1,000 messages were exchanged between Brazilian Hornet users and volunteers. Four messages were sent to over 1 million users about combination prevention (PEP, PrEP, condoms and no discrimination). Daily experiences received mentoring in a confidential WhatsApp group, coordinated by the Ministry’s collaborators.

**Lessons learned:** Dating Apps help to prevent HIV, but one has to understand people’s expectations without pushing too hard: users were looking for sex, not to chat about health. The project helped the Brazilian MoH to improve the use of online channels and peer-to-peer strategies to reach out to the young population. New types of activism was also discussed. Some people questioned the project, when #closecerto (a youth slang, that means “nice done”) was “tweeted” live in the MoH press conference. Some thought the project was full of prejudice. It was an opportunity to discuss about it with a wide audience. Gradually, internet users began to understand the ideas behind the Close Certo. Among the Hornet users, within the dating app chats, there was no registration of criticism, only supportive messages.

**Conclusions/Next steps:** eHealth strategies can be combined with traditional communication strategies to spread the message in different ways to reach the HIV epidemic key populations, such as young gay men and MSM. Governments need to know the dating apps culture and develop new online communication strategies (in partnership with the apps). The challenge is to approach the key population through suitable messages.

**THPED619**

Easy to preach difficult to practice - experiences of evidence-based programme management

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**Background:** With the support of CDC, India HIV/AIDS Alliance implements ‘Nirantar’ programme to complement, aid and supplement National AIDS Control Organisation (NACO) in strengthening specific key areas of National AIDS Programme in selected three states (Madhya Pradesh, Chhattisgarh and Orrisa) through strategic information and utilisation of programmatic data of 124 targeted interventions (TIs) sites for prevention However, it was observed that there was a huge discrepancy in data entry and data quality in all the three states and only 17% TI provided error-free data out of 124 TIs.

**Description:** Nirantar has collected and reviewed 0.11 million individuals’ data from 124 TIs implemented by NGOs. Further data analysis was carried-out to effectively strategize prevention interventions for all KP groups. This data is currently being exported into a geographical information system (GIS) application to generate and establish evidence-based-monitoring system in the three states. During the review, the gaps were identified, which led to a bit of mistrust in NGOs from government.
Nirantar provided capacity building trainings, mentorship, technical support and handholding support to the 124 TIs in the three states on data management, data quality assurance methodology.

**Lessons learned:** Intensive technical support and capacity building of field level implementers on data management significantly increased quality and timely reporting from 17% to 65%. The analytical engine and GIS software has enabled efficient monitoring of TIs at the state and national level on KP profiling, risk practices, vulnerability aspects and service uptake.

**Conclusions/Next steps:** By providing technical support Nirantar team was able to regain the faith of government in NGOs and with increased capacities, NGOs also felt confident to do the better implementation for the communities.

### THPED620

**Desired characteristics of an eHealth enabled peer support intervention to address psychosocial and health system barriers to care among HIV-positive men who have sex with men in China**

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**Background:** Peer support offers tools for reducing multi-level barriers to timely appraisal and initiation of antiretroviral therapy (ART) among men who have sex with men (MSM) in China. Under half of HIV-positive MSM receive a CD4 count within 6 months of diagnosis (a step required to initiate ART as recommended), and less than half who qualify for ART initiate timely therapy. We aimed to understand the roles community-based organization (CBO) practices and internet-based support play in HIV-positive MSM’s illness self-management in order to adapt an evidence-based peer support model to assist throughout the continuum-of-care.

**Methods:** We interviewed HIV-positive MSM (n=30) recruited in Chengdu, China about interpersonal and systems-level influences on care, quality of life, and desired peer support services. We thematically analyzed transcripts in order to identify ways in which peer support might address barriers and challenges to care.

**Results:** Participants had lived with HIV 1.6-10.6 years. All were taking ART. Half reported symptoms consistent with mild/moderate depression (PHQ-9) and 5/30 reported thoughts of suicide or self-harm. In managing HIV diagnosis and treatment, participants used a range of support services including in-person group and individual counseling and electronic sources (online forums, chat groups, smartphone apps). CBOs were especially helpful post-diagnosis in coping with emotional difficulty and supporting linkage to care. Participants continued to encounter HIV-related fear and discrimination in societal and medical contexts, particularly from providers outside HIV care. Valued peer support functions included: accurate HIV/ART information, mental health support, information on gay/HIV-friendly providers, ART adherence assistance, and accompaniment to medical appointments. Prioritized characteristics of a peer supporter were HIV knowledge, kindness, providing an example of hope, non-judgmental, trustworthy, viewed as an equal, and HIV-positive.

**Conclusions:** Non-integrated HIV care systems, stigma, fear, distress, and minimal social support hindered service utilization. Peer-support was viewed as a desirable service among HIV-positive MSM to cope with systemic and psychosocial barriers to care. Formalizing an evidence-based peer support intervention for “one-stop” delivery through trusted CBOs could enhance CBO capacity and intervention accessibility and impact. Offering multiple options to engage with peer supporters (e.g. in-person and online, pair and group) could increase appeal and uptake.

### THPED621

**Nurse-led open access program to improve engagement in HIV treatment and care services at an urban community health center**

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**Background:** The HIV treatment cascade, particularly engagement in care, is critical to improved outcomes. Some patients face individual- and structural barriers to medical visit adherence. Neither a rigid, traditional appointment schedule nor an entirely open-access unscheduled visit model is ideal for all patients. At Callen-Lorde, 20% of patients account for 80% of missed appointments underscoring the need to develop new and flexible models of care access.

**Description:** Callen-Lorde, a community health center in New York City, provides comprehensive primary care to the lesbian, gay, bisexual & transgender (LGBT) communities and people living with HIV (PLWH). The clinic provides care to 3485 PLWH, predominantly MSM (90%) and transgender women. When reviewing the center’s HIV treatment cascade, missed visits predicted loss of viral suppression as well as uptake of preventive care services. We pilot-tested open access same-day HIV appointments. It became clear that most patients preferred traditional scheduled appointments. A more targeted, triage nurse-led open access program (NLOAP) was implemented. Using triage was key as patients missing routine appointments still have interim urgent care needs. Patients missing three scheduled appointments within six months were eligible. Additionally alerts were placed in patients’ charts to alert staff that patients were NLOAP eligible should they present for case management, medication refills or other face-to-face or phone encounters. Open-access eligible patients receive same-day appointments that address both urgent and HIV primary care needs with care delivered by a primary care provider with HIV expertise. The patient can opt to obtain all future HIV care using the open-access model or return to scheduled appointments.

**Lessons learned:**
- Nursing triage is an ideal way to identify patients who are lost to care for referral to an open-access care model.
- HIV treatment and care can be successfully delivered in an embedded, targeted open-access program model.
- The program was well received by patients and staff.
- Patients re-engaged in care have improved HIV-care outcomes.
- Some patients have subsequently decided to use only the open-access program for HIV services.

**Conclusions/Next steps:** Further study is needed to determine and compare long-term outcomes for patients using only open-access HIV care models, hybrid models or traditional models of HIV care delivery.

### THPED622

**The role of community organisations in negotiating with generic suppliers for equitable access to PrEP**

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**Background:** In Australia, most HIV infections occur among gay and bisexual men. With evidence showing that PrEP is highly effective at preventing HIV transmission among this group it is critical that national policies enabling rapid scale up of PrEP among key populations are adopted. Australia’s health system subsidies medication on the grounds of cost-effectiveness. Gilead Sciences, the original patent holder of the medication used for PrEP would not release their drugs to the Australian Government at a cost effective price. AFAO introduced competition into the system to break the monopoly and deliver equitable and affordable PrEP access in Australia. The gap between political will and cost effective access to PrEP was resolved through a well-intentioned productive relationship between community, generic manufacturers and government.

**Description:** The prospect of system failure compromised equitable access to PrEP in Australia. The solution was to create competition and break Gilead Sciences’ monopoly. Invariably it is the patent holder that...
initiate applications for government subsidisation in Australia. The situation with PrEP was different as the medication was an established drug that had come off patent. AFAO’s role was to act as an intermediary and broker conversations between generic manufacturers and the Australian Government. In effect, AFAO supported formal submissions from bona fide generic manufacturers into an unfamiliar process enabling a cost-effective price to be negotiated in competitive pricing environment. As a community-led organisation, AFAO’s unique role in establishing a relationship with generic manufacturers and government agencies brokered a solution to an impasse that placed Australia’s progress towards meeting its target to end HIV transmission in jeopardy.

Lessons learned: Relations between pharmaceutical companies and HIV community organisations are often characterised through the power imbalance between capital and consumer.

AFAO’s role in brokering equitable access to PrEP in Australia challenges this narrative and provides a window into the opportunity for community to influence outcomes that are in the public interest when relations with government and pharmaceutical companies are based on trust and goodwill.

Conclusions/Next steps: The goodwill and trust between government and HIV community organisations in Australia enabled AFAO to engage with generic providers of PrEP to broker equitable access to PrEP.

**THPEd263**

**Equitable access of PMTCT services in humanitarian setting with the involvement of conflict affected community**

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**Background:** Kachin is one of the states where there is highest HIV prevalence in Myanmar. As long-term conflict between Myanmar Army and KIA starting since June 2011, there are over 31,000 internally displaced persons (IDPs) from 470 households in 480 villages in Bhamo District. Kachin under non-government controlled area (NGCA). Most of IDPs depend on camp clinics for basic health care and there is no PMTCT services before. Only 35% of the area are covered by basic health staff under Ministry of Health & Sports (MOHS) in Government control area (GCA) and the rest area are covered only by KBA volunteers.

**Description:** UNICEF initiated partnership with KBA in delivering PMTCT services for most vulnerable pregnant women at NGCA through agreement with MOHMS under equity based humanitarian response in 2013. Kachin Baptist Association, Bhamo (KBA-BD) is the religious organization which is the most influential faith based organization among Kachin ethnic people. KBA-BD is delivering prevention of mother to child transmission of HIV (PMTCT) cascade services including HIV counselling & testing (HCT) by rapid test kits and referral to nearest health facility for treatment services for PWID in India.

**Lessons learned:** With support of UNICEF, 787, 897, 710 pregnant mothers were tested and positivity rate is 3.2%, 3.4% & 5.2% in 2015, 2016, 2017 respectively. Positivity rate is very high compared to national HIV prevalence of pregnant women, 0.6% in 2016. The significant achievement is 100% of HIV positive pregnant mothers receiving ARV in every year. Moreover, spouse testing rate is 4.7%, 2.7%, 8.3% in 2015, 2016, 2017 respectively so spouse testing is still needed to be strengthened. Early Infant Diagnosis has been introduced in 2017 and only 13 exposed babies were tested.

**Conclusions/Next steps:** These above successful evidence-based results are remarkable. Considering the sustainability of partnership and providing health care services at conflict situation in line with Do-No-Harm principle is very critical.

**THPEd264**

**Reaching the “unreached”: Secondary distribution of needles/syringes for people who inject drugs reduces harm for the most vulnerable in Northeast India**

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**Background:** In India, harm reduction for people who inject drugs (PWID) focuses on needle-syringe (NS) exchange. An outreach worker provides clean NS to PWID on a daily/weekly basis at injecting sites or drop-in centers (DIC), referred to as primary distribution of NS. However, primary distribution is unable to reach PWID in remote locations in India. PWID face barriers in NS collection including adjusting schedules to outreach hours, travel to DIC, and disruption of outreach by police.

**Description:** In March 2016, Project Sunrise, implemented by FHI 360 and funded by Centers for Disease Control and Prevention (CDC), addressed the issue of reaching PWID unable to access NS through primary distribution in Northeast India. Consultations were conducted with PWID and local stakeholders. Sites were mapped to ascertain which locations might effectively reach most vulnerable PWID. Subsequently, secondary NS outlets were identified including government facilities, pharmacies and tobacco shops. NGOs provided NS to secondary outlets. PWID were provided coupons for collecting NS based on demand. By December 2017, 40 secondary outlets were established across 13 districts, reaching 1,000 “hard to reach” and “unreached” PWID.

**Lessons learned:** Prior to establishing secondary outlets, community consultations and site-mapping are essential. Secondary distribution of NS can be successful even in government health facilities (primary health centres and rural clinics) which are often the only access points in remote locations. A coupon system allows clients to collect and track the distribution of NS. Injecting sites are dynamic, thus, a flexible approach of shifting “secondary” sites are important.

**Conclusions/Next steps:** In cases where primary distribution is unable to reach the most vulnerable populations, secondary distribution of NS should be explored. Secondary distribution outlets provide NS access to PWID, however, it should be ensured that they serve as an entry point for PWID to access other services including HIV testing, medically assisted treatment and linkage to ART. Project Sunrise will advocate with the Indian National AIDS Control Organization to include secondary distribution of NS as a key strategy in national guidelines on HIV prevention and treatment services for PWID in India.

**THPEd265**

**Combining research and advocacy is key to the HIV response. An example from Morocco**

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**Background:** Halting the HIV epidemic among key populations can only be achieved by deploying additional and innovative tools, such as Pre-Exposure Prophylaxis (PrEP) and community-based testing. In that sense, Association de Lutte Contre le Sida (ALCS), a major NGO in the field of HIV response in Morocco, has conducted advocacy based on research to enable access to these two strategies to Moroccan key populations.

**Description:** ALCS conducted from March to October 2015 a research project on community based HIV testing (CBHTS) operated by lay providers in four Moroccan cities. The results were extremely compelling: 68% of beneficiaries tested for the first time and 99% of them reported being satisfied with the experience, citing in particular ease in communication and respect of confidentiality. The study results were used to advocate towards the Ministry of Health (MoH), leading to the authorization given to ALCS to continue CBHTS as per the project before a national roll out.
THPED626
Evaluation of PrEP demand creation and uptake among young women in a Cape Town township: The 3P study

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Background: Oral Pre-exposure prophylaxis (PrEP) may significantly reduce HIV incidence among young South African women, who are particularly vulnerable to HIV infection. While PrEP has proven to be safe and effective, an implementation gap exists in terms of understanding how to create demand for PrEP among young women who would benefit the most. We developed a social marketing campaign to raise awareness and educate young women about oral PrEP, enumerate interest, and quantify the PrEP cascade in Masiphumelele Township near Cape Town, South Africa.

Methods: We developed a 90 second video about PrEP in collaboration with McCann Global Health, based on ethnographic research using behaviour-centered design, in Masiphumelele. The 2016 Masiphumelele census estimated 2092 young women ages 15-25, of which a random sample of young women were asked to complete a survey and to watch a short recruitment video. Participants who were interested in learning about PrEP were referred to community PrEP education sessions. Young women who were interested in PrEP and who had not been sampled were also invited to join the education sessions. All young women who had attended sessions were also invited to screen for a PrEP demonstration project.

Results: Of the randomly sampled 610 young women, 389 expressed an interest in learning more about PrEP and of these, 120 reported an interest in taking PrEP. Of those, 50 attended an education session and 45 consented to take PrEP. One hundred and ninety one young women who had not been sampled but were curious about PrEP came to the clinic to attend an educational session and of those 150 consented to take PrEP.

Conclusions: Even though our social marketing campaign was specifically tailored towards our target population, the PrEP cascade showed that the video stimulated interest in PrEP, but a minority followed through for additional information. Other recruitment strategies, including word of mouth, youth community education events, provider discussions, and social media (e.g., Facebook, WhatsApp) were complimentary components of PrEP demand creation.

THPED627
Costing comprehensive approaches to address human rights-related barriers to HIV services

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Background: There is an urgent need to reduce human rights-related barriers to HIV services, such as stigma, discrimination and gender inequality. Despite UN member state commitments to support the key programs known to reduce these barriers (stigma and discrimination reduction; training for health care providers on HR and medical ethics; sensitization of law-makers and law enforcement agents; reducing discrimination against women; legal literacy; legal services; and monitoring and reforming laws, regulations and policies), these programs have nowhere been sufficiently scaled up. Information about how much it will cost to address human rights-related barriers has also been missing. An initiative of the Global Fund to Fight AIDS, TB and Malaria (GFATM) is assessing human rights-related barriers to HIV services and supporting the scale-up of programs to reduce those barriers. A central element of this work is improved costing of these programs to facilitate planning and scale-up.

Description: An extensive consultation identified 20 countries for this effort. Country-level research assessed barriers to HIV services and whether existing programs addressed these concerns. Retrospective costs of existing services were estimated, alongside prospective costs of a proposed comprehensive five-year response to these barriers.

Lessons learned: Preliminary results show that investments in these programs remain far too low, sometimes representing under 5% of reasonable estimates of needed program support. Legal literacy programs are among the least funded. The GFATM’s estimates of investment needed over five years for a comprehensive response to rights-related barriers represent a significant increase from current levels, but the expected benefit in terms of access to and retention in HIV services is great.

Conclusions/Next steps: Multi-stakeholder consultations in the 20 countries are finalizing costing five-year plans to scale up programs to reduce rights-related barriers, with intensive evaluation and costing of programs to continue over that period. Additional GFATM funding is being made available to the 20 countries to kick-start the scale-up while contributions from other donors are sought. The unprecedented trove of information on cost of rights-related HIV programs from this initiative will enable modeling of impact of human rights programming and will inform advocacy and program planning worldwide.
THPED628
Contributing one dollar for HIV&AIDS by businesses: A sustainable funding strategy for workplace and community responses

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Background: Since 1982 of battling HIV&AIDS burden in Uganda, its financing has largely been relied on external funding of national, workplace and community interventions. With hardly any domestic funding, workplaces are most hit as businesses reluctantly invest in HIV&AIDS programmes despite impacting on productivity and competitiveness. In 2016 businesses in Uganda coordinated by Federation of Uganda Employers, the private sector one dollar HIV&AIDS initiative (ODI) was started and implemented. ODI aims at mobilizing local domestic resources from private sector organizations and individual business persons to intensify responses targeting working men and women and general population through prevention, treatment and care programmes.

Description: ODI identifies, mobilizes and organizes resources; in-kind & financial to provide meaningful and sustainable investment to HIV&AIDS workplace responses in Uganda targeting employees, suppliers and consumers. This corporate sustainability approach receives contributions of non-less-than one dollar from corporate organizations and business individuals making available technology, learning services and networks. Resources are channeled and invested into prevention, treatment and care of HIV&AIDS infected and affected working population, supply chains and consumers.

Lessons learned: Private sector presents untapped resources, opportunities and tested models to supplement efforts for sustaining gains achieved in the workplace HIV&AIDS responses if well mobilized and coordinated.

• Workplace HIV&AIDS responses require simple innovative approaches with clear demonstration on impact to the bottom line attracting support from multiplicity of partners.

• Efficient and transparent HIV&AIDS financing mechanism processes and systems attract investment from micro, small, medium and large enterprises across sectors including informal economy to invest in HIV&AIDS workplace programmes on a sustainable basis of up to 25% contribution towards national annual HIV&AIDS budget.

• In-kind investment from hotel, media and manufacturing sectors through free seminar venues. Air-time on electronic media and beverage products with HIV&AIDS messages reach the vulnerable adolescent girls and boys who comprise over 70% of general population.

Conclusions/Next steps: • Engaging private sector corporate sustainability approaches can support critical HIV&AIDS gaps and challenges accruing benefits to businesses.

• Demonstrating impact to company’s bottom-line is vital and effective for buy-in to support HIV&AIDS prevention initiatives in their workplaces.

• Robust tools for monitoring and assessing HIV&AIDS investment and spending are critical to attribute sector contribution.

THPED630
Story mapping to maximize resource allocation for key population (KP) HIV intervention in Ghana

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Background: For over a decade in Ghana, USAID (PEPFAR) and Global Fund (GF) have supported Civil Society Organizations (CSOs) in reaching Female Sex Workers (FSW) and Men Who Have Sex with Men (MSM) KP groups with critical HIV and STI information and services at ‘hotspots’. The lack of maps or databases to track shifting hotspot locations has resulted in disproportionate KP access to HIV and STI services and ineffective coordination among CSOs and public sector planners. A Story Map of funders, services and hotspots is a powerful tool to depict the KP experience in health service seeking while helping multi-donor agencies effectively coordinate HIV interventions for greater impact.

Description: The USAID Strengthening the Care Continuum Project, implemented by JSI, collaborates with and builds the Government of Ghana and CSO partners’ capacity to provide quality, comprehensive, and stigma-free health services for KPs. The Project developed an Esri Story Map of funders, 140 service delivery points (SDPs), and 1,700 KP hotspots in collaboration with 13 project grantees CSOs in 23 priority districts by efficiently aggregating information from multiple sources in 2 short workshops in March 2017. CSO participants and the Care Continuum Project used Google maps on web-browsers and smartphones to navigate, capture, and validate geographic coordinates for SDPs (i.e., public sector KP-friendly health facilities and CSO KP Drop-In Centers). The resulting web-based, password-protected Esri Story Map filters information by KP type, CSO, and funder, while integrating narrative and photos to holistically convey KP’s experiences. The map masks locations at close range according to approved IRB protocols to prevent location tracking.

Lessons learned: The Story Map shows hotspots in relation to CSOs funded by USAID / PEPFAR and G, proving useful for stakeholders to better visualize collaboration and overlap areas, and estimate for go-go-go activity scale-up.

Conclusions/Next steps: Story mapping is an effective, efficient, replducible tool which improves geo-scope coordination, while protecting KP and hotspot privacy. Using common apps (i.e., Google Maps) to collect data is low-cost, where data collectors routinely report updated hotspot locations securely to a master map designer without requiring extensive technical support.
THPED631  Lessons learnt from a novel HIV care & treatment funding model for health facilities in Nigeria, a resource constrained country: The reimbursement for incidents (RFI) funding model

O. Yemisi Bolanle1, O. Agbaje1, I. Osaigbovo1, I. Utuk1, C. Momah1, C. Agbakwuru2, O. Adekolu3, O. Okyeme1, H. Khamomo2, E. James1, S. Raj Pandey1


**Background:** Partnership between the governments of Nigeria (GN) and the United States (USG) through PEPFAR aims to strengthen the capacity to scale up HIV prevention, care and treatment services in Nigeria. While PEPFAR streamlined operational health facility costs in 2014, the GoN was unable to adequately fund operational HIV/AIDS related services. As a result, health workers were using their personal funds to pay for operational costs, and when they could not, services were not administered. In response to these gaps in care, the SIDHAS project developed the RFI funding model to better cover health facility operational costs. The RFI model reimburses health facilities through service providers, for operational cost incurred during service delivery. This abstract describes lessons learnt using the RFI funding model.

**Description:** The RFI funding model for 13 SIDHAS-supported states in Nigeria was developed to cover operational health facility costs such as telephone cards and home visits for HIV clients, internet costs for data entry, transport for sample logging to hub laboratories, and quality improvement measures. Funds reimbursed for operation costs to each health facility were calculated at 110 naira ($0.31 US) per client currently on ART in comprehensive treatment facilities and 300 naira ($0.83 US) per pregnant woman tested for HIV in PMTCT standalones facilities. The model reimbursed health workers monthly using standardized verifiable activity request and report forms.

**Lessons learned:** The RFI funding model was adopted in 100% of health facilities across 13 SIDHAS supported states in Nigeria. Health workers were motivated because of the RFI model directly reimburses cost incurred during service delivery. Improvement in service delivery was recorded, resulting in more clients visiting health facilities. Monthly pay out to health facilities improved from an average of 57% in 2015, to 66% in 2016 and 84% in 2017.

**Conclusions/Next steps:** The RFI model has proven to be a motivational tool for health workers and means to fund and improve HIV care treatment related operational costs in a resource-constrained country such as Nigeria.

THPED632  Integrating viral hepatitis, HIV, and opioid addiction advocacy: A successful campaign in North Carolina

L. Storrow1, D. Rowan1


**Background:** Since 2010, the North Carolina AIDS Action Network (NCAAN) has led HIV/AIDS treatment and prevention advocacy and lobbying efforts in North Carolina (NC), a state in the southern United States. In 2017, NCAAN expanded its scope of advocacy to include hepatitis testing and linkage to the hepatitis C (HCV) cure. Further, NCAAN explored trends in the opioid addiction epidemic occurring across the state. Due to the impact of the opioid crisis on the middle and upper classes, it has garnered the attention of conservative legislators who are not typically in support of expanded public health policy.

**Description:** According to NC Department of Health and Human Services (DHHS), HCV is the most common blood-borne infection and accounts for prevalence of 110,000 infections in NC. Nationally, about one-third of people with HIV are co-infected with hepatitis B (HBV) or HCV. To build support for state funding for treatment and prevention of hepatitis infections, NCAAN hosted six regional advocacy trainings across the state and organized an advocacy day at the NC state capitol. Advocates met with NC legislators to discuss HIV and hepatitis infection trends and how they align with opioid addiction trends. Hepatitis testing was provided in a public location to raise visibility. Professional lobbyists worked closely with key legislators to ensure funding was included in early drafts of the state budget.

**Lessons learned:** Based on interviews with legislators and lobbyists, NCAAN's advocacy efforts were critical in securing a state appropriation of US $600,000 in 2017 to fund increased hepatitis testing and train staff to link individuals to the cure. Framing increasing rates of hepatitis as a consequence of the opioid epidemic was politically strategic and helped generate support with more conservative, Republican lawmakers. The resulting funding appropriation supported increased testing for individuals at high risk across the state, and staff in the two regions of the state with the highest incidence of hepatitis.

**Conclusions/Next steps:** In 2018, NCAAN will generate and share data on increased HCV testing and cure rates in order to justify continued funding. During the next legislative session, NCAAN will be lobbying for US $1.2 million in state appropriations to support expanded efforts.

THPED633  Active position during procurement process to cut the price of ARVs and diagnostic helps to expand the access to treatment

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**Background:** The corrupted system, economic crisis, are preconditions of unfavorable conditions for procurement of drugs under prices available at the market.

**Description:** In order to reduce the costs for treatment and monitoring of HIV Network use a various methods:
- regular negotiations with suppliers of antiretroviral drugs and diagnostics with the purpose to less the price. Negotiations even with winners of tender procedure, or with suppliers in conditions of limited market or even in case if market represented only by one (soul) sours. In all negotiations we rely on prices available on world market.
- use of reduction bidding procedure when purchasing ARVs.
- increase the volume of procurements combining the needs for 2 or even 3 year in one procurement, which also helps to obtain better prices.
- procurement of drug combination instead of separate drugs.

All indicated methods can be effective. The costs spend by Network for ARVs decreased from year to year.

**TDF-FTC-EFV (generic) - price per yaer course**
- $87,24 - 2017
- $101,16 - 2016
- $101,16 - 2015
- $87,24 - 2014

This experience helps to achieve savings, expand treatment, advocate price reduction at the level of other procurement structures, incl. the state level facilities, such as Ministry of health.

The difference in prices between Network procurements an procurements performed by MoH was significant, that fact helps to advocate the transferring of procurement functions from MoH to international procurement agencies, which resulted the huge economy of state budget, and possibility to cover additional need in treatment.

**Lessons learned:** regardless of the situation on the market, the use of various cost-cutting methods is always relevant, considering the goals of treatment expansion. Low prices can be a good argument for advocating price reductions at the state level procurements in conditions of corrupted system.

**Conclusions/Next steps:** such an approach will be applied in the further, if possible, not only with the purchase of antiretroviral therapy, but also other products.
Integration of HIV and sexual and reproductive health services

THPED634

Working with children and young people as agents of change for better SRH/HIV health outcomes in Zambia


Background: Zambia has a young population which faces various SRH/HIV challenges that threaten their health including early sexual debut, teenage pregnancy, child marriages & HIV. The country has over the past two decades been at the epicenter of the HIV epidemic resulting in 13.3% of young population aged 15-49 estimated to be HIV-positive (ZDHS,2014). The current Ministry of Health policy is to allow adolescents, from the age of 16 years, to access HIV services without parental consent. In addition, the Family Planning policy states that mature minors can also access SRH/HIV services. Although evidence has shown that policy pronouncements have prioritised SRH services for adolescents and young people but is it a main concern in Zambia? It is against this background that SAF AIDS is implementing a Social Accountability Project whose aim is to strengthen social accountability and advocacy skills of adolescents as the right holders to hold duty bearers accountable in public resource management for SRH/HIV.

Description: SAF AIDS built capacity in 20 Social Accountability Monitors to take action and responsibility for their SRHR and hold government accountable in public resource management in the provision of SRHR services. The monitors analyze the documents from the health facilities and such as the activity workplans, annual reports and budgets. Apart from analyzing the documents the monitors also conduct meetings with the youths that access services from the youth friendly corners at the health facilities in order to encourage them to realize their rights to accessing SRH services as a lived capability thus resulting in an increase in the uptake of services.

Lessons learned: Young People can be powerful drivers of social change, when availed with requisite tools, resources, confidence and entry into strategic and safe spaces to navigate the SRH/HIV allocations to meet their specific needs. Evidence generated by the monitors has paved way for evidence based monitoring and engagement of key stakeholders at community level and community level advocacy has resulted in key actions at national level for provision of ASRH services.

Conclusions/Next steps: Hosting of national policy dialogues with key government representatives to ensure the young people access to SRH information, access to care centers and adequate services.

THPED635

Mapping the impact of the expanded Mexico City Policy for HIV/ family planning service integration in PEPFAR-supported countries: A risk index

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Background: The previously named Mexico City Policy (MCP) -which prohibited non U.S.-based non-governmental organizations (NGOs) from receiving U.S. family planning (FP) funding if they advocated, provided, counseled, or referred clients for abortions, even with non-U.S. funds - was reinstated and expanded in 2017. For the first time, the expanded MCP (EMCP) applies to HIV funding through the President’s Emergency Plan for AIDS Relief (PEPFAR) in addition to FP funding. Previous, and more limited, iterations of the policy forced clinic closures and decreased women’s contraceptive access, prompting the need to examine where and how the EMCP may impact in-country FP/HIV service integration.

Methods: The likelihood of FP/HIV service de-integration under the EMCP was quantified using a composite risk index for 31 PEPFAR-funded countries. The index combines six standardized indicators from publically available sources organized into three sub-indexes: 1) The importance of PEPFAR for in-country service delivery of HIV and FP services; 2) The susceptibility of implementing partners to the EMCP; and 3) The integration of FP/HIV funds and programming through PEPFAR and USAID.

Results: Countries with the highest overall risk scores included: Zambia (3.3), Cambodia (3.2), Uganda (3.1), South Africa (2.9), Haiti (2.8), Lesotho (2.8), Swaziland (2.1), and Burundi (1.9). Zambia’s risk score is driven by sub-index 1, having a high proportion of country HIV expenditures provided by PEPFAR (86.3%). Cambodia and Uganda’s scores are driven sub-index 3, with both countries reporting 100% of PEPFAR supported HIV delivery sites were providing integrated FP services in 2017. South Africa’s risk score is driven by sub-index 2, where roughly 60% of PEPFAR implementing partners are non U.S.-based NGOs. Of the countries with the highest risk scores, Swaziland, Lesotho, South Africa, and Zambia are in the top quartile of PEPFAR countries for HIV prevalence among young women (Figure 1).

Figure 1: HIV Prevalence in Young Women (2017) vs. Integration Risk Index Score

Conclusions: This analysis highlights where and why the EMCP may have the greatest impact on FP/HIV service integration. The possible disruption of service integration in countries with generalized HIV epidemics highlights significant risks. Researchers, national governments and non-U.S. funders can consider these risk factors to help target their resources to the EMCP and mitigate potential harms of the policy.

THPED636

Assessing the family planning needs of people living with HIV in Cross River and Akwa Ibom states, Nigeria

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Background: There is now sufficient evidence to demonstrate integrating family planning (FP) and HIV services significantly reduces unmet need for FP among HIV infected women. In Nigeria, where unmet need for family planning (16% NDHS 2013) is high, as is HIV prevalence (3.2%, 2014), there is little known about the specific FP needs of people living with HIV (IPLHIV). With funding from PEPFAR through USAID, FHI 360, lead implementing partner on the Strengthening Integrated Delivery of HIV Services (SIDHASI) project, conducted a study to determine the FP needs of PLHIV in selected sites in southern Nigeria.

Methods: A cross- sectional quantitative study was conducted in September 2016 in Akwa Ibom and Cross River states in southern Nigeria. Forty-three of the 100 PEPFAR facilities supported for FP/HIV integration were selected based on the criteria of providing both HIV and FP services and having a minimum of 1000 HIV-positive clients on treatment. All PLHIV attending clinic in the two states were approached to participate in the study. Respondents who consented were interviewed using
ANC/PNC have been adopted differently in Tanzania and Malawi. These conclusions:

as attending a HIV clinic.

Tanzania where it enabled them to collect ART without being identified

PMTCT and

The qualitative data indicated that ANC/PNC providers in both settings

reaches two years and breastfeeding often ceases.

that following the delivery of the baby, women living with HIV should

the first recommendation by WHO in 2004. In Malawi, policy stipulates

in Malawi and Tanzania adopted a policy of providing integrated PMTCT and

and rural Tanzania (Ifakara District) with health providers (5) and women

HIV services, including those for PMTCT.

Evolution in policy adoption pertaining to the delivery of antenatal and

methods:

and how differences in implementation across settings may influence

nancy and postnatal periods. However, there are limited data on how

transmission within antenatal and postnatal care, and

Integration of prevention of mother-to-child transmission within antenatal and postnatal care, and its impact on HIV service delivery and utilization:

A mixed methods study in rural Tanzania and Malawi

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Background: Integration of prevention of mother-to-child transmission (PMTCT) services within antenatal and postnatal care (ANC/PNC) in African settings has been shown to increase uptake of HIV care and treatment, and to improve retention by reducing clinic visits during preg-

nancy and postnatal periods. However, there are limited data on how

service integration has occurred in practice at the health facility level, and how differences in implementation across settings may influence

women's experiences of using these services.

Methods: A mixed methods study was conducted that included a policy review of World Health Organization (WHO) guidance and national HIV policies in Malawi and Tanzania over the period 2003-2012 to capture the evolution in policy adoption pertaining to the delivery of antenatal and

HIV services, including those for PMTCT.

In-depth interviews were conducted in rural Malawi (Karonga District) and rural Tanzania (Ifakara District) with health providers (9) and women (15) receiving ANC/PNC, PMTCT or routine ART services to explore their experiences in receiving or providing ANC/PNC and HIV services. Data were recorded, transcribed, translated and analysed thematically.

Results: A review of six (3 in Tanzania and 3 in Malawi) national policy documents indicated that Malawi and Tanzania adopted a policy of providing integrated PMTCT and

ANC/PNC services since 2005 and 2007 respectively, which was after the first recommendation by WHO in 2004. In Malawi, policy stipulates that following the delivery of the baby, women living with HIV should be transferred to routine ART care at six weeks, in contrast to Tanzanian policy which indicates referral to routine ART services when the child reaches two years and breastfeeding often ceases.

The qualitative data indicated that ANC/PNC providers in both settings appreciated integrated services, and often found means to adhere to policies and guidelines. Pregnant women living with HIV and receiving

ANC/PNC services spoke favourably of integration, particularly in rural Tanzania where it enabled them to collect ART without being identified as attending a HIV clinic.

Conclusions: WHO recommendations on integration of PMTCT into

ANC/PNC have been adopted differently in Tanzania and Malawi. These differences should be considered when investigating variation in reten-

tion in care for HIV-infected mothers across Africa settings.
allocated to HIV testing based on patient load. Routine data on persons tested were extracted from facility registers for October 2016-September 2017. The costs per person tested and per person diagnosed with HIV were calculated and compared across the facilities.

Results: A total of 17,865 persons were tested for HIV (range 507-8,950), with 549 (3.1%) cases of HIV detected. The average cost per person tested is $2.19US (range $1.73 - $4.05). The cost per HIV case diagnosed ranges from $55.16-$104.4US. Health worker time, on average, represents 61.2% of the cost per person tested (range 50.7%-77.5%). There is no clear relationship between the cost per HIV case and the number of people tested (scale) or HIV prevalence (Figure 1).

Conclusions: The costs of facility-based testing services estimated in this study are consistent with recent facility-based studies in low income Southern Africa (cost per person tested ranges from $4.24 - $4.12US). Both cost per person tested and cost per diagnosis show considerable variation across the facilities. While scale and HIV prevalence are often considered key drivers of the cost per HIV diagnosis, our data suggests that additional factors, such as the nature of the facility and the interaction between scale of operation and HIV prevalence, may also need to be considered in making resource requirements estimations for the future.

### Table 1: Service outputs, average annual cost and average costs of HIV testing (USD, 2017 prices)

<table>
<thead>
<tr>
<th>Facility / Type of facility</th>
<th>Number of HIV tests (1st / conf.)</th>
<th>% HIV</th>
<th>Total Annual Cost ($)</th>
<th>Staff cost as a % of total annual cost</th>
<th>Cost per person tested ($)</th>
<th>Cost per HIV case ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sangio / Faith-based health clinic</td>
<td>507 / 32</td>
<td>6.3%</td>
<td>2,003</td>
<td>77.5%</td>
<td>4.00</td>
<td>63.44</td>
</tr>
<tr>
<td>Baracks Military health facility</td>
<td>4,344 / 136</td>
<td>4.0%</td>
<td>11,392</td>
<td>74.2%</td>
<td>3.35</td>
<td>83.77</td>
</tr>
<tr>
<td>Chiulma Rural Hospital Public health facility</td>
<td>8,950 / 280</td>
<td>3.1%</td>
<td>15,444</td>
<td>50.7%</td>
<td>1.73</td>
<td>55.16</td>
</tr>
<tr>
<td>Fuilwa Public health clinic</td>
<td>1,469 / 35</td>
<td>2.4%</td>
<td>2,859</td>
<td>56.9%</td>
<td>1.95</td>
<td>81.70</td>
</tr>
<tr>
<td>St Anne’s / Faith-based health facility</td>
<td>3,255 / 66</td>
<td>2.0%</td>
<td>6,693</td>
<td>59.9%</td>
<td>2.07</td>
<td>104.44</td>
</tr>
<tr>
<td>Average</td>
<td>3,353 / 110</td>
<td>3.1%</td>
<td>7,724</td>
<td>61.2%</td>
<td>2.19</td>
<td>70.34</td>
</tr>
<tr>
<td>Total</td>
<td>17,655 / 549</td>
<td>4.0%</td>
<td>14,619</td>
<td>61.2%</td>
<td>2.19</td>
<td>70.34</td>
</tr>
</tbody>
</table>

*Unit cost Determine (1st Test) $0.80; Unit cost confirmatory test (UlinaGold) $1.60; costs of test kits plus personnel (previously shown to be 80-90% of total costs).

(Figure 1: Number of persons tested, HIV prevalence and cost per HIV diagnosis by facility)

#### THPEE640

**PrEP for priority populations in Vietnam has the potential to cost-effectively decrease HIV incidence in urban settings: A mathematical modeling analysis**

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**Background:** HIV remains a public health threat in Vietnam, with 11,000 new infections and 7,800 AIDS-related deaths in 2015. The epidemic is concentrated among key populations, especially injecting drug users, men who have sex with men, and female sex workers and their partners. Large cities are a focus of the concentrated epidemic. Antiretroviral pre-exposure prophylaxis (PrEP) decreases HIV acquisition by approximately 90% and has the potential to decrease HIV incidence among key populations.

**Methods:** We adapted and validated a dynamic HIV transmission model (Spectrum) for the urban centers of Hanoi and Ho Chi Minh City (HCMC). We estimated the impact and cost of PrEP scale-up to key populations between 2018 and 2050. Assuming a five-year scale-up beginning in 2018, PrEP coverage varied, from 20% to 80%, with 80% adherence and 90% efficacy. The cost of PrEP also varied, from US$89 to US$245 per person per year. Net costs were calculated as the difference in PrEP and averted antiretroviral therapy costs.

**Results:** The model predicted that at 60% PrEP coverage among high-risk populations in Hanoi, by 2050, almost 30% of new HIV infections could be averted each year. This could prevent more than 7,200 new infections over the forecast period. Additionally, more than 15% of AIDS deaths could be averted each year and almost 1,800 deaths prevented over the forecast period. In HCMC, almost 50% of new HIV infections could be averted each year by 2050 by scaling up PrEP to 60% coverage in high-risk populations. This could lead to prevention of more than 24,300 new infections over the forecast period. In addition, almost 40% of AIDS deaths could be averted each year and more than 5,500 deaths prevented by 2050. Overall, with low PrEP costs, scaling up PrEP could cost-effectively prevent incident HIV infections (incremental cost-effectiveness ratio $4.500/incident case averted). PrEP would be more cost-effective in HCMC than in Hanoi, due to higher HIV prevalence in HCMC.

**Conclusions:** PrEP has the potential to cost-effectively, substantially reduce HIV incidence and HIV-associated mortality in a concentrated epidemic setting. Targeting PrEP to key populations in an urban setting could be a high-yield strategy.

#### THPEE641

**Cost and efficiency of short messaging service (SMS) and peer navigation to improve linkage and retention for patients newly enrolled in HIV care in South Africa**

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**Background:** Short messaging service (SMS) and peer navigation (PN) show promise in facilitating linkage to and retention in HIV care. However, the cost and efficiency of these interventions have not been established in sub-Saharan Africa where cost-effective programs to improve care engagement are urgently needed. We estimated the incremental cost per patient linked to and retained in care within SMS and PN interventions among patients newly HIV diagnosed in North West Province, South Africa.

**Methods:** We conducted a three-arm randomized trial in 17 clinics in Bojanala Platinum District comparing standard of care (SOC, 4 clinics), an SMS intervention (SMS, 6 clinics) and an SMS plus peer navigation in-
tervention (PN, 7 clinics). Participants were over 18 years and diagnosed with HIV in the prior year. We conducted standardized micro-costing and time-and-motion studies to determine the incremental costs of the two interventions. We employed chart abstraction to assess linkage (within 30 days) and 12 month retention (Pre-ART clients: biennial CD4 screening, spaced 4-8 months apart; ART clients: 4 clinic visits over 12 months, < 4 months between visits). We employed generalized estimating equations to assess outcomes and estimated the incremental cost and efficiency of SMS and PN compared to SOC.

Results: We enrolled 752 individuals across trial arms (see Table). Over the entire trial, the incremental costs (over SOC) of SMS was $19,458 and the incremental costs of PN were $51,286. Compared to SOC PN, but not SMS was associated with increased linkage to (OR=2.70, 95% CI=1.87-4.66; OR=1.64, 95% CI=0.78-2.18, respectively) and retention in care (OR=2.90, 95% CI=1.67-5.06; OR=1.30, 95% CI=0.78-2.18, respectively); the incremental cost per patient of PN ($512) was higher than the incremental cost per patient of SMS ($57); the incremental cost per patient linked of PN was $1251; and the incremental cost per patient retained of PN was $1428.

Conclusions: Although the SMS intervention cost less than the PN intervention to implement, only the PN intervention was effective at increasing linkage to and retention in care and thus an efficient use of resources. It will be important to test how these interventions can be used together to maximize both efficiency and cost-effectiveness.

### THP6643

**Cost-effectiveness of integrating buprenorphine/naloxone for opioid use disorder into treatment for HIV/HCV co-infected persons who inject opioids in the U.S.**

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**Background:** Untreated opioid use disorder (OUD) impacts the care of HIV/HCV co-infected persons who inject drugs (PWID). A proportion of this population is engaged in HIV care, adherent to HIV medications, and increasingly offered HCV treatment. Integrating medications for OUD such as buprenorphine/naloxone (BUP-NX) into care may improve outcomes, but the clinical impact and costs are unknown. We evaluated the cost-effectiveness of integrating BUP-NX into onsite HIV/HCV treatment for this population compared with the status quo.

**Methods:** We used a Monte Carlo simulation model to compare the cost-effectiveness of 1) standard HIV care with onsite HCV treatment and referral to offsite OUD care (status quo); 2) standard HIV care with onsite HCV and BUP-NX treatment (integrated care).

All individuals begin the simulation in HIV care. We used national databases, clinical trials, and observational cohorts to inform model inputs, including demographics (66% male, mean age 45y), HIV and HCV care characteristics (HIV: 71% ART adherence, HCV: 94% initiation, 97% completion), HCV treatment efficacy (up to 100%), and HCV re-infection risk (52 cases/100PY). Outcomes included life expectancy (LE), discounted quality adjusted-life years (QALYs), lifetime discounted costs, incremental cost-effectiveness ratios (ICERs), deaths, and HCV reinfections. Costs ($US) and QALYs were discounted at 3% annually, and ICERs compared to a threshold of $100,000/QALY.

**Results:** The status quo resulted in LE of 10.85y and 3.61 QALYs at a cost of $364,400. Integrated care extended LE by 0.39y, provided an additional 0.23 QALYs, and, compared to status quo, had an ICER of $59,100/QALY. The status quo resulted in 62 reinfections/1,000 individuals and integrated care resulted in 46 fewer reinfections. In the near-term (5 years) the benefit of integrated care was preventing fatal sequelae of opioid use (28 fewer deaths/1,000). In the long-term (20 years), integrated care also decreased the burden of liver-related mortality (29 fewer liver-deaths/1,000). Findings were robust in sensitivity analyses assessing variation in reinfection risk, cost of BUP-NX and BUP-NX duration and efficacy; except when both reinfection rates and BUP-NX costs were higher (ICER=$129,000).

**Conclusions:** Integrating BUP-NX into treatment for HIV/HCV co-infected PWID improves life expectancy, is cost-effective, and should become part of routine treatment.
THPEE644
Modeling the cost-effectiveness of repeat maternal HIV testing in Kenya and South Africa

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Background: Repeat HIV testing during pregnancy/breastfeeding can help detect new maternal HIV infections and prevent mother-to-child HIV transmission (MTCT). Many African countries have introduced repeat testing approaches, however, economic analysis and public health impact of approaches have not been conducted.

Methods: We constructed a Markov decision-analytic cohort model for MTCT to assess the cost-effectiveness of repeat testing in Kenya and South Africa. Model parameters incorporate maternal HIV infection status and stage of seroconversion, pregnancy/postpartum status, maternal antiretroviral therapy, infant antiretrovirals, and viral suppression. We estimated the potential impact of varying the timepoint and frequency of repeat maternal testing on infant HIV infections averted under various testing scenarios:

1) late gestation/delivery,
2) 6 weeks postpartum,
3) 6 months postpartum, and
4) late gestation/delivery plus 6 weeks postpartum.

Repeat testing was cost-effective if the incremental cost-effectiveness ratio (ICER) was < 3 times the threshold national per capita gross domestic product (US$1500 in Kenya and US$5500 in South Africa).

Results: Assuming a population of 1,600,000 for each country, the number of infant infections averted during pregnancy and through 12 months postpartum attributed to repeat maternal testing ranged from 2,956-6,289 in Kenya and 2,960-42,454 in South Africa (Tables) under scenarios 3 and 4, respectively. The ICER for repeat maternal HIV testing ranged in Kenya from $420 (scenario 1) to $7,133 (scenario 3) and in South Africa from $461 (scenario 1) to $3,285 (scenario 3) per infant infection averted. Compared to the base case model, repeat testing at 2 time points (scenario 4) averts the largest proportion of MTCT (41% reduction in Kenya vs. 34% in South Africa). Using a single repeat testing strategy, repeat testing during late gestation/delivery resulted in the largest reduction in MTCT (16% in Kenya vs. 30% in South Africa).

Conclusions: In our model, all repeat maternal testing scenarios were cost-effective and averted infant infections in Kenya and South Africa, but repeat testing in late pregnancy/delivery or at 6 weeks postpartum resulted in substantially larger reductions in MTCT than 6 months after delivery. These findings have important implications for designing repeat testing approaches as a strategy to prevent MTCT and improve maternal health.

<table>
<thead>
<tr>
<th>Testing strategy</th>
<th>Incremental costs (b)</th>
<th>Infant infections averted (c)</th>
<th>ICER (b)</th>
<th>Percent of maximum potential benefit achieved (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOUTH AFRICA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategy 1</td>
<td>16,650,531</td>
<td>37,852</td>
<td>440</td>
<td>30.5</td>
</tr>
<tr>
<td>Strategy 2</td>
<td>12,650,573</td>
<td>11,973</td>
<td>1,057</td>
<td>9.7</td>
</tr>
<tr>
<td>Strategy 3</td>
<td>9,216,296</td>
<td>2,960</td>
<td>3,113</td>
<td>2.4</td>
</tr>
<tr>
<td>Strategy 4</td>
<td>23,033,301</td>
<td>42,454</td>
<td>540</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Cost-effectiveness analysis results:

- a) Strategy 1: testing at first antenatal care (ANC) visit and in late gestation or delivery; strategy 2: testing at first ANC, 6 week maternal child health (MCH) visit; strategy 3: testing at first ANC and, 6 month MCH visit; strategy 4: testing at first ANC, late gestation or delivery, and 6 week MCH visit.
- b) ICER: incremental cost-effectiveness ratio, in 2017 US$ per infant infection averted; base case assumes testing at first ANC only. c) The percent of maximum potential benefit achieved is the number of infant infections that could be averted by the testing strategy divided by the total number of infants expected to be infected under the base case scenario (testing at first ANC alone) in a population restricted to women eligible for HIV testing under model assumptions.

THPEE645
Work and home productivity of HIV-positive and HIV-negative individuals in Zambia and South Africa. A cross-sectional baseline survey of the HPTN071/PopART trial

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1Imperial College London, Infectious Disease Epidemiology, London, United Kingdom, 2Imperial College London, London, United Kingdom, 3University of Zambia, ZAMBART Project, Lusaka, Zambia, 4Osmond Tutu TB Centre, Stellenbosch University, Cape Town, South Africa, 5London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Little is known about the impact of HIV on the work and home productivity of HIV-positive individuals in sub-Saharan Africa. Most existing evidence originates from individuals employed in the formal sector and at specific disease stages, which are not representative of the general working population. This study compared the number of work days lost to illness or accessing health care for HIV-positive and HIV-negative individuals in South Africa and Zambia.

Methods: As part of the HPTN 071 (PopART) study, data from approximately 2000 randomly selected adults aged 18-44 years were gathered between November 28, 2013, and March 31, 2015, from each of 21 communities in Zambia and South Africa. Information on the number of productive days lost in the last 3 months, laboratory-confirmed HIV status, labour force status, age, ethnicity, education, and recreational drug use was collected. Differences in productive days lost between HIV-negative and HIV-positive individuals at various lengths of time on treatment were estimated with negative binomial models. Results are presented in differences in productive days lost.

Results: From data for 19,750 respondents in Zambia and 18,941 respondents in South Africa, HIV prevalence was 21.0% (Zambia) and 22.2% (South Africa). HIV-positive individuals lost more productive days to illness than HIV-negative individuals in both countries. Excess productive days lost by HIV-positive individuals in a 3-month period were 0.74 (95% CI: 0.48-1.01, p = 0.001) in Zambia and 0.13 (95% CI: 0.04-0.23, p = 0.007) in South Africa compared to HIV-negative individuals. Results for excess days lost disaggregated by ART status were as follows:

<table>
<thead>
<tr>
<th>HIV-positive individuals not on treatment</th>
<th>Zambia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.61 (95% CI: 0.30-0.92, p = 0.001)</td>
<td>0.03 (95% CI: 0.00-0.11, p = 0.416)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HIV-positive individuals on treatment for less than one year</th>
<th>Zambia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.24 (95% CI: 0.34-2.14, p = 0.007)</td>
<td>1.41 (95% CI: 0.00-4.82, p = 0.011)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HIV-positive individuals on treatment for one to two years</th>
<th>Zambia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.08 (95% CI: 0.69-1.17, p = 0.038)</td>
<td>0.18 (95% CI: 0.19-1.54, p = 0.341)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HIV-positive individuals on treatment for three years or more</th>
<th>Zambia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.79 (95% CI: 0.16-1.41, p = 0.014)</td>
<td>0.00 (95% CI: 0.00-0.961)</td>
<td></td>
</tr>
</tbody>
</table>

Excess days lost disaggregated by ART status

Conclusions: There is a significant burden in lost work and home productivity due to HIV in the general population, but it is smaller than existing estimates for samples dominated by formal sector workers. Productive days lost need to be considered when evaluating the benefit of HIV prevention from a societal perspective. The findings will support policy makers in building an investment case for HIV interventions.
Abstracts

THPEE646
Economic evaluation of HIV self-testing in outpatient departments in Malawi: Results from EQUIP
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Background: The provision of HIV self-testing (HVST) in outpatient departments (OPD) has been shown to increase facility capacity for HIV testing in Malawi, given high OPD patient volumes and substantial wait times. To assess the feasibility of HVST scale-up at OPDs in Malawi, the cost per new HIV-positive patient identified using HVST in the OPD was calculated and compared to routine provider initiated testing and counseling (PTC) and Optimized-PTC.

Methods: A three-arm cluster randomized controlled trial of HVST was conducted at 15 sites in Malawi:
1) PTC;
2) Optimized-PTC (additional training and job-aids); and
3) HVST (HVST demonstration, distribution, and kit use in OPD, private spaces for kit interpretation, optional HIV counseling).

Costs were estimated from a provider perspective at 5 sites using a bottom-up costing approach. Optimized-PTC costs included facility staff training, while HVST costs included research staff training and salaries, community sensitization, and the cost of HVST kits. A cost per newly identified HIV-positive patient (“new positive”) was calculated for three scenarios:
1) trial-based costs (baseline),
2) routine implementation costs (use of local staff, annualized training and community sensitization costs); and
3) negotiated HVST cost (routine implementation costs with the price of HVST reduced to the price of a standard HIV test (from $2 to $1).

Results: In scenario 1, the average cost per patient tested was $2.33, $4.68, and $4.73 for PTC, Optimized-PTC, and HVST, respectively. The average cost per “new positive” was $95, $152, and $179. The cost drivers were HVST kit price, training and community sensitization. In scenario 2, the average cost per new positive dropped substantially to $79, and $92, for Optimized-PTC and HVST respectively, and remained the same for PTC. In scenario 3, HVST became cost saving at $54 per new positive. Cost savings for HVST remain even when the HIV-positive yield is reduced by 40%.

Conclusions: While identifying a new HIV-positive patient through HVST in the OPD is slightly more expensive ($2) than PTC in routine implementation, HVST may become cost-saving if the cost of HVST kits can be reduced. For high volume or overcrowded clinics, HVST may offer one approach to increasing capacity and efficiency.

Economics of affordability

THPEE648
Costs of two rounds of home-based HIV testing and counselling in Zambia: Evidence from the HPTN 071(PopART) study
B. Thomas1, S. Kanema1, L. Mwenge2, S. Lloyd3, B. Bock4, H. Ayles3, N. Beyers4, S. Fidler5, R. Hayes3, K. Hauck6
HPTN 071(PopART) Study Team
1Imperial College London, Infectious Disease Epidemiology, London, United Kingdom. 2University of Zambia, ZAMBART Project, Lusaka, Zambia. 3London School of Hygiene and Tropical Medicine, London, United Kingdom. 4Desmond Tutu TB Centre, Stellenbosch University, Cape Town, South Africa. 5Imperial College London, London, United Kingdom

Background: The HPTN 071(PopART) trial is a 3-arm RCT offering a combination prevention intervention comprising annual rounds of home-based HIV testing (HBTC) delivered by Community HIV-Care Providers (CHPs) who also support linkage to care. ART retention and other HIV-related services in 21 communities in Zambia and South Africa. In Zambia, 8 communities received the CHPs community wide intervention. We estimated total and community-specific unit costs over two rounds of the intervention.

Methods: We applied micro-costing methods to estimate the economic costs of HBTC delivered to over 250,000 individuals between December 2013 and December 2016. Total costs, cost per person tested, and cost per person tested positive were calculated. Data on salaries, equipment, supplies, transport, and general administration were extracted from program records, and merged with outcome indicators from program data. Probabilistic sensitivity analysis (PSA) by random sampling from specified distributions was conducted to determine the sensitivity of estimates to uncertainty in cost components. Costs are presented as means and standard deviations from the PSA simulations.
Results: In the first round, 126,208 individuals were tested, and among those 9,196 (7%) tested HIV-positive. In the second round, 136,666 individuals were tested and among those 4,921 (3.6%) tested HIV-positive. Costs by rounds are presented in Table 1.

<table>
<thead>
<tr>
<th>Round 1</th>
<th>Round 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total economic costs</td>
<td>US$ 3,377 (SD=101,911)</td>
</tr>
<tr>
<td>Average cost per population</td>
<td>US$ 7.61 (SD=0.25)</td>
</tr>
<tr>
<td>Cost per person tested</td>
<td>US$ 26.77 (SD=0.89)</td>
</tr>
<tr>
<td>Cost per person tested HIV-positive</td>
<td>US$ 36.70 (SD=12.06)</td>
</tr>
</tbody>
</table>

(Table 1: Costs of home-based HIV testing and counselling by rounds)

The costs per person tested (rounds: min-US$ 22.00, max-US$ 42.11, round1: min-US$ 20.30, max-US$ 36.28) did vary across communities and rounds. The costs per person tested positive (rounds: min-US$ 252.29, max-US$ 751.99, round1: min-US$ 538.66, max-US$ 1,087.69) varied substantially across communities and increased between rounds.

Conclusions: The findings suggest that costs are sensitive to community-specific factors related to service delivery or population characteristics. The cost per person tested HIV-positive nearly doubled between rounds, which is partly explained by a reduction in the number of persons tested HIV-positive in the second round. The costs of HBTC can be compared with standard healthcare facility-based testing, to inform policymakers on the merits of intensified testing and counselling campaigns in high-prevalence settings. Further analysis is required to evaluate the cost-effectiveness of HBTC in terms of their wider health and non-health benefits.

THPEE649

Capacity building of rural healthcare providers used as a tool to scale-up early infant diagnosis in Southeast Nigeria

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Background: A significant number of pediatric HIV infection is through mother-to-child transmission and Nigeria is responsible for 30% globally. LOCATE CDC funded project supported PMTCT services, including early infant diagnosis (EID) for HIV exposed infants (HEIs) in 209 health facilities in Southeast Nigeria. In 2013-2014, none of the healthcare providers at LOCATE supported primary healthcare centers (PHCs) were able to collect dried blood spot (DBS) for EID and send to the designated comprehensive care and treatment (CCT) centers, thus project staff carried out this activity.

Description: LOCATE provided hands-on mentoring on DBS sample collection, drying, packaging and transportation, to healthcare providers at CCT sites, established a “hub and spoke system” that enabled these providers to transfer skills to lower cadre providers at the PHCs at no extra cost to the project. Phone directories were developed for timely intervention for EID. The healthcare providers at the CCT hubs served as back up on need basis, thus promoting ownership and sustainability, while project staff provided supervisory and logistics support. The PMTCT Jhpiego team carried out a retrospective data collation of two targeted indicators from the supported health facilities at 6 months before- and 6 months after the intervention. The data was reviewed and analyzed using Chi square.

Lessons learned: Six months pre-intervention, only 24% of eligible HEIs had EID and 13% of healthcare workers demonstrated the availability for EID services at PHCs. This increased to 81% (p<0.05) and 87% (p<0.001), respectively, 6 months post-intervention. Similarly, all DBS samples were collected by project staff pre-intervention; post-intervention, DBS collection was by healthcare providers. The increase in the two target indicators is attributable to the government healthcare providers in supported facilities taking ownership of this specific intervention for HEIs.

Conclusions: Next steps: The findings demonstrated the value of using empowered healthcare providers as mentors to their colleagues in ensuring that infants of HIV infected women have EID services, especially in rural hard to reach areas at no extra cost to both the caregivers and the project.

THPEE650

Characteristics and costs of optimized background therapy for treatment of heavily treatment-experienced adults with multidrug-resistant HIV-1 in the US: A clinical trial analysis

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1RTI Health Solutions, Research Triangle Park, United States, 2Westat, Rockville, United States, 3Theratechnologies Inc., Montreal, Canada, 4Takeda Biologics Inc., Irvine, United States

Background: Heavily treatment-experienced adults with multidrug-resistant (MDR) HIV-1 infection have limited remaining antiretroviral treatment options and are typically treated with optimized background therapy (OBT) based on individual resistance profiles. Composition and cost of OBT are not well described in the literature. This study assesses the characteristics and cost of OBT for participants in a phase 3 clinical trial for adults with MDR HIV-1 treated with lopinavir/ritonavir (LPV/RTV) and raltegravir (RAL) respectively.

Methods: Patient-level antiretroviral therapy regimens were analyzed at baseline using descriptive statistics. Costs of individual antiretroviral drugs were applied using wholesale acquisition costs (2017) to calculate annual OBT costs. Outcomes included composition of OBT; number of antiretroviral drugs; use of fixed-dose combination and investigational drugs; and annual cost, with and without generic drug use.

Results: Among trial participants (n=40), the most frequent antiretroviral drugs used as part of OBT were tenofovir disoproxil fumarate (DF) (72% total, 62.5% as emtricitabine/tenofovir DF, 10% as tenofovir DF alone), dolutegravir (60%), ritonavir (57.5%), darunavir (65% total, 50% boosted with ritonavir, 15% as darunavir/cobicistat), investigational agent (42.5%), and etravirine (22.5%). Other antiretroviral drugs were used by ≤ 10% of participants. All protease inhibitors were boosted. On average, OBT consisted of 4-7 antiretroviral drugs (range: 1-7); with more drugs used by those treated with an investigational agent (mean: 5.5, range: 3-7) than by those not treated with an investigational agent (mean: 4.0, range: 1-6). As part of OBT, 85% of participants used ≤ 1 fixed-dose combination drug.

Assuming brand prices and standard dosing for all antiretroviral drugs, the mean annual cost of OBT was $1,234 (range: $869-$1,505). Annual OBT costs were higher among those treated with an investigational agent (mean: $4,583; range: $3,197-$6,839) than among those not treated with an investigational agent (mean: $2,075; range: $1,187-$3,242). Few participants’ OBT regimens included drugs with generic options (up to 75%); costs for these participants were 6%-41% lower if generic options were used.

Conclusions: For heavily treatment-experienced patients with MDR HIV-1 infection, the composition of OBT is heterogeneous with high associated costs. New, potent therapies with a new mechanism of action are needed for this patient population.

THPEE651

Cost data to inform purchasing of antiretroviral treatment services across borders: A cross-country comparison of first and second line adult and pediatric antiretroviral treatment costs in Kenya, Rwanda and Uganda

A. Gatome1, M. Costa2

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Background: The East African Community (EAC) partner states-Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda-collectively have 4.9 million people living with HIV (PLHIV)-13% of the global PLHIV population. The EAC Common Market Protocol facilitates movement of people across the six countries necessitating access to healthcare services across countries. Easy mobility also puts additional pressure on HIV/AIDS services to meet the needs of transiting populations. Countries will need to discuss how to purchase antiretroviral treatment (ART) services across borders to reduce treatment defaults, improve treatment out-
comes and reduce transmission across borders as PLHIV move across countries. The objective of this study was to provide cost data for HIV/ AIDS services in Kenya, Rwanda, and Uganda for use by policymakers addressing HIV/AIDS service provision and financing across the region. This specific presentation reviews first and second line adult and pediatric ART costs only.

Description: USAID-funded Cross-Border Health Integrated Partnerships Project collected July 2014-June 2015 data at public and private clinics, health centres, and hospitals within five kilometers of five cross-border locations in Kenya, Rwanda and Uganda. Service provision inputs were collected from facility records and through interviews with clinicians. An excel-based tool was used to analyze the data from a provider perspective and generate average unit costs.

Lessons Learned: Annual costs of first line and second line adult and pediatric ART varied between countries. In Kenya and Rwanda, average costs were higher than Uganda - first line ART in Kenya was $213.96 (adult) and $246.69 (pediatric), in Rwanda $242.80 (adult) and $246.88 (pediatric), and in Uganda, $175.03 (adult) and $135.02 (pediatric). ART drugs cost was the key cost driver. The differences between countries were also attributable to personnel costs which were highest in Kenya, frequency and type of laboratory monitoring which was highest in Rwanda, and frequency of visits which was lowest in Uganda. Similar trends were observed for second line ART.

Conclusions/Next steps: These results give insight into the differences in costs of HIV services and their cost drivers and can inform planning and purchasing of HIV services across borders. These costs can also be used to benchmark facilities and identify opportunities for efficiency gains.

**THPEE652**

**Relationship between client age profile and unit expenditure among PEPFAR-supported voluntary medical male circumcision programs for HIV prevention, 2015**

S. Davis, H. Nasrallah, S. Palis, B. Batayeh, G. Parent, C. Toledo
US Centers for Disease Control and Prevention, Atlanta, Georgia

**Background:** Voluntary medical male circumcision of males 10 years and older is a key component of PEPFAR-supported HIV prevention in 14 southern and eastern African countries. Since 2015, PEPFAR’s priority client age band for circumcision has been 15-29 years, for immediate HIV prevention. However, demand is intrinsically higher in 10-14-year-olds although services packages are the same, and the focus on older males has raised concern that unit expenditures (UEs) per circumcision, may increase. Routinely-collected 2015 PEPFAR program data allows exploration of whether this association currently exists.

**Methods:** Implementing partner-level fiscal year 2015 circumcision UE and client age distribution data (age bands 10-14, 15-19, 20-24, and 25-29 years) were used. Partner-level descriptive analysis was performed, followed by univariable and multivariable linear regression of log-transformed UEs on percent of total clientele represented by each age band, adjusting for country due to intercountry variations in operating costs.

**Results:** Thirty-nine implementing partners (counted once for each country of operation) in 12 countries had data. The median unit expenditure was $93.7, with range $40.4-7271. The median percent of clients aged 10-14 was 39.1 (range 0.0-72.2); the median percent aged 15-29 was 48.7 (range 11.6-88.2). In univariable analysis, each 1% increase in percent of clients aged 10-14 was associated with a 1% decrease in UE; a 1% increase in percent aged 15-29 had almost no association (anti-log slope = 1.003). After adjustment for country, the association with age 10-14 did not change, but each 1% increase in clients 15-29 years was associated with a 2% UE increase. By 5-year age bands, a negative association with UE was seen for 10-14 and 15-19 years, and a positive association with 20-24 and 25-29 years.

**Conclusions:** In this cross-sectional analysis, programs with more 10-19-year-olds had slightly lower UEs than those with more 20-29-year-olds, and programs with more clients in the combined priority age band of 15-29-year-olds had slightly higher expenditures. If these associations persist over time with successful targeting of this age range, modest UE increases could be seen. However, programs often achieve decreasing UEs over time due to increased productivity, so this association may be mitigated.

**THPEE653**

**Hepatitis C treatment regimens in Russia in 2017: Drug choice compromises in the context of intellectual property and registration barriers**

S. Golovin¹, K. Babikhina¹
¹Treatment Preparedness Coalition, IP and Access, St. Petersburg, Russian Federation

**Background:** Hepatitis C epidemic is a major threat to public health in Russia; with an estimated number of 6 million people with HCV antibodies, and 1.8 million confirmed cases. The HCV/HIV coinfection is also widespread, with at least 200,000 confirmed cases. The HCV treatment in Russia is gradually changing with the introduction of direct-acting antivirals (DAAs), which are more effective and safer than pegylated interferon and can be safely used in people with HIV, with regard taken to drug-drug interactions with antiretroviral medicines. ITPCru continuously monitors HCV drug procurement in Russia: this abstract summarises the data for 2017.

**Methods:** We analyzed 781 tenders for HCV drugs in Russia in 2017. International non-proprietary names were obtained from the official register gris.omrznodzrav.ru. The research focused on the following key parameters: drug regimens (based on National HCV treatment guidelines and leaflet), number of patients who could potentially be treated (based on the recommended regimen duration), and price per patient. The research has limitations as it focuses on procurement figures; also, it does not include standard interferon.

**Results:** The key HCV treatment regimens were as follows: PEG-IFN/RBV (452 treatment courses, 24 weeks); simprevir/PEG-IFN/RBV (384); dasabuvir/ombitasvir/paritaprevir/ritonavir (1126); daclatasvir/asunaprevir (1870); narlaprevir/PEG-IFN/RBV (588); sofosbuvir/daclatasvir (280). No SOF-based fixed-dose combinations were registered in Russia in 2017. No generics of DAAs were officially registered; however, several biosimilars were available. The total number of patients who could potentially receive treatment lies between 9100 and 10,000. The prices can be found in Table 1.

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Average Weighted Price per patient, USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEG-IFN/RBV²</td>
<td>2 442.60</td>
</tr>
<tr>
<td>SIM/PEG-IFN/RBV²</td>
<td>12 246.25</td>
</tr>
<tr>
<td>3D</td>
<td>14 839.67</td>
</tr>
<tr>
<td>DCV/SOF</td>
<td>13 773.55</td>
</tr>
<tr>
<td>NVP/PEG-IFN/RBV</td>
<td>8 286.22</td>
</tr>
<tr>
<td>DCV/SOF</td>
<td>18 694.33</td>
</tr>
</tbody>
</table>

**Table 1**

**Conclusions:** The data shows that the majority of patients are still treated with PEG-IFN-based regimens; the key reason being the financial one. The price for PEG-based regimens is several times lower than the price of all-oral regimens. The only WHO-recommended first-line regimen is SOF/DCV. Due to IP constraints, generics cannot enter the market, and the price of SOF/DAC in 2017 was over 18,000 USD for 12 weeks.
Neither SOF/LDV nor SOF/VEL are registered, which is a consequence of the difficult registration system in Russia requiring local clinical trials. Measures for reducing DAA prices, including IP interventions, are recommended to significantly scale up access to HCV treatment in Russia.

THPEE654
Enhancing program efficiency through service integration, population focus and geographic logic: Finding and treating HIV, syphilis, and cervical cancer in Zambia

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Background: In a context of diminishing funding for HIV programs, there is need for efficient allocation of available finite resources on interventions, populations and geographic contexts that maximise programmatic impact. In Zambia where the national HIV prevalence is 12%, prevalence is higher among women (15%) compared to men (10%). On average, 4% of women screened for cervical cancer are found with precancerous cervical lesions. Rapid syphilis testing (RST) is not routinely provided in Zambia.

Description: Between November and December 2017, PCI set out to improve program efficiency by adopting three strategies:
1) integrating mobile HIV testing, cervical cancer screening, and RST services,
2) geographically focussing this intervention in Southern Province, where prevalence of HIV among adults is higher than the national average at 13%, and;
3) intensifying efforts to reach women, which is the population at highest risk of HIV.

Women testing positive to HIV and RST were immediately linked to antiretroviral therapy and syndromic treatment of STI, respectively. Women with early precancerous cervical lesions were treated on site using cryotherapy while those with advanced lesions were referred for further management.

Lessons learned: A total of 571 women, mean age 34, were reached with integrated HIV testing, Cervical Cancer Screening, and RST services in the three sites: 174 in Livingstone A, 149 in Livingstone B, and 248 in Choma. The yield rates of HIV were higher than the national and regional average in all the three sites at 35.6%, 31.8% and 16.1% respectively. Similarly rates of cervical dysplasia were much higher than program/ national average at 6.8% and 7.4% in Livingstone A and B respectively. In Choma cervical dysplasia was at lower at 2.5%. Positive RST tests were reported at two sites: Livingstone A (3.3%) and Choma (2.5%).

Conclusions/Next steps: Results demonstrate that combining population focus, geographic localisation and an integrated package of screening services can enhance programmatic efficiency. This approach increased HIV yield, enhanced early detection of cervical cancer and identified cases of syphilis that would otherwise have been undetected, and can inform future scale-up of effective screening services for women of reproductive age.

THPEE655
Cost effectiveness analysis of nationally scaled point-of-care diagnostic platforms compared to central laboratory models for routine viral load monitoring of HIV-positive Kenyans on antiretroviral therapy

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Background: The National AIDS and STI Control Programme (NASCOP) in Kenya has scaled up its program for routine viral load (VL) monitoring to serve one million HIV-positive Kenyans receiving antiretroviral therapy (ART). Yet the traditional model of batching blood samples to national laboratories is expensive and presents logistical challenges including delays and loss of test results. Point-of-care (POC) technology presents an alternative to laboratory monitoring that may improve timeliness of test results, retention in care, and health outcomes.

Methods: A Markov model was developed from a health system perspective to compare routine POC to laboratory VL testing among a hypothetical cohort of 100,000 adult HIV-positive Kenyans initiating ART. The model follows the cohort over a ten-year time horizon through first and second-line treatments using a six-month cycle length to accommodate NASCOP/WHO testing guidelines. Patients were modeled to be at risk of death, loss to follow up, and increased probability of transmission due to uncontrolled VL. Costs in 2017 USD were pulled from a parallel costing study which considered Cepheid GeneXpert-TV and Alere POC diagnostic platforms and Abbott and Roche laboratory technology. Clinical input parameters were derived from primary data collection on turn-around times and published literature. Parameters uncertainty was assessed through probabilistic and univariate sensitivity analyses. Costs and effects were discounted by 3% annually.

Results: Over the ten-year time horizon, POC implementation cost $4.28 million more than laboratory monitoring. POC implementation resulted in 328 quality-adjusted life years (QALYs) gained, 297 HIV transmissions averted, and 89 deaths averted. The incremental cost effectiveness ratios (ICERS) per QALY gained, transmission averted, and death averted over ten years were $5,259, $15,094, and $50,392 respectively. Using the 2016 Kenyan PPP adjusted, per capita GDP of $13,615 as a threshold and considering income elasticities from 1 to 2.5, POC implementation was not cost-effective. Model outcomes were most sensitive to probabilities of delay in test results.

Conclusions: POC implementation at national scale in Kenya is not cost-effective possibly due to strong NASCOP investment in laboratory infrastructure over the past decade. However, POC platforms may be cost-effective in remote areas of Kenya and in countries with weaker infrastructure and HIV monitoring programs.

THPEE656
Differences in antiretroviral drug prices between low and middle income countries

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Background: Antiretroviral (ARV) prices have fallen substantially in low-income countries, but low prices may not be consistently available in middle-income countries with large HIV epidemics where key ARVs are still on patent. We examined price differences between countries within and outside sub-Saharan Africa.

Methods: Prices and transactions for ARVs used in national treatment programmes (2017 data) were extracted from the WHO Global Price Reporting Mechanism database for >100 countries. Prices were recorded as US$ per person per year for each given ARV treatment. Median prices were calculated for each country for 2017. For each treatment, price differences were calculated as percentage increases relative to the lowest median price for that treatment.

Results: Prices of generic ARVs in sub-Saharan Africa were much different to prices outside sub-Saharan Africa (NonSSA). Two originator drugs had significantly higher median prices when sold outside sub-Saharan Africa: LPV/r $536 (NonSSA) vs $268 (SSA), DRV $358 (NonSSA) vs $651 (SSA). Central Asian countries reported originator DRV prices >100% of the minimum reported originator DRV price of $223 in Myanmar; Ukraine $5467, Tajikistan $4821, Kazakhstan $4519. Six NonSSA countries and South Africa all reported LPV/r prices >100% of the minimum reported price of $123 in Eritrea; El Salvador $748, Armenia $740, Albania $733, Kyrgyzstan $733, Ukraine $731, South Africa $660, Viet Nam $622. Further price differentials were observed in ATV prices.

Conclusions: There are still significant differences in HIV drug prices between countries with similar GNI. Mechanisms to ensure fair pricing across middle-income countries need to be improved to ensure the sustainable treatment access.
THPEE675
Viral hepatitis C elimination strategy in Vietnam: Willingness to pay for treatment among patients receiving antiretroviral therapy and methadone treatment

Background: HCV treatment remains costly, posing a challenge for scale-up, particularly in Vietnam where patients are required to pay out-of-pocket for diagnosis and treatment, even with health insurance. Understanding the maximum amount that patient populations are willing to pay may help to guide future pricing discussions and HCV elimination strategy. A brief assessment of willingness to pay at Hai Duong was conducted where rates of HCV infection are high especially among high-risk groups, such as individuals receiving methadone maintenance treatment (MMT) and people living with HIV (PLHIV).

Methods: A structured interviews conducted with 253 anti-HCV positive patients at an ART clinic and 165 anti-HCV positive patients at a MMT clinic from January-May 2017. Patients were asked about insurance coverage and the maximum amount of money they would be willing to pay for 3 months of HCV treatment. Degree of fibrosis was assessed using APRI scores. Analysis was primarily descriptive, with the percentage of patients per category calculated. Willingness to pay was also assessed in relation to other patient characteristics using multivariable linear regression.

Results: In the ART clinic, 880 adults were screened for HCV. 251 (29.5%) were anti-HCV positive. Of those, 96.6% had health insurance. 47.8% had APRI score < 0.5 and 72% had an APRI score ≥ 2; 23.5% were willing to pay up to $1100 (converted to approximate USD values), whereas 22.3% were willing to pay if treatment was < $220. In contrast, in the MMT clinic 288 adults were screened. 165 (57.3%) were anti-HCV positive. Of those, only 17% had health insurance (p < 0.001 compared to ART clinic). 62.2% had APRI < 0.5 and no patients had an APRI score ≥ 2. 72% were willing to pay < $220 and 12.1% were willing to pay up to $1100. Patients with lower fibrosis score (p < 0.001) and MMT patients (p < 0.002) were willing to pay significantly less for HCV treatment.

Conclusions: MMT patients had much lower insurance coverage than HIV patients on ART and most were not willing to pay more than ~$220 for treatment. Greater willingness to pay was related to higher fibrosis score. Price reductions is needed to eliminate HCV in this patient population.

THPEE667
Viral Hepatitis C Elimination Strategy in Vietnam: Willingness to Pay for Treatment among Patients Receiving Antiretroviral Therapy and Methadone Treatment

Supporting effective linkages between Maternal and HIV services
THPEE668
Integrating PMTCT into primary health care services for virtual elimination of mother-to-child transmission of HIV: Facilitators for and barriers to integrated services in South Africa
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Background: The PMTCT cascade is increasingly well delivered and virtual elimination of mother-to-child transmission (MTCT) in the era of B+ option seems achievable when services aiming to combat HIV/AIDS, reduce child mortality and improve maternal health are integrated into existing health care services. We explored facilitators and barriers to PMTCT services integration into comprehensive primary health care (PHC) services in South Africa.

Methods: We conducted semi-structured interviews with national and local key informants and 9 semi-structured interviews with clinic managers, nurses and midwives in disadvantaged facilities in Cape Town. All interviews (N=19) were in person between June 2016 and October 2017 and were audio-recorded and transcribed. Atlas.Ti software was used to assist thematic analysis.

Results: All participants emphasized the importance of PMTCT integration to the extensive MTCT reduction in South Africa but report uneven progress. Slow and partial integration of PMTCT in PHC followed its initial roll out in the post AIDS denialism era. Pressure from the ground due to high HIV prevalence and AIDS related deaths mobilised health care professionals and the health system. Working with non-profit organisations and community health workers especially in post-partum follow-up helped to bring and keep women and their babies under treatment and reduce new paediatric infections. Nurse-initiated and managed antiretroviral therapy and related PMTCT trainings have also been a key facilitator to PMTCT integration especially in the well-established antenatal care system, but not to the overall PHC services. However, major barriers impede full integration of PMTCT and consequent virtual elimination of MTCT in South Africa. In addition to small spaces and other infrastructure related challenges at PHC, these barriers include bureaucratic slowness and lack of managerial accountability, poor quality of care including suboptimal fidelity to algorithms, shortage and poor training of staff, work overload, high staff turnover, attitudinal issues, discrimination, stigma and loss to follow-up.

Conclusions: Multiple barriers to PMTCT integration remain a roadblock towards achieving virtual elimination of MTCT in South Africa. Our findings contribute to the efforts for enhancing PMTCT integration at PHC level towards virtual elimination of MTCT.

THPEE669
HIV/Syphilis co-infection among antenatal clinic attendees and their partners in Njombe region, Tanzania
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Background: Antenatal clinic (ANC) setting has provided a good platform for integrated healthcare delivery among pregnant women. Although HIV and syphilis screenings are routinely offered to ANC attendees in Tanzania, HIV screening has received more attention than other sexual transmitted infections. Also, the major focus has been on pregnant women with lesser attention to the male partners especially for other diseases. ANC setting serves as a platform for reaching men (male partners of the pregnant women). In this study, USAID Boresha Aivy Southern Zone project evaluated HIV/Syphilis infection and co-infection cascade among both pregnant women and their male partners in Njombe region.

Methods: A retrospective cross-sectional study of three months (April - June 2017) routine ANC services in 10 project supported health facilities was conducted. Facilities were selected based on the provision of integrated MCH/HIV services. Monthly data was collected from the ANC service delivery registers and summary forms, recorded in the excel sheets and analyzed using STATA 15.1 where the proportions were calculated.

Results: A total of 1,571 pregnant women attended first ANC. 53% and 93% were screened for syphilis and HIV respectively. This showed poor syphilis screening coverage among the ANC attendees in general. Syphilis screening among positive pregnant women was 42%, revealing missed opportunities. It also revealed high co-infection rate among the HIV positives screened for syphilis (10.4%). Overall, Syphilis treatment
coverage among those tested positive to syphilis was good (91%). Twenty percent (318) of male partners were screened for syphilis, out of which 5% (16) tested positive and 88% of them received syphilis treatment. Only 2% of HIV male partners were screened for HIV showing missed opportunities and the co-infection rate among male partners tested was high (29%).

Conclusions: HIV/Syphilis co-infection is high among pregnant women and their partners attending ANC services. Individual program resources should be leveraged to facilitate and monitor the delivery of a more comprehensive integrated health service package for both the pregnant women and their male partners using a one-stop shop model.

**THPee660**

Post natal clubs: A differentiated model of care integrating maternal, child health and prevention of mother to child transmission (PMTCT) in Khayelitsha, South Africa

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**Background:** With the advances of option B+ implementation, mothers to child transmission (PMTCT) in South Africa has fallen from 16,000 (2010) to 5,100 (2015). However, post-natal MTCT stays high (4.3%) at 18 months. Furthermore, access to post natal services and uptake of infant HIV testing is poor. We describe an integrated primary care intervention to improve uptake of HIV services for mother and infant pairs (MIP).

**Methods:** We adapted the adult ART adherence club model to provide double integration of care (maternal health, child health and HIV services) and components of the first 1000 days (mental health, nutrition advice and early childhood development activities) to HIV-positive mothers (stable and high risk) and their HIV-exposed-uninfected infants. The model was piloted at Town2 clinic, where antenatal prevalence is 34%, from June 2016 until now. Post Natal Clubs (PNCs) were formed according to the infants’ dates of birth into clubs of 2-10 MIP and were held at regular intervals (1-3 months) until 18 months of age. We analyzed and described maternal and child data routinely collected during the intervention.

**Results:** From July 2016 to December 2017, we recruited 227 mothers (8 high risk) and 232 infants (9 twins). Of the mothers who joined a PNC from week 10, 78% were still in care at 18 months (see graph 1). For the overall cohort, uptake of infants’ 9 months and 18 months tests was 140/152 (91.5%) and 44/52 (84.6%) respectively with 0% positivity rate. Infants’ vaccination coverage at 12 months was 75/93 (84.6%). Of the 88 mothers completing the 18 months intervention, 47 received a pap smear (53.4%) and 12 had an intra-uterine device inserted (13.6%). There were 46 instances of positive mental health screens out of 432 done (10.1%). Maternal viral load testing decreased over time but suppression remained high (see graph 2).

**Conclusions:** PNCs have shown good early retention-in-care for the MIP, high viral load suppression for the mother, optimal testing uptake for the child and efficient integration of services for the mother and infant pair. Implementation and monitoring challenges of the model are being worked on for future scalability and qualitative research is being conducted.

<table>
<thead>
<tr>
<th>Viral Load</th>
<th>Number due</th>
<th>Complete*</th>
<th>Suppressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>week 10</td>
<td>166</td>
<td>151 (91%)</td>
<td>146 (97%)</td>
</tr>
<tr>
<td>month 6</td>
<td>127</td>
<td>103 (81%)</td>
<td>102 (89%)</td>
</tr>
<tr>
<td>month 12</td>
<td>72</td>
<td>44 (61%)</td>
<td>43 (78%)</td>
</tr>
<tr>
<td>month 18</td>
<td>26</td>
<td>15 (58%)</td>
<td>14 (93%)</td>
</tr>
</tbody>
</table>

*some capturing still underway

**THPee661**

Challenges to implementation of prevention of mother-to-child HIV transmission in Kalimantan, Indonesia

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**Background:** According to the Indonesian Ministry of Health, more than 30% of people living with HIV are women. In the newly formed province, North Kalimantan, an increasing number of newly reported cases in Tarakan municipality are among women who acquired HIV sexually. Although government programs to prevent vertical transmission of HIV exists, low utilisation and lost to follow up in the program cascade, indicates that it is suboptimal. This study explores the barriers and facilitators to implementation of HIV counselling and testing for pregnant women in Tarakan.

**Methods:** We conducted six focus group discussions and seventeen in-depth interviews between March and October 2017 to collect the data. The participants consisted of stakeholders and implementers in the prevention of mother-to-child-transmission (PMTCT) program, including health care workers in public and private health care facilities, District Health Office staff, management in the private hospital, HIV counselling and testing team in the public hospital, and women living with HIV. We applied coding and thematic approach to analyse the transcripts. Investigator triangulation was conducted to ensure validity of the analyses.

**Results:** There is a gap in implementation of PMTCT in public and private health care facilities, while HIV counselling and testing is available in public primary health care facilities, they are not available in the private. Pregnant women choosing to visit the private healthcare providers for antenatal care have missed the opportunity to get HIV counselling and testing during their pregnancy. In addition, interacting factors are affecting the individual decision in utilising PMTCT services, namely fear that their confidential data will be shared, stigma and discrimination from health care workers, time and transportation constraint.

**Conclusions:** In order to increase the coverage of counselling and testing and to avoid missed opportunities for pregnant women, private health care sectors need to be engaged in the implementation of this program. Regulation, facilities, and trained staff in the private healthcare sector should be initiated to increase the coverage of HIV counselling and testing as part of the PMTCT cascade. This would provide the opportunity to save more mothers living with HIV and their children.
Supporting effective linkages between Maternal and HIV services

THPEE662
Non-presentation to antenatal care impacts birth outcomes and PMTCT uptake in Botswana

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Background: Non-presentation to antenatal care (ANC) increases pregnancy complications and adverse birth outcomes, but its specific impact among HIV-infected women and efforts to prevent mother-to-child HIV transmission are unknown.

Methods: We abstracted data from obstetric records for all women who delivered at 8 government hospitals in Botswana (~45% of nationwide deliveries). Outcomes evaluated by ANC presentation status included stillbirth (SB), preterm delivery (PTD) (< 37 weeks gestational age [GA]), and receipt of HIV testing and ART during pregnancy. Because women with PTD may have less opportunity to initiate ANC, we conducted sensitivity analyses restricted to outcomes occurring >28 weeks GA.

Results: Between Aug 2014-Aug 2016, 47,027 women delivered at surveillance sites. ANC status was known in 46,502 (98.9%), and median GA at first ANC visit was 17 weeks [IQR 13,22]; 1,539 (3.3%) had no ANC visit and were classified non-presenters (NPs). NPs were more likely to be unmarried, unemployed, non-citizens, HIV-infected, have low education, and <4 prior pregnancies (Table 1).

Adverse birth outcomes were increased among NPs compared with ANC presenters, including stillbirth (4.4% vs. 2.3%) and PTD (52% vs. 17%) (both p<0.001). When outcomes were restricted to >28 weeks GA, NPs still had more stillbirth (7.0% vs. 1.8%) and PTD (45% vs. 16%) (both p<0.0001). Among NPs with known HIV status, 351 (31.5%) were HIV-infected, compared with 11,539 (25.5%) presenters (p<0.0001). HIV-infected NPs had a similarly high risk for stillbirth compared with HIV-uninfected NPs (8.7% vs. 8.4%, p<0.001) and higher risk for PTD (58.3% vs. 48.1%, p<0.0003). Among HIV-infected NPs, 220 (56%) received no ART during pregnancy, including 77 (30%) diagnosed with HIV at delivery; in contrast, only 7.2% of presenting HIV-infected women received no ART. NPs accounted for 63% of women with unknown HIV status and 21% of HIV-infected women who received no ART in pregnancy.

Conclusions: The small number of women who do not present for ANC in Botswana represent the majority of those who are not HIV tested and a large proportion of HIV-infected women without ART receipt in pregnancy. In order to further reduce pediatric HIV infections, efforts are needed to engage these women in care.

THPEE663
Acceptability and primary outcomes of an integrated early childhood development (ECD) program for Option B+ mothers in Malawi

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Background: Successful strategies in the fight against HIV have changed the agenda for HIV infected and affected children from survival to thriving. Both HIV infection and the strained caregiving environment experienced by HIV affected families have negative impacts on children’s cognitive development.Responsive and stimulating parenting plays a vital role in improving cognitive development, although such skills are rarely taught in low-resource, sub-Saharan settings. This study examines the acceptability and primary outcomes of an early childhood development (ECD) programme that imparts responsive, stimulating parenting skills to Option B+ mothers in Malawi.

Methods: The integrated Option B+/ECD program was conducted in two rural antiretroviral therapy (ART) clinics in central Malawi. Pregnant Option B+ women were approached to participate in an interactive ECD skills development program starting from when the child was 6 to 8 weeks of age. The intervention was comprised of 9 monthly sessions (approximately 1-hour each) that coincided with mothers’ scheduled ART appointments. Trained ECD counselors led each session using the WHO-UNICEF “Care for Child Development” package. Baseline and follow-up home visits and exit interviews were conducted at 2 and 9 months of age to assess changes in mothers’ ECD knowledge and practice. Descriptive statistics and McNemar Tests were used to analyze the data.

Results: Between April-December 2016, 149 mother-infant pairs were enrolled in the program. Of the enrolled mothers, 114 (77%) graduated from the ECD program. There were no socio-demographic differences between mothers who dropped out of the program and those who graduated. Among graduates, 96 (84%) attended ≥8 of the 9 ECD sessions. Graduates’ knowledge and observed practice of ECD activities significantly improved following the 9-month program. Availability of homemade toys, reading and singing to the child showed a 2 to 5-fold increase at the end of the program (Table 1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Baseline</th>
<th>Follow-up</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s knowledge of ECD stages</td>
<td>51%</td>
<td>93%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Books available for the child in home</td>
<td>19%</td>
<td>54%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Homemade toys available in home</td>
<td>42.6%</td>
<td>85%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Child plays with household objects</td>
<td>31%</td>
<td>85%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Reading books to the child</td>
<td>14%</td>
<td>72%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Telling stories to the child</td>
<td>55%</td>
<td>95%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Singing songs to the child</td>
<td>19%</td>
<td>90%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

(Table 1. Characteristics of women by ANC presentation status in Botswana)
THPEE664
Paraprofessional home-visiting improves maternal caregiving for mothers living with and without HIV over the first two years of life in rural South Africa

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Background: More than 50% of Africa's population lives in rural areas, which have few professional health workers. South Africa has adopted task-shifting health care to paraprofessionals to achieve the Sustainable Development Goals, however little is known about their efficacy in rural areas. This study examines whether home visiting by paraprofessional community health workers (CHWs) is associated with variations in maternal and child outcomes for mothers living with HIV (MLH) over the first two years of life in a deeply rural district of South Africa.

Methods: Almost all mothers giving birth (95.3%; N=494) in the Zithulele Hospital catchment area of the OR Tambo District were recruited and reassessed five times over two years after birth with 84.7-96% follow-up rates. Based on geographic location, mothers received either standard antenatal and HIV care (SCI-N=313 mothers) or SC with paraprofessional home-visiting (HV; N=181 mothers, 37 CHWs). Almost one-third of mothers were mothers who were mothers living with HIV (MLH) (N=139, 470). By chance, there were significantly more MLH receiving HV than SC. Multiple linear and logistic regressions evaluated maternal comorbidities, maternal caretaking, and child development over time.

Results: MLH were older on average, less likely to report alcohol use after learning about pregnancy, and were more likely to be employed, married, and non-primipara. MLH attended more antenatal clinic appointments on average and were more likely to breastfeed exclusively for three months compared to uninfected mothers. Despite HIV infection, compared to mothers receiving SC, mothers with HIV had significantly lower depression scores, were more likely to attend the recommended four antenatal care visits, and were less likely to consult traditional healers at 3 months. Infant growth and achievement of developmental milestones for children of MLH, whether receiving SC or HV were similar to un-exposed peers over the first two years of life.

Conclusions: HIV result in better maternal caretaking for both MLH and uninfected mothers but did not directly benefit infant growth or developmental milestones in their first two years of life. This study examines a comprehensive, home-visiting model that will inform the upcoming broad implementation of CHW programs by South African Government in rural areas.

THPEE665
Approaches to effective HIV/SRH integration

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Background: HIV testing is the first step in the ‘HIV treatment cascade, therefore integrating Provider Initiated Testing and Counseling (PITC) into family planning/reproductive health (FP/RH) services is of great importance, as women of reproductive age are at risk of both HIV infection and unintended pregnancies. The integration will also contribute to primary prevention of HIV, achieving the United Nations “90-90-90” global targets, and Sustainable Development Goals (SDGs). FP providers have not successfully integrated PITC into FP services over the years in Nigeria and Oyo state, as implementation was met with inconclusive outcomes and inadequate documentation. This study seeks to determine the outcome of PITC capacity building intervention for FP providers on HIV Testing services (HTS), linking and initiation of HIV positive clients on antiretroviral treatment (ART) in Ibadan, Oyo State, Nigeria.

Methods: An evaluation of FP/HIV integration was conducted in 20 purposely selected facilities, providing FP services, in Oyo State, by retrospectively reviewing 6 months HTS in the facility registers. FP health care providers were then trained in order to implement PITC strategy. The trained HCP was monitored and supervised. Six months after the training, FP/HIV integration was re-evaluated. Data was analyzed using SPSS version 20.

Results: A total of 14,032 clients visited the facilities six months pre-training, out of which 39, were tested for HIV and only 1 (0.3%) was positive. After the training, 15,974 utilized FP services, and 48 (23.6%) were positive. The new clients increase from 8,068 pre-training, to 8,311 post-training, others were re-visit clients. At post-training, a total of 5,654 clients were offered HTS. The increase in the number of clients that were tested for HIV, and those that tested positive, post-training were statistically significantly, (P<0.05). A total of 48 clients were referred and linked to ART initiation.

Conclusions: It was established that PITC, not only increased the number of clients tested, but also revealed HIV positive clients, who were previously unaware of their HIV status. This also strengthened the linkage and initiation of ART among the clients. It is therefore recommended that this strategy be strengthened to achieve the United Nations “90-90-90” global targets.
Approaches to effective HIV/TB service delivery

THPEE666
Clinical characteristics of people with tuberculosis drug resistant according to HIV status in Brazil

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Background: Tuberculosis (TB) is one of the leading causes of death among infectious diseases in the world, and its control remains a challenge, mainly due to the number of new cases associated with human immunodeficiency virus (HIV). Additionally, TB-HIV coinfection is often related to the development of drug resistance in TB treatment, which worsens the patients clinical situation, extends the treatment time, and raises the cost of control actions. This study aimed to identify clinical characteristics of people with TB Drug Resistant (TBDR), according to HIV status in Brazil, from 2013 to 2017.

Methods: It is a longitudinal database study. The database from TB Special Treatment Information System (SITB-TE) was analyzed. SITB-TE records all treatments that showed some resistance to first-line drugs, cases of nontuberculous mycobacteria (NTM) and TB special treatments. Cases classified as TBDR were eligible, excluding those who did not test for HIV or presented inconclusive results. Frequency statistics was used to data analysis of the variables: case type, form, and associated comorbidities.

Results: There were 5,878 cases of TBDR in Brazil from 2013-2017, of which 661 were HIV positive (11.2%). The percentage of cases classified as type “return after lost follow-up” (16.9%), as form: extrapulmonary (8.9%) and extrapulmonary-pulmonary cases (22.0%), as well as those with the comorbidities: viral hepatitis (4.8%), mental disorders (3.1%), cancer (3.3%), illicit drugs (30.8%) and tobacco (29.3%) was higher in TBDR infected than in non-coinfected TBDRs (Figure 1).

Conclusions: TBDR-HIV coinfected people had complex clinical characteristics. The results reinforce the complicity of care beyond the biological challenges in TBDR-HIV coinfection cases. Studies have shown that TB-HIV coinfected people have difficulty in adhering to treatment due to adverse effects and drug interactions favoring the last follow-up. In this sense, TBDR and HIV interaction remain an important challenge for the both diseases control programs, requiring early detection of cases, adequate treatment and comprehensive care. It is imperative that TB and HIV programs develop joint strategic actions to favor the timely and correct diagnosis of both infections, as well as co-morbidities, ensuring adequate treatment and person-centered follow-up aiming of improving favorable outcomes and better quality of care.

THPEE667
Policy implementation gap of isoniazid preventive therapy (IPT) among people living with HIV in limited resource setting: Lessons from Nepal

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Background: Tuberculosis (TB) is one of the most common opportunistic infections that cause high morbidity and mortality rate among people living with HIV (PLHIV) in Nepal. Since 2014 Nepal has adopted the WHO recommendations to initiate Isoniazid Preventive Therapy (IPT) among PLHIV who does not have active TB. From early 2015 the Nepalese government’s AIDS centre designed a project to increase the coverage of IPT and to reduce the burden of TB among PLHIV in Nepal.

Description: PT had been rolled out across all Nepal’s 69 HIV treatment centres. Monitoring visits, meetings and brief orientations on the IPT guidelines was conducted with all HIV health personnel. The targets for IPT were finalized by the estimating number of PLHIV each year using mathematical modeling. To summarize the progress, we analyzed routine program data from July 2015 to November 2017.

Lessons learned: The overall cumulative coverage (2015-2017) of IPT among eligible PLHIV was low (18%; 5488/29952) whereas the coverage differed significantly between men (24%; 2637/11521) and women (25%; 2851/11440). In 2015, the IPT coverage among women (18.3%) was slightly higher than among men (17.4%) whereas not much difference was observed between age groups. The IPT coverage among women increased to 14% in 2016 whereas it increased only marginally to 8% among men. In 2017, the IPT coverage came down again for both men (3%) and women (7%) in 2017. There were no changes in the incidence of TB among PLHIV between 2015 and 2017. The qualitative findings showed a reluctancy among clinicians’ to initiate IPT among eligible PLHIV because of a lack of local evidence on the effectiveness of IPT, and fear of interaction with antiretroviral therapy causing drug resistance among PLHIV. The low acceptance rate of IPT among PLHIV was seen as another major barrier blamed on increased pill burden and side effects.

Conclusions/Next steps: Findings suggest that future policy recommendations need to be more clearly discussed with front-line care providers before roll out of activities in routine health programs. Ensuring active participation from care providers during the policy-making process would also help the implementation of recommendations and contribute to achieving planned outcomes.
THPee668
Expanding use of TB-LAM for HIV+ individuals with CD4< 200: Evidence from MSF operational research and beyond

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Background: World Health Organization (WHO) recommends the use of TB-LAM-LAM to detect TB in HIV+ individuals with CD4< 200 cells/mm3 or who are severely ill irrespective of their CD4 counts. MSF operational research and published literature were analysed to provide evidence for expanding use of LAM to diagnose TB among HIV+ individuals with CD4 < 200 cells/mm3.

Description: Presented are the results from MSF operational research in three locations (Kenya, Mozambique and Malawi), which included an analysis of using LAM as a diagnostic tool for HIV+ individuals with CD4< 200. In Kenya, MSF analysed the incremental diagnostic yield achieved by adding LAM to standard algorithms in ambulatory and hospitalised HIV+ individuals. In Mozambique, LAM was used as a diagnostic tool in ambulatory settings for people with symptoms of TB and CD4< 200. In Malawi, LAM was used to diagnose TB for HIV+ individuals regardless of symptoms and CD4 count. Furthermore, a literature review was conducted of diagnostic performance studies of LAM compared to a reference standard (culture, composite standard or Xpert) for HIV+ individuals with CD4 < 200 from March 2014 to date.

Lessons learned: Data from Homa Bay, Kenya demonstrated that 68.2% (881/1290) of patients with bacteriologically confirmed TB and CD4< 200 were diagnosed using LAM. The additional diagnostic yield when adding LAM was 19.3% for this cohort, compared with clinical signs and microscopy alone. In Maputo, Mozambique, using LAM as a diagnostic tool for all ambulatory patients with symptoms of TB and CD4< 200 demonstrated a positivity of 44.8% (128/286). Positivity rate among patients with CD4 100-199 specifically was 44.4% (24/54). In Chiradzulu, Malawi, using LAM in hospitalised patients regardless of symptoms showed a positivity of 30.0% (160/532) in patients with CD4 100-199. Finally, the literature review identified 14 additional studies published since March 2015 which further substantiate the need to expand use of LAM to HIV+ individuals with CD4< 200.

Conclusions/Next steps: In conclusion, WHO should consider expanding current guidelines to include the use of LAM to diagnose TB in an expanded cohort of HIV+ individuals with CD4< 200.

THPee669
Using a targeted approach to boost TB case-finding among vulnerable children - the SMILE experience

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Background: The World Health Organization (WHO) estimates that one million children (<= 15 years) currently suffer from tuberculosis (TB) worldwide, and that more than 210,000 die each year Nigeria’s children, especially those living in high-density, slum communities, are at high risk for contracting TB. Nigeria has the highest TB burden in Africa, with an estimated half a million new TB cases every year. TB case notification rates are alarmingly low, with only 100,433 TB cases notified in 2016 representing approximately 20% of actual cases. In the face of limited access to TB services at the health facilities, weak health extension services and health seeking behaviour, innovative approaches are required to increasing TB case detection.

Description: Sustainable Mechanisms for Improved Livelihood and Household Empowerment (SMILE) is an OVC project funded by the US-AID and implemented by Catholic Relief Services. As per a funding agreement with USAID, SMILE integrated CTBC activities into its existing child-focused interventions in Benue state, aiming to identify presumptive pediatric TB cases from among the program’s targeted beneficiaries. The approach include house-to-house screening, school based screening and index contact tracing. Using a child-focused screening tool, trained case managers and volunteers identified presumptive TB cases, these presumptive cases were immediately referred and escorted by trained to health centers for TB diagnoses.

Lessons learned: A total of 11,125 children were screened for TB between February and August 2017 with 2,553 presumptive TB cases referred for further diagnosis. A total of 1,757 children (69%) completed their referrals, with 466 children diagnosed with active TB including 20 newly tested HIV positive. This TB case-finding represents a dramatic increase over performance in the three preceding years (2014 79 cases, 2015 112 cases, and 2016 116 cases). 434 children commenced TB treatment and 147 had successfully completed their 6-9 month course by December 31, 2017, the majority of those remaining are on track to complete treatment by the end of February 2018.

Conclusions/Next steps: Integrating a pediatric TB initiative into an OVC program has the significant advantage of leveraging the skills, infrastructure, relationships and credibility of a child-focused, community-based mechanism to increase case finding of TB amongst children.

THPee670
Engaging private medical practitioners for early HIV screening and treatment initiation of tuberculosis (TB) patients in Maharashtra

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Background: Per World Health Organization’s estimates, India had 2.8 million TB patients in 2016, one-fourth of global incidence. Among notified patients, 87,000 were HIV co-infected of which 12,000 (14%) died. TB patients notified in the public sector go through HIV screening, however there is no information on the HIV status of about 1 million TB patients that would seek care in the private sector who are not notified. From 2014-17, PATH implemented a Private Provider Interface Agency (PPIA) model which notified 40,000 TB patients by engaging private healthcare providers in Mumbai. In 2016, the project began working with private providers to screen TB patients for HIV and refer them to public sector for treatment.

Description: The intervention aimed to screen all TB patients notified by private providers in engaged facilities of Than, Mumbai, and Pune for HIV at accredited private laboratories and enable free testing. After HIV screening, Link Counsellors (LCs) accompanied patients to Integrated Counselling and Testing Center (ICTC) for confirmation of HIV and further linkage to public sector’s Anti-retroviral treatment (ART) centres for treatment initiation. A dedicated cadre of LCs handed patients throughout the pathway of care. Public sector providers were trained to fast track private-sector patients for HIV testing and treatment.

Lessons learned: From March 2016 to November 2017, out of 12,535 TB patients notified from 135 private facilities, 9,098 (75%) were screened for further diagnosis. A total of 262 were TB-HIV co-infected patients (2.9% HIV positivity). Of these, 79 (30%) were already on ARV treatment; and of the 183 newly diagnosed patients, 157 (85%) were linked to ICTCs. Of which 147 (94%) were linked to ART centres. The LC model shortened time between linkages compared to the public sector to, on average, 5 days for linkage from private center to ICTC center, 7 days for ART registration, and 14 days for treatment initiation.

Conclusions/Next steps: The intervention demonstrated successful early HIV screening of TB patients in private sector linked with public sector for timely treatment initiation. The intervention provides an important platform to engage government for scaling up in 100 HIV burden districts of India ensuring high yield HIV case finding.
THPEE671
Achieving systemic and scalable quality assured private sector engagement in HIV/TB care and prevention in Nigeria - successes and lessons learnt from the building models for the future (BMF) project

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Background: Since 2015, KNCV and PharmAccess implement the project “Improved TB/HIV prevention and care – Building models for the future” in collaboration with the Lagos State TB Program. The objective is to increase affordable access to quality TB screening, early diagnosis and treatment in the private sector.

Description: The project integrated the international SafeCare quality improvement standards with the International Standards for TB Care (ISTC) into a quality improvement tool. Implementation of the tool in private facilities started with a participatory baseline assessment. Identified gaps such as absence of SOPs, IEC materials, knowledge and standard M&E forms were addressed. Targetted trainings were given on TB/HIV, staff retention, quality management and “healthy business” topics. Training was complemented with on-site support and mentoring during joint supervision with public TB officers. The intervention was scaled from initially 37 to 60 engaged private health facilities by end 2017. After introducing active TB screening, we observed a five-fold and three-fold increase of presumptive and confirmed TB diagnosis respectively. Improved access to diagnostics through a sputum transportation system increased TB patients diagnosed using Xpert MTB/RIF from 43% to 82%. Improved contact investigation tripled eligible children placed on IPT. TB literacy of patients improved by introducing the patient charter and the TB literacy tool. Orientation of HCWs and District TB supervisors on the patient charter led to increased knowledge and referrals of presumptive TB patients.

Treatment success increased from 56% at baseline to 87%.

Lessons learned: A facility wide quality improvement approach that integrates TB/HIV quality standards into overall health care can increase TB/HIV case finding and quality care in the private sector.

Conclusions/Next steps: The next step is to translate the model into building sustainable health systems, exploring health financing options and business models and integrate the ISTC quality tools into the Lagos State quality inspection standards and National TB program supervision tools.

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THPEE672
Community health workers facilitate access to tuberculosis (TB) diagnosis services for clients with limited access to health care

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Background: In Botswana, the HIV prevalence among TB patients is 61%. The Advancing Partners and Communities project - Botswana (APC) is a three-year USAID-funded project implemented by FHI 360 through community based organizations by integrating TB/HIV activities at community level and promoting TB cure in eight districts. Community Health Workers (CHWs) are trained on four-symptom TB screening to conduct contact tracing, intensive and active case finding. The report on evaluation of community tuberculosis approaches in Botswana (2012-2013) recommends that CHWs collect and transport sputum for TB investigation to improve referral completion and TB diagnosis.

In 2016 the project experienced challenges with referral completion of presumptive TB clients identified in the community. From 1,978 presumptive TB clients identified and referred to facilities for further investigations, 1,063 (53%) had completed referrals. Barriers to referral completion include lack of transport, long distance to facilities and nomadic clients, among others. The project then emphasized community sputum collection to close the gap of referral completion.

Description: CHWs were trained on safe home sputum collection and transport from community to the facility. CHWs were provided with cooler boxes, gloves, sputum bottles, and respiratory masks to collect and transport sputum from community to facilities.

Lessons learned: Out of 1,237 presumptive TB clients identified and referred to facilities in 2017, 816 (66%) clients completed referral. Among those who had completed referral, 267 clients (33%) had their sputum collected at community level. Fifty-four APC clients were diagnosed with TB through community TB screening, including 16 TB patients (30%) who had their sputum collected within the community. HIV testing was proposed and provided to those with unknown HIV status.

Conclusions/Next steps: With the implementation of community sputum collection, the referral completion rate has increase from 53% in 2016 to 66% in 2017. Community sputum collection enhances TB diagnosis, particularly for clients far from facilities and those nomadic. The project will continue to support CHWs in high TB/HIV districts of Botswana to collect sputum at community level.
THPEE673
Low ART coverage of TB/HIV infected patients in Central Asia: Results from Kazakhstan and Kyrgyzstan
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Background: Tuberculosis (TB) remains the leading cause of morbidity among people living with HIV (PLHIV) in Central Asia. WHO recommends that all TB patients co-infected with HIV (TB/HIV patients) start TB treatment first and then ART within 8 weeks of TB treatment initiation, unless CD4 <50 cells/µl when ART should be started within 2 weeks. This study aimed to determine the ART initiation rate as well as the 6-months completion among patients co-infected with HIV (TB/HIV patients) in Kazakhstan and Kyrgyzstan.

Description: To assess ART initiation rates, we conducted a retrospective review and analysis of 590 records of TB/HIV patients that were enrolled in HIV care and started TB treatment during 2015. Nine sites were selected on the basis of geographical location, social role for the country, number of PLHIV enrolled in care, and the number of TB/HIV cases. To determine obstacles to prompt ART initiation, we conducted semi-structured small group interviews with 37 physicians that provide HIV treatment services.

Lessons learned: During 2015, there were 316 new and 180 relapse TB cases in Kazakhstan. Among them, 221 and 123 patients started ART during TB treatment. In Kyrgyzstan, there were 74 new and 20 relapse TB cases with 48 and 15 of them respectively started on ART during TB treatment. Overall, ART coverage of TB/HIV patients during TB treatment was 70% among new and 68% among relapse TB cases in Kazakhstan, and 65% and 75% in Kyrgyzstan respectively. Many physicians were reluctant to initiate ART in patients receiving TB treatment fearing patients’ poor adherence. In the opinion of physicians, patients were also hesitant to start ART while on TB treatment because of concern for high pill burden and complicated regimens.

Conclusions/Next steps: ART coverage among TB/HIV patients is low. Physicians do not initiate ART during TB treatment in sufficient numbers as they fear poor adherence. Additional training to promote early ART initiation among medical staff, as well as introduction of optimized one-pill a day ART regimens may increase ART initiation in TB/HIV patients. In addition, increased integration between TB and HIV services may also help increase ART coverage in TB/HIV patients.

Supporting resilient health systems

THPEE675
Strengthening capacity of county planning and budgeting for sustainable health financing: An experience from the devolved health system in Lamu County, Kenya
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Background: The Constitution of Kenya assigns the functions of health policy and service delivery to national and county governments, respectively. Health sector resources are envisaged to be mobilized from three sources—nationally-allocated revenue, county-generated revenues and donors. Evidence shows that the devolved county governments have inadequate capacity to effectively undertake health planning and budgeting to ensure sustainable health financing, against a backdrop of declining donor support to programs such as HIV, malaria and tuberculosis.

Description: Sustainable health care in a devolved system requires appropriate skills and understanding of the new planning and budgeting requirements. The Ayu Pwani project, funded by USAID, has strengthened the planning and budgeting of health departments through capacity building of health managers on programme-based budgeting to improve allocative efficiency and establishing stakeholder forums to foster transparent consensus-building in aligning health sector goals. In addition, the project facilitated the use of evidence, such as budget analysis, in high-level advocacy efforts between the Department of Health, County Assembly, and Treasury to create an informed enabling environment that improves political will for sustainable health financing. It is expected that the improvement in overall institutional capacity will increase the health sector’s fiscal space for sustainable health financing.

Lessons learned: The transition to programme-based budgeting in Lamu enabled health department to influence increased sector allocation ceilings and align their resources to priority programmes. The approach provided a mechanism to establish a budget line item for HIV in addition to creating an opportunity to leverage partner funding to address county-specific health priorities.

Conclusions/Next steps: Effective adoption and implementation of programme-based budgeting at the county health department and health facility level has enhanced the institutions’ ability to identify, prioritize, set goals, allocate resources and exercise control to deliver health sector programmes more efficiently. Centralization remains a hindrance to effective planning and budgeting at the facility level and there is a need to progressively decentralize decision making to hospital management teams to undertake planning and budgeting functions. In addition, the health department needs to put in place legislation that allows health facilities to retain and utilize revenue generated for the improvement of health care service delivery.

THPEE674
Task shifting increased Isoniazid preventive therapy uptake and completion among people living with HIV in secondary health facilities South-East Nigeria
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Background: People living with HIV (PLHIV) have a 20-fold higher risk of developing Tuberculosis (TB), which is responsible for over 33% mortality in PLHIV. Although Isoniazid Preventive Therapy (IPT) is effective in the prevention of active TB in this people, a retrospective review of 2014/2015 Isoniazid (INH) data from 9 secondary health facilities in south-East Nigeria, revealed poor uptake and completion rate of the six months course. This was mainly due to workload on the physicians who often fail to initiate eligible PLHIV on Isoniazid Preventive Therapy (IPT). Excellence Community Education Welfare Scheme (ECEWS), LOCATE Project introduced task shifting to address this gap.

Description: In March 2015, ECEWS (LOCATE project) trained, supported and provided Job Aids for non-physicians including Pharmacy technicians and Treatment Support Staff on identification, initiation and completion of Isoniazid Preventive Therapy (IPT) for PLHIV. Pharmacists and other treatment support staff were mentored on adverse drug reaction monitoring. PLHIVs were educated (during Support group meetings) on benefits of IPT, adherence, 6 months completion, and the need to prompt dispensers when INH was omitted.

Lessons learned: The percentage of eligible PLHIV (3,459) initiated on Isoniazid Preventive Therapy (IPT) increased from 8% (n-277) before intervention to 85% (n=2,949) 9 months post-intervention. Similarly, 99.5% of them completed the 6 months course as against 0% completion rate recorded pre-intervention. IPT was discontinued in three (0.2%) PLHIV due to side effects, while 6 (0.3%) clients declined medication.

Conclusions/Next steps: Task shifting was found to be effective in Isoniazid Preventive Therapy (IPT) uptake and completion. This demonstrates the value of using non-physicians to optimize HIV care and support services, especially in resource limited settings.
THPEE676

Results from a rapid health workforce assessment of PEPFAR-supported facilities in three counties in Kenya

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Background: IntraHealth International’s USAID-funded Human Resources for Health (HRH) Kenya Mechanism conducted an assessment in PEPFAR-supported health facilities using the rapid site-level HRH assessment tool. The PEPFAR HRH Technical Working Group developed the tool, which assists countries to establish availability and quality of HRH to meet 90-90-90 targets.

Methods: We employed a cross-sectional study design using a mixed-methods approach to data collection. In-person interviews with health facility in-charges, supervisors and health workers were conducted at 21 PEPFAR-supported health facilities and 6 community units within Kisumu, Kilifi and Nakuru counties. The assessment adopted a purposive stratified and multistage sampling design to select facilities on basis of HIV disease burden, geographical distribution, facility tiers and PEPFAR support.

Results: The facilities had total daily patient attendance of 5,485 with 27,416 ART patients. The proportion of staff available, compared to WHO norms and standards, indicated a severe shortfall with only 43% (n=2,774) of staff needed to deliver Kenya’s Essential Package for Health. On average, facilities provided HIV services only 39% of business hours in a week. HIV services at community units were open 24% of business hours.

The highest full-time equivalent staff for HIV services was nurses at 238 followed by support staff (125) and HIV testing and counseling (HTC) providers (73). Community-based HIV services were predominantly provided by nurses; HIV testing and linkages by HTC providers; and ARV initiation by clinical officers.

Inadequate infrastructure was identified as the top HRH challenge, followed by health worker shortages, and recruitment, contractual and/or payroll processes. Staff quit their jobs because of insufficient salary and benefits, reassignment by government, and better opportunities in the private sector.

Conclusions: Low percentage of staff available to deliver HIV services has major implications on the successful rollout of Kenya’s 90-90-90 strategy. Results indicate need to hire more staff in a sustainable manner: institutionalize in-service trainings; address space constraints; improve recruiting, deployment, supervision, and performance management processes; and better transfer skills from experienced staff to new employees. Data show need for advocacy and/or decision-making to address cadre deployment and distribution gaps, reconfigure HRH task allocation and explore new HIV service delivery models.

THPEE677

Increasing availability and access to life-saving ART commodities through improved inventory management and forecasting using a commodity management support supervision scored checklist: Case study of five coastal counties of Kenya

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Background: Health products and technologies is one of the six pillars of health identified by the WHO. Existing national mechanisms for commodity data reporting in Kenya (KEMSA LMIS and DHIS2) collect consumption data to inform forecasting, quantification and resupply for health facilities. However, health facilities lack effective monitoring systems to track commodity management, including stock outs and inventory management, which are important for proper quantification. The USAID’s Afya Pwani project, which is active in five coastal counties (Mombasa, Kilifi, Kwale, Taita Taveta and Lamu) adopted a supportive supervision checklist to assess the baseline gaps and monitor progress. Baseline assessment in the facilities showed a weak inventory management system with 40% of tracer commodities showing a discrepancy between recorded balance and physical count, and unacceptable level of stock outs. 22.8% of tracer commodities had a stock out lasting more than 7 days in the previous three months.

Description: To promote uninterrupted availability of antiretroviral and TB/HIV medicines, rapid HIV test kits, HIV nutrition products and other vital health products, joint supportive supervision on commodity management is conducted by project staff and county health department managers using the scored checklist. Focus areas include inventory management, storage practices, reference materials (guidelines and SOPs), and availability and use of management information system tools. The checklist automatically aggregates scores for pharmacy and laboratory departments.

Methods: The Afya Pwani HRH Assessment Tool was used to collect baseline data on the number and type of medications stocked. The tool was piloted in a health facility prior to full-scale implementation. The tool was used to assess commodity availability and access at the facility level, county level and national level.

Results: The tool was used to assess commodity availability and access at the facility level, county level and national level. The tool was piloted in a health facility prior to full-scale implementation. The tool was used to assess commodity availability and access at the facility level, county level and national level. The tool was piloted in a health facility prior to full-scale implementation. The tool was used to assess commodity availability and access at the facility level, county level and national level.

Conclusions/Next steps: Evidence justifies continued use of the checklist during supervision and scale up to all other facilities in the project-supported counties.

Making health systems work for adolescents

THPEE678

Advancing youth-led social accountability in adolescent and youth HIV/sexual reproductive health and rights programs in public health facilities within 4 districts of Uganda: Achievements & lessons learnt from 2015 to 2017

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Background: The global community’s growing enthusiasm for the potential of social accountability approaches to improve health systems’ performance and accelerate health progress remain unmatched. Promising evidence suggests that social accountability contributes to citizen empowerment, service provider and power-holder effectiveness, ac-
Countability responsibility and spaces for negotiation between the two that are expanded, effective and inclusive. Reproductive Health Uganda (RHU) as part of its approaches to strengthen provision of quality adolescent & youth friendly services in 10 public health facilities in Uganda 2014/2016-Gulu, Tororo-Access to Services & Knowledge “ASK”-project 2017-Logaga, Bugiri-‘Get Up Speak Out for youth rights’ ‘GUSO’ project adapted the use of youth-led social accountability model using a tailored community score card as the key assessment tool.

Description: The process involved identification of 20 young people for capacity building as expert facilitators, developing a community score card with input track indicators drawn from national policies and standard guidelines, conducting self-evaluation by health facilities, community (young people) performance assessment, stakeholders’ interface meetings, action planning and monitoring. It was rolled out in 10 public health facilities, 10 action plans were developed and implemented with progressive assessments after every 3 months within 3 years. Key findings were documented and disseminated at sub-county and district level. Progressive reports indicated improvement of youth friendly service delivery especially service providers’ attitudes, health facilities ambiance, adherence to service delivery standards and meaningful youth participation.

Lessons learned: The community score card built trust, strengthened relationships between service users (young people) and service providers as it focused on setting group scores rather than personal opinions. Engaging young people in monitoring programs at community level strengthened advocate for youth HIV/SRH issues at district level resulting into quick wins. Stakeholders’ involvement in the problem identification facilitated quick actions towards improvement of the adolescent and youth sexual and reproductive health services in the health facilities and districts at large.

Conclusions/Next steps: Youth-led social accountability strengthened community ownership of service delivery processes, created a peer to peer model of identifying and resolving challenges using local resources, designation of youth friendly spaces, adolescent/youth service time among other. RHU plans to scale-up the same approach to in 2 more districts in 2018.

THPEE679
Reaching at-risk adolescent men who have sex with men through social media and instant messaging in Thailand for HIV prevention service provision

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Background: Men who have sex with men (MSM) is a key population contributing to over half of all new HIV infections in Thailand, the highest incidence being in adolescent MSM. Unfortunately, several barriers exist in the access of this population to healthcare services, including uncertainty about how to access sexual health services, stigma, and fear of judgement by healthcare staff. Online technology availability has enabled service delivery to reach previously difficult to reach key populations.

Description: We advertised our new youth-focused HIV prevention services at the Thai Red Cross Anonymous Clinic targeting youth aged < 20 years through social media. This consisted of a poster with contact details through social media for MSM aged 15–20 and a desire to have safe sex. Within 2 months, 102 participants added us on social media and 69 requested services. Of those who revealed their age (N=21), 28% were under 20 and 72% were 20–35 years old. Thirty-eight (94%) made contact exclusively through instant messaging rather than telephoning. Commonest queries were regarding access to free pre-exposure prophylaxis (PrEP) 13 (48%), emotional support following an HIV diagnosis 4 (5%), and post-exposure prophylaxis (PEP) 4 (5%). There was one telephone call from a client recently diagnosed with HIV who was suicidal. Psychosocial assessment and counselling were provided to all clients, along with referral support to nearest suitable services. Twenty-three (33%) cases lived outside Bangkok and were referred to other service locations. Three (4%) cases had PEP posted to them within 72 hours of exposure.

Lessons learned: Health care teams serving youth need to be flexible in offering out-of-hours services and be knowledgeable in providing and/or linking clients to a wide variety of services according to their needs including HIV prevention, sexual health, HIV testing, and initial mental health assessment and counselling.

Conclusions/Next steps: There is scope for development of virtual online clinics to support young people to stay safe and link them to appropriate HIV services.

THPEE680
Understanding organizational incapacities on reaching adolescents living with HIV in Lagos, Nigeria

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Background: Sexual and reproductive health (SRH) issues are mostly seen as exclusive right of married adults in Africa. Despite studies showing that average age of sexual debut in Nigeria is below 13 years old, and adolescents between the ages of 15-19 consist of the 21% of the HIV infection in Nigeria. Health service providers and policy makers are yet to prioritize HIV-Youth friendly services in Nigeria. The need to address the situation informed the Healthcare sensitivity training to health facilities to evaluate the quality of treatment, care and services rendered to HIV-Positive adolescents in Nigeria.

Methods: A total of 122 HIV focal persons drawn from 10 health facilities in Lagos states. The participants were requested to complete a semi-structured questionnaire to assess their level of working experience with adolescents. Participants included male and female doctors, nurses and counselors/testers. A test was administered to measure their knowledge on adolescents sexual risk practices, HIV prevention and healthcare needs and also to assess their attitudes (including substance misuse) beliefs and norms and how it affects service uptake by adolescents particularly girls below the age of 20.

Results: The mean age of the HCP was 38 years. Of the 34 HCPs, 45% were female, 95% 85% counsellor/testers, 15% doctors and nurses; 92% work in government facilities, 81% of HCPs had never had any sensitivity training on provision of youth-friendly services. 34% believed that adolescents were stigmatized because they engaged in premarital sex which is an immoral behavior. 54% strongly agreed that sex education should be for young persons from age 18 and above. 61% agreed that sex education for adolescents below 18 is unAfrican/something brought by foreigners while 85% reported that they must report adolescent who visits their facility to their parents.

Conclusions: Scaling up youth friendly sensitivity training for Nigerian HCPs is likely to be a timely and effective means to improve their understanding of adolescent-related health issues, reduce prejudice and enhance their capacity to provide responsive HIV prevention, treatment and care services in a supportive and non-stigmatizing environment.
THPEE681
Providing peer-led female sexual reproductive health (SRH) services to adolescents in rural South Africa: Lessons learned from delivering youth services in rural KwaZulu-Natal

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Background: Adolescent sexual reproductive health (SRH) service provision remains a critical gap in South Africa. New, innovative approaches for providing SRH services that are feasible, sustainable and have high acceptability from young women are needed. We discuss the impact of peer-led demand creation on the uptake of SRH services.

Description: We used a novel approach to providing SRH services to female students attending 5 high schools in rural KwaZulu-Natal between May 2013 and November 2016. The SRH service included:

(i) in-school group SRH information and awareness sessions;
(ii) in-school SRH services through mobile clinics, which included, individual SRH counselling, customised HIV counselling and testing (CCT);
(iii) TB screening, screening, counselling and referrals for those experiencing gender-based violence, STI screening, pregnancy testing, contraception provision and basic primary health care;
(iv) peer recruitment and (v) referrals to, clinic services at the research clinic or public sector primary healthcare clinics.

Quarterly adolescent “boot-camps” were held to discuss and provide SRH information.

Lessons learned: Our SRH service provision model was successful at providing services to adolescents in schools. Using early adopters of the service, peer-led demand creation had a significant impact on service access at the mobile clinics. Post-implementation in May 2014, visits at the mobile clinic increased from an average of 4 visits/month, to an average of 37 visits/month in the first 4 months post intervention, peaking at an average of 75 visits/month in the last 3 months of the year. Visits to the mobile clinic remained high (approximately 90 visits/month), and indicate the importance of peers in creating demand. In total, CAPRISA SRH service provided SRH services to over 1441 high-school students aged between 12 and 25 years. Of those who accessed services, 87.9% had at least one HIV test, 27.1% consistently accessed contraception, and 35% had at least one sexual health discussion and manage new consumer driven topics biweekly. Educators were savvy with social media groups, were assigned to moderate discussions and manage new consumer driven topics biweekly. Educational topics included: HIV myths/facts, ART, adherence, HIV disclosure, stigma, STI prevention and reproductive health, PMTCT and conference updates. PEs had access to all mentors in the group for support.

Conclusions/Next steps: Despite growing availability of cellphones globally, very basic technology and traditional mentoring should remain core strategies in Nigeria. Creative, inclusive strategies to deliver continuing education and engage PEs should be utilized e.g. facility-based mentoring, text messages and quarterly retreats. Mobile health grants and partnerships with hospitals to implement sustainable mobile phone access for assigned PEs could facilitate PE access and participation in WhatsApp group support and education activities.

THPEE682
Feasibility and challenges of mobile phone peer mentoring and education support in Nigeria

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Background: With high perinatal HIV infection rates, Nigeria has a burgeoning number of Adolescents Living with HIV (ALHIV) facing extreme challenges with psychosocial support and access to health services. While peer education is effective for supporting ALHIVs, peer educators require supportive mentoring and timely feedback to efficiently perform their roles. This project explored the feasibility and challenges of implementing complementary peer mentoring and continuing education using a mobile phone application in Nigeria.

Description: A structured WhatsApp group was initiated to: engage newly trained ALHIV peer educators (n=30) and mentors (n=10); provide biweekly interactive continuing education; and complement traditional face-to-face mentoring support. Although 40% of the Peer Educators (PE) and 100% of the peer mentors owned phones, only 20% and 40% respectively had access to WhatsApp. Both mentors and PEs posted questions, requests and comments, but only two lead mentors who were savvy with social media groups, were assigned to moderate discussions and manage new consumer driven topics biweekly. Educational topics included: HIV myths/facts, ART, adherence, HIV disclosure, stigma, STI prevention and reproductive health, PMTCT and conference updates. PEs had access to all mentors in the group for support.

Lessons learned: While WhatsApp groups is a viable tool for engaging PEs to provide timely guidance and support, more basic mobile platforms and traditional mentoring strategies are still required in Nigeria. Many of adolescents do not own phones. Fewer PEs and mentors owned internet-ready phones, therefore, access and participation were limited. Some PEs preferred private chats on self-related issues, which were carefully utilized to generate discussion topics while maintaining confidentiality. Frequent reminders were needed to curtail non-related posts. To ensure privacy of information, program staff must consistently provide tools, materials and guidance for educational posts.

Conclusions/Next steps: Despite growing availability of cellphones globally, very basic technology and traditional mentoring should remain core strategies in Nigeria. Creative, inclusive strategies to deliver continuing education and engage PEs should be utilized e.g. facility-based mentoring, text messages and quarterly retreats. Mobile health grants and partnerships with hospitals to implement sustainable mobile phone access for assigned PEs could facilitate PE access and participation in WhatsApp group support and education activities.

THPEE683
Innovative African Zvandiri model increasing uptake of HTS among HIV positive adolescents in 10 high burden districts in Zimbabwe

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Background: Providing HIV care and treatment services to adolescents presents unique challenges that must be met with innovative programs to succeed. While the number of new infections among children aged 0-9 in Zimbabwe has been reduced significantly, the number of new infections among adolescents (aged 10-19) especially girls and young women, continues to grow. Africaid is therefore implementing the Accelerating Children's HIV/AIDS Treatment (ACT) Adolescents Project in Zimbabwe working with EGPAF providing technical assistance to the MOHCC. The project aims at increasing demand for, access to, and uptake of adolescent HIV testing within 50 health facilities and surrounding communities.

Description: The ACT project employed the different strategies to improve identification of ALHIV including optimising PITC at all entry points where adolescents encounter the health system. The Community Adolescents Treatment Supporters (CATS) were recruited, trained and placed at 60 health facilities across 10 districts. The CATS promoted community-based HIV testing of adolescents through index case testing and adolescent community dialogue days. Africaid Zvandiri Mentors and EGPAF Community Linkages Coordinators (CLiCCs) provided ongoing mentorship and technical support to health care workers and CATS in the 60 facilities. The CATS identified index cases from different entry points at both facility and in the community.

Lessons learned: 603 index case home visits were conducted by CATS in 2017. 343 adolescents were referred to the nearest health facility for HIV testing and confirmed to receiving an HIV test. 44 adolescents were diagnosed HIV positive; translating to a positivity rate of 12.8%. CATS facilitated the linkage of 86% of those identified positives to ART services. The improved performance was attributed to HCW capacity building for differentiated HIV service delivery including on-site coaching and mentoring. CATS facilitated the enrolment of 1,073 ALHIV into support groups.

Conclusions/Next steps: To achieve the first 90, targeted testing to maximise the identification of new ALHIV is critical. Declining yields from conventional facility and community-based HIV testing modalities (out-reaches) require innovation. Peer-led approaches like the Zvandiri model are essential to reaching AYP in both urban and rural/ farming communities with HTS. Targeting of siblings, sexual partners and immediate family members of ALHIV index cases achieves an excellent yield rate.
THPEE684
Addressing stigma and discrimination in Tanzania: The missing piece to make a health system work for youth
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Background: Stigma and discrimination (S&D) are barriers to every aspect of the HIV response. Globally, including in Tanzania, youth living with HIV demonstrate lower rates of adherence to ART and higher virologic failure than children or adults. Recognizing that youth account for a disproportionate number of new infections and face S&D when trying to access HIV and sexual and reproductive health services, the USAID-and-PEPFAR-funded Health Policy Plus project included youth (15 - 24) living with HIV in a study to: 1) determine the prevalence and actionable drivers of HIV-related S&D in the health system from the perspective of health facility staff (HFS) and clients; 2) inform the design of a tailored HIV-stigma reduction intervention 3) support evaluation.

Methods: Survey data was collected from 233 HFS (48 female / 83 male/2 not stated), 243 adults living with HIV (166 female / 77 male) and 88 youth living with HIV (40 female / 44 male) in two district hospitals, Morogoro region. Tanzania Uly - September 2017. Key measures included among staff: presence and levels of S&D key drivers (fear / attitudes / health facility environment) and observed discrimination among staff. Among clients: anticipated, observed, and experienced S&D in health services and avoidance / delay of health services among youth clients.

Results: Youth reported routinely receiving supportive care and high satisfaction with HIV services. However, over 50% also reported having experienced discrimination in the past three months, more than all other age groups (Graph 1). with little variation by sex. HFS also reported high observed discrimination toward all categories of youth (Table 1). greatest toward unmarried pregnant youth (41%).

Observed at least 1 of 3 acts of discrimination: unwillingness to provide care, provision of poorer quality of care, and talking badly about a youth client, last 3 months

<table>
<thead>
<tr>
<th>Category</th>
<th>Total (n=233)</th>
<th>Staff (n=21)</th>
<th>Auxiliary (n=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexually-active adolescents</td>
<td>43.9% (65/149)</td>
<td>38.1% (8/21)</td>
<td>26.2% (5/19)</td>
</tr>
<tr>
<td>Young people living with HIV who did not acquire HIV perinatally</td>
<td>42.3% (63/149)</td>
<td>38.1% (8/21)</td>
<td>21.0% (8/38)</td>
</tr>
<tr>
<td>Perinatally infected young people living with HIV</td>
<td>40.9% (61/149)</td>
<td>38.1% (8/21)</td>
<td>23.7% (9/38)</td>
</tr>
<tr>
<td>Unmarried pregnant adolescents</td>
<td>46.3% (69/149)</td>
<td>38.1% (8/21)</td>
<td>23.7% (9/38)</td>
</tr>
</tbody>
</table>

(results: Conclusion: These data are informing design and evaluation of health facility-based stigma-reduction interventions with youth participation at all levels, starting with questionnaire development. Measuring and addressing S&D towards youth within health facilities is critical to improve health systems, ensure equitable access to care, reach and retain youth in HIV services, and strengthen the quality of service delivery for youth.

THPEE685
Status of access to HIV and sexual & reproductive health care services for adolescents and young people in Tanzania: Findings from an abstraction of secondary routine health facility data
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Background: With more than 200,000 people aged 10–24 living with HIV and comprising 40% of new infections, adolescents and young people (AYP) in Tanzania face one of the highest burdens of HIV globally in addition to various sexual and reproductive health (SRH) issues with 27% of females having begun childbearing by age 19. Yet, little is known about the extent to which this age group accesses health care due to the limited availability of age and sex disaggregated data. To address this gap, this study aimed at establishing national disaggregated estimates for AYP’s utilization of HIV and sexual and reproductive health services.

Methods: A retrospective cross-sectional cohort study was conducted for the period January-December 2015. Data were abstracted from HIV and SRH registers and databases from a two-stage proportionate to size sample of 114 health facilities located in 16 districts with high HIV testing and HIV burden. Descriptive and retention analysis was conducted for three different age bands: 10-14, 15-19 and 20-24 and disaggregated by sex.

Results: AYP contributed to 39% (64% female) of all people accessing HIV testing and counselling services, of which 7% were adolescents (10-19 years). Of the 78% AYP testing HIV positive, 63% (78% female) were linked to pre-ART care (prior to updated WHO guidelines) and 51% (83% female) were initiated on ART. ART retention at 12 months decreased with increasing age to 84% for young adolescents (10-14 years), 75% for older adolescents (15-19 years) and 70% for youth (20-24 years). In contrast, 44% of all pregnant women accessing antenatal care were AYP, of which 13% were adolescents and 56% received screening for sexually transmitted infections. 22% of family planning clients were youth and 4% older adolescents.

Conclusions: The findings suggest the existence of gender and age-differentiated disparities in access to HIV and family planning services for AYP in Tanzania, including better linkages to HIV treatment and care for females than males. Further research on disparities and their causes is needed to inform the design of targeted interventions and service delivery models that better address the health care needs and retention challenges of male and female AYP at different ages.

Stigmatizing attitudes toward youth were prevalent among staff with over 90% reporting a least one of four stigmatizing attitudes and highest among medical staff (93%). 45% of HFS believed that youth living with HIV should not have sex. More staff reported negative attitudes towards sexually active girls (69%), compared to their male counterparts (46%).
**THPEE686**

Implementing adolescent and youth friendly services in Cape Town, South Africa

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**Background:** Adolescence is a period of developmental transition between childhood and adulthood. Navigating their way through this time of physical, psychological and social development, young people need appropriate and accessible services that recognise and support their needs. Amongst other programmes developed by the South African National Department of Health (DoH) for supporting adolescents and youth, is the Adolescent and Youth Friendly Services (AYFS) package. We aimed to implement the package in 24 healthcare facilities in Cape Town, South Africa.

**Description:** A programme was designed by the Desmond Tutu HIV Centre with Pathfinder International to support AYFS assessment, implementation and accreditation of healthcare facilities in the Klipfontein/Mitchell’s Plain subdistrict. This includes introduction and training of the AYFS package to all personnel, formation of a task team led by a facility champion, adolescent focus groups, regular mentoring and progress review, and a quarterly learning forum with other facilities to share progress. The final step involves DoH validation and accreditation.

**Lessons learned:** The AYFS programme commenced in April 2017 with all 24 healthcare facilities enrolled. Baseline assessments were conducted at all, with follow-up assessments at nine facilities to date. The standards scores are shown in figure one; following AYFS package implementation improvements have been seen in all standards. Three Champion’s learning forums held, showcased progress made, including dedicated youth clinics after school hours, youth spaces and committees. Facilities shared innovation including youth clinic launch events, regular school clinics and fast-track youth cards. The forum identified and addressed challenges including some clinics having a maximum volume for patients seen daily resulting in adolescents turned away, and the need for adolescent health profiles. Peer navigators have been placed at all facilities, proving to be essential in meeting and greeting youth on arrival, and navigating them quickly and efficiently through the service.

**Conclusions/Next steps:** Adolescents face many barriers to accessing health services. AYFS addresses these by making services more attractive to young people and retaining them within care to support ongoing needs as they develop into adulthood. Our programme provides structured support and mentorship to clinics, and encourages a shared learning environment. Youth feedback is ultimately needed to solidify this AYFS package.

**THPEE687**

Operationalizing and implementing the U.S. CDC’s guidelines for youth: Will this stop new infections and improve health outcomes?

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**Background:** The number of youth living with HIV (YLH) in the U.S. has doubled in the last 10 years and is focused among gay, bisexual, and transgendered youth (GBTY), and incarcerated, and homeless substance abusing youth. These youth at high risk (YHR) for HIV acquisition and YLH are not utilizing or adhering to the HIV Prevention or the HIV Treatment Continuum. The U.S. CDC has recommended quarterly testing for HIV, linkage to medical care, utilization of PrEP/PEP and ART over time by YHR and YLH. A set of studies was launched to evaluate if new infections can be averted and YLH will optimize adherence to these guidelines.

**Methods:** Three inter-related studies are designed to operationalize these guidelines, with one deviation - only three assessments were scaled per year (i.e., for testing HIV or viral load, STI, and substance abuse rapid diagnostic tests [RDTI], rather than four. For both YHR and YLH a cadre of behavioral and mobile/social media interventions are evaluated within randomized controlled trials (RCT). In each study, youth are randomized to receive a set of low-cost, mobile interventions, increasing the intensity to a higher cost, peer-support and, then, an interpersonal coach to test stepped care model of intervention. Study 1 aims to optimize the HIV prevention continuum for YHR (N=1500). Study 2 evaluates if YLH become virally suppressed (N=220). Study 3 examines viral reservoirs among acutely infected YLH over time compared to treatment-naïve YLH with established infection (N=72).

**Results:** YHR, YLH, and acutely infected youth can be successfully identified and engaged through a combination of clinics and community-based agency sites serving high-risk youth. Rapid, gen HIV testing, STI and substance abuse testing can be conducted in field settings efficiently. Over six months of recruitment, 607 youth (649 YHR, 49 YLH) and 9 acutely infected/treatment naïve YLH were recruited.

**Conclusions:** Monitoring youth three times annually, with a set of innovative interventions will identify if the CDC’s recommendations are feasible and effective in the U.S. with YHR and YLH.

**THPEE688**

Adolescent-specific provider training and provision of services is associated with retention in Kenyan HIV clinics


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**Background:** Adolescents and young adults (AYA) have disproportionately worse clinical outcomes. We measured retention in HIV care, and evaluated correlates of retention, among AYA at 24 public HIV clinics en-
rolled in a stepped-wedge randomized trial of standardized patient actor training to improve quality of care and AYA clinical outcomes (SPEED Study).

Methods: Eligible records were from AYA ages 10-24 enrolled at 24 HIV clinics with ≥40 AYA active clients in Central (Nairobi, Kiambu counties) and Western Kenya (Kisumu and Homa Bay counties) Kenya during the 15 months preceding the trial (11/1/2015-3/31/2017). Sociodemographics, clinical characteristics, and visit dates were abstracted from electronic medical records (EMR). Facility-level surveys assessed any prior AYA-focused training and services. Surveys with individual health providers working in AYA HIV care (10 per facility) assessed self-reported history of AYA-specific trainings, experience caring for AYA, and self-rated competency; facility-level means were derived from individual responses. Retention in care was defined as return for first follow-up visit within 3 months among newly enrolled or recently re-engaged AYA. Multi-level regression modeling was used to estimate risk ratios (RRs) and 95% Confidence Intervals (CIs) between facility and individual cofactors and AYA retention. Final models adjusted for AYA age and clinic volume (total AYA enrolled during period).

Results: Among 3,656 AYA records at first eligible visit, most were female (75.0%), older (20-24 years: 54.3%), and on ART (75.9%). Overall, 2,656 AYA were retained (72.1%), with retention higher among females (73.1% vs. males 68.9%); older AYA (20-24 years: 75.0% vs. 10-14; 69.2% 15-19: 68.0%); and at Western Kenya clinics (82.7% vs. 66.0% Central) (Table 1). Clinics where >20% health providers reported being trained in adolescent-friendly care had higher AYA retention than those with ≤20% of providers trained (84.5% vs. 66.4%, aRR 1.18, 95%CI:1.08-1.29). Clinics using the Kenyan government’s AYA package of care checklist had significant higher overall AYA retention (88.9% vs. 69.2%; aRR 1.14, 95%CI:1.06-1.23).

Conclusions: Results suggest sub-optimal retention among HIV-positive AYA in Kenya. This is one of the first studies demonstrating that adolescent-specific health provider training and services may improve AYA retention, suggesting that health provider interventions are necessary to achieve the ‘90-90-90’ targets for AYA.

Table 1. Individual and Facility Cofactors of AYA Retention in HIV Care in Kenya (N=3,656 AYA)

<table>
<thead>
<tr>
<th>Cofactor</th>
<th>Retained (n=3,656)</th>
<th>Unadjusted R0% (n=3,656)</th>
<th>Adjusted R0% (n=3,656)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>65.9% (2,395)</td>
<td>65.9% (2,395)</td>
<td>65.9% (2,395)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>65.6% (2,331)</td>
<td>65.6% (2,331)</td>
<td>65.6% (2,331)</td>
</tr>
<tr>
<td>Male</td>
<td>66.5% (2,333)</td>
<td>66.5% (2,333)</td>
<td>66.5% (2,333)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African</td>
<td>65.6% (2,331)</td>
<td>65.6% (2,331)</td>
<td>65.6% (2,331)</td>
</tr>
<tr>
<td>Non-African</td>
<td>66.5% (2,325)</td>
<td>66.5% (2,325)</td>
<td>66.5% (2,325)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>66.0% (2,333)</td>
<td>66.0% (2,333)</td>
<td>66.0% (2,333)</td>
</tr>
<tr>
<td>Some</td>
<td>65.9% (2,395)</td>
<td>65.9% (2,395)</td>
<td>65.9% (2,395)</td>
</tr>
<tr>
<td>High</td>
<td>65.7% (2,440)</td>
<td>65.7% (2,440)</td>
<td>65.7% (2,440)</td>
</tr>
<tr>
<td>Overweight</td>
<td>66.5% (2,333)</td>
<td>66.5% (2,333)</td>
<td>66.5% (2,333)</td>
</tr>
<tr>
<td>Underweight</td>
<td>65.6% (2,331)</td>
<td>65.6% (2,331)</td>
<td>65.6% (2,331)</td>
</tr>
</tbody>
</table>

Conclusion: ALHIV reported accessing educational services (enrolment, free schools, school feeding schemes) at the same rates as other adolescents (94%, 30%, and 92% respectively), suggesting that school is a valuable site for identification, ALHIV reported poorer attendance: missing >2 weeks in the past term (OR2.1 95%CI1.4-3.2 p< 0.001; achievement: behind >1 grade (OR1.9 95%CI1.5-2.4 p< 0.001; more opportunistic infections OR2.6 95%CI2.1-3.3 p< 0.001; missing school to go to the clinic, and socio-demographic factors. Validated scales and measures were used where available. Voluntary informed consent was obtained from adolescents and caregivers (when adolescent < 18 years old). Analyses included multivariate logistic regressions, controlling for socio-demographic covariates, and structural equation modelling using STATA15.

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Table 1. Individual and Facility Cofactors of AYA Retention in HIV Care in Kenya (N=3,656 AYA)
Community participation in systems for health

THPEE690
Sustainable laboratories for key population-led HIV services in Thailand: Mentoring and twinning lead to government accreditation and financing

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Abstract:
In laboratories for key population-led HIV services (KP-LHS), knowledge of recognized quality diagnostic practices and Quality Management Systems (QMS) is weak, which hinders quality service delivery, including HIV and Sexually Transmitted Infections (STI) diagnostic services. Through the USAID- and PEPFAR-supported LINKAGES project, FHI 360 implemented a systems strengthening program with the following organizations that provide KP-LHS, primarily for men-who-have-sex-with-men (MSM), transgender people (TG), and sex workers (SWI): Sisters Foundation, SWING Foundation, The Rainbow Sky Association of Thailand (RSAT), Mplus Foundation, and Caremat.

Description:
Using the Thailand Medical Technologist Council (TMTC) checklist, we conducted quarterly laboratory assessments to identify gaps, set goals, and provide recommended actions and mentorship. FHI 360’s Laboratory Quality Manual was adapted to suit the laboratories and translated into Thai. On-site training was provided on how to implement the Manual and establish systems for QMS to comply with the TMTC standards. Trainings in QMS and Good Clinical Practice were provided to strengthen knowledge and technical assistance (TA) was provided to implement that knowledge. Quality control and external quality assurance samples were provided to monitor testing accuracy and to help with correction of errors. We also established a twinning program for the KP-LHS laboratories whereby accredited KP-LHS laboratories served as mentors to other laboratories.

Lessons learned:
After only 18 months of support, significant progress was achieved, as evidenced by the increases in the quality compliance scores of the KP-LHS laboratories over time (Figure).

One laboratory has been accredited by the TMTC, one has applied for Laboratory Accreditation, three are in the process of Medical Technologist Clinic registration, and the remaining two are implementing QMS. This success was facilitated by understanding of the need for QMS, capacity building of assessors and mentors, teamwork and support, and regular TA to guide progress.

Conclusions/Next steps:
This program demonstrated that community public laboratories can meet accepted national laboratory quality standards. Through a model of assessment, mentorship, and twinning for the KP-LHS network, the laboratories showed significant progress towards ensuring that the HIV testing services provided by community laboratories are accurate and reliable.

THPEE691
Vulnerability of PLHIV to nutrition, food security shocks in Rwanda

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Background:
Limited data is available regarding the present status of nutrition as well as food security among PLHIV in Rwanda. With the aim of guiding decision makers to appropriate nutrition and food assistance interventions, a national survey was conducted by the RBC/HIV, STIs and OBBI Division of Rwanda Ministry of Health, with support of WFP, to determine nutrition and food security status, as well as vulnerability among people living in HIV (PLHIV).

Methods:
The sample was 2252(816 males and 1436 females) who received comprehensive HIV services in 30 districts and 60 health facilities and who were PRE-ART and 1834(816) were on ART. Two stage cluster-sampling method was used: health facilities as the primary sampling unit, and PLHIV aged from two years old and above attending the selected HF as the secondary sampling units. Tracnet ID was used for random selection. Data was collected from 17th August to 5th September 2016; SPSS version 24, and the BMI calculator were used for data cleaning and analysis.

Results:
The prevalence of underweight among children under 5 and adolescents below 19 years was more than double (15.7%) compared to overweight/obesity (7.6%). Southern Province and Kigali City had the highest prevalence of thinness (20% and 16%, respectively). Boys were thinner (18.7%) than girls (10.5%).

In adults, the prevalence of overweight/obese was higher (17.5%) than that of underweight (13.7%). 68.3% were mildly underweight, 18.7% moderate and 13% severe. prevalence of overweight was higher among women (22.1%) than men (10.3%). By residence. Kigali city had the highest number of overweight (30.1%) and the lowest prevalence of underweight (8.1%). only 38.8% of them had acceptable food consumption score, while 19.5% had borderline and the majority (40.7%) had poor food consumption score. This went hand in hand with their low dietary diversity: only 7Had good dietary diversity and more than half (64.4%) had low diet diversity.

Conclusions:
Very poor food consumption score among PLHIV and low dietary diversity is predominant among PLHIV indicating worse coping strategies. The emergence of obesity among PLHIV in urban areas calls for specific investigations and interventions.

THPEE692
Curated “meet-ups” to engage online men at risk of HIV in a service delivery program in Jakarta, Indonesia

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Background:
Putting mega cities like Jakarta on the “fast-track” to end HIV requires reaching key populations (KP) in the online settings where they are present. However, in going online, HIV programs reach new sub-populations whose voice may not be represented by status quo community partners. How, then, will HIV programs engage the voice of online KP in Jakarta?

Description:
In August 2017, the USAID- and PEPFAR-supported LINKAGES program in Jakarta began integrating the voice of online men at risk of HIV into its online outreach approach. Program staff engaged in relevant online social networks, then approached and eventually met potential representatives of the online, at-risk community in Jakarta in person to ease into sensitive topics of sexuality, sex, and HIV. LINKAGES formed a community advisory team (“team” henceforth) including men at risk of HIV in Jakarta with distinctive backgrounds such as a social media influencer, openly HIV positive stylist, doctor, lawyer, LGBT advocate.
and other ex-pat-scene oriented community members. In December 2017, the team was convened and a “meet-up” was hosted at a trendy co-working space in South Jakarta for the dual purpose of advising LINKAGES’ online outreach activities and facilitating insightful dialogue with stakeholders.

Lessons learned: Young program staff active on social media were necessary to identify initial community representatives, who then successfully engaged additional suitable representatives of the online at-risk community in Jakarta. It took time to follow and engage these representatives on social media and meet in-person, ensuring suitable fit between the team and representative. The team curated meaningful and safe “meet-ups” by facilitating representatives’ input into the team’s terms of reference and the program committing to finance relevant activities/rewards led by team members.

Conclusions/Next steps: LINKAGES hosts quarterly meet-ups for representatives to review and advise the program’s online outreach strategies, tools, and communications. Through these meet-ups, several representatives now lead new program activities including generating demand for Pre-Exposure Prophylaxis (PrEP) and engaging a broader range of social media influencers. The program continues to document its experience of meaningfully engaging online men at risk of HIV in Jakarta and outcomes on uptake of HIV services among this population.

THPEE693
Barriers in access to treatment, care and support services for people living with HIV in Bangladesh

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Background: Recently Treatment, Care and Support (TCT) services for people living with HIV (PLHIV) in Bangladesh has been shifted from NGO led service delivery to government hospital without sufficient preparation and transition plan. As a result, PLHIV are facing huge barriers for getting TCT services from hospitals. The aim of this study is to establish levels of access to treatment, care and support services of PLHIV. The study findings will be used to inform the relevant policy makers to reduce barriers in access to services.

Methods: It was a cross-sectional study based on face-to-face interviews conducted during October to November 2017. HIV treatment-related issues such as access to pre-ART care, ART, ART adherence, treatment literacy, attitude of health care providers (HCP) etc were the core issues of this study. A total of 200 PLHIVs over 18 years, recruited through community groups and hospitals, sampling based on quotas regarding geographic distribution, age, gender. A simple questionnaire was developed containing the basic demographic information. After interview, data was cleaned and inputted in SPSS software for analysis.

Results: The study included 50% men 45% women and 05% TG; mean age 36 years, 65% rural and 35% urban. By self categorization of perceived HIV vulnerability, majority (41 percents) were international migrants, followed by wife of migrant workers (33 percent). It was received HIV vulnerability, majority (41 percents) were international migrants, followed by wife of migrant workers (33 percent). It was reported that CD4 cell count was done only 30 percent and no viral load test was done in the last year. Average duration to reach ART center is 4132 hours. PLHIV are to wait 04 hours at ART center for receiving ART from hospital. HIV Treatment Literacy level was found poor. No medicine is provided from hospital for opportunistic infection and 72% did not buy prescribed medicines due to costs. Almost all the respondent doesn’t have any insurance coverage or home based care facilities. Treatment delay was found higher (92.9%) among the respondents considering test and treat.

Conclusions: Regarding access to TCT, the study identified specific systemic barriers compared to general population. These call for structural solutions, such as strengthening of hospital system and increasing access to health insurance for PLHIV.
THPEE695
Peer navigators develop mobile application for enhancing HIV knowledge in the fight against stigma among youths in Western Kenya
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Background: The number of young people in sub-Saharan Africa using smart phones is increasing, and most of them use mobile applications to get information and news. Mobile platforms can provide information and autonomy for the user to engage in the information when needed, as well as marketing and personalized communication. A mobile platform targeted at improving HIV knowledge among youth in sub-Saharan Africa could provide needed information, even to those not currently accessing HIV services.

Description: “HIVFactSheet” is a youth-friendly mobile application, developed in western Kenya that can be downloaded from Google Play store. Once installed in an Android mobile device, the app works offline to provide access to multi-media educational components on HIV prevention, HIV testing, General HIV knowledge, Antiretroviral Therapy. Adherence, Disclosure, and CD4 count. Some of the application content including short films and narratives were developed within an NIH-funded study to develop a counseling intervention to improve HIV disclosure. The mobile application was developed by two peer navigators in the AMPATH system in western Kenya, who provides mentorship, advocacy, and connection to HIV services. The HIVFactSheet application includes a portal where young people were able to call text or email, a counselor who offered counseling to them and referred to clinics for further support where ever needed.

Lessons learned: Since the launch on 1st December 2017, 372 young people have accessed comprehensive HIV information using the HIVFactSheet application. 62 counseling services was offered, while 28 referrals were made in various clinics. Lessons learned through the development and implementation of this app is that HIV factual information is key in enhancing positive living and eliminating stigma & discrimination among young people. It also facilitates informed decision-making and enables community members to understand HIV better, potentially improving testing and reducing stigma. Youth development of this resource enhanced both cultural relevance and appropriateness for the youth population.

Conclusions/Next steps: The use of mobile platforms tailored to youths in sub-Saharan Africa can help us improve access to comprehensive HIV information and bridge the gap for access to resources and care, which can be utilized by youth and other key populations.

THPEE696
Healthcare workers’ and patients’ experiences during implementation of the Fast Track model: Piloting differentiated ART service delivery in Zambia
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Background: Fast Track (FT) is an accelerated drug pick-up model where stable HIV-positive patients are given three rather than one month of ART supply through a dedicated treatment room. FT was piloted in two primary health centres in Lusaka, Zambia, to explore feasibility and effectiveness in improving patient retention. We sought to understand the experiences of health care workers (HCW) and patients after approximately six months of implementation to identify needed improvements or midcourse changes.

Methods: From January-March 2017, we conducted an exploratory qualitative study using six Focus Group Discussions (FGDs) with patients and eight in-depth interviews (IIs) with HCWs to collect data on their lived experiences with the FT model. All interviews and discussions were audio-recorded using a voice recorder and transcribed into English. Thematic analysis was conducted using NVivo 11.

Results: Both HCW and patients viewed FT as having the ability to decongest the clinic by spacing ART pick-ups and reducing time spent in the clinic by providing dedicated services. The latter was reported as particularly attractive to both patients and HCWs who expressed concerns regarding patient wait times under routine care. However, patients requested that all other services such as measuring weight and blood pressure be incorporated into the dedicated service room. They also complained about long wait times during clinical visits because clinicians did not appreciate the fact that the patients had come early to the FT room. HCWs emphasized the importance of orientation and information dissemination to bring all HCWs at the facilities on board, foster a sense of ownership and to avoid patient perceptions of staff favouritism or nepotism that may negatively impact patient-provider relations. HCWs further expressed concern regarding the time allocated for adherence support during the patient pharmacy visits as the focus was only on drug pick-up.

Conclusions: Overall, the FT model was reported to be highly applicable and acceptable. The segregation of other services (e.g., weight) and clinical reviews still being offered under routine conditions made the model less attractive. A dedicated FT day may be more efficient and equitable than mixed FT and routine services.

THPEE697
The reality of “Universal Test and Treat” strategy for clients tested in the community: Measuring the linkage to care time frames and its impact on the implementation of UTT
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Background: South Africa adopted the UNAIDS Universal Test and Treat strategy in September 2016 aimed at broadening ART initiation for HIV positive clients. The UTT strategy supports the UNAIDS 90-90-90 target to be reached by 2020 which are the basis for many HIV prevention programmes implemented in South Africa.

Description: Community testing reaches a wide-range of clients in community spaces that they occupy. A number of testing strategies have been employed by Aids Foundation of South Africa as a community testing organisation, including door-to-door, wellness days, testing of indexed clients and others. This testing happens outside of fixed health facilities. Targeted clients are children aged 0-19 years, consent for children <12 years is obtained from the parent/guardian of the child. Children receiving an HIV positive test are referred to the facility for ART initiation. Linkages are made with local facilities to receive clients coming from the community for ART initiation. Within 5 days of referral, a follow-up visit is conducted to assess the linkage status. Subsequent follow-up visits depend on the outcome of the initial visit until successful linkage to ART is confirmed.

Lessons learned: The linkage to care rate for the programme was at 90.6%, in line with 90-90-90 targets. An investigation was done to ascertain the period of time it took to link clients for ART initiation. On average it took a referred client 8 days to be initiated on ART at a health facility. This varied between 5 and 53 days. Based on this data, we emphasised timely follow-ups and providing continuous counselling to encourage clients to visit facilities after HIV diagnosis.

Conclusions/Next steps: Measuring the period from HIV diagnosis to HIV initiation sheds light on the effectiveness of UTT implementation for clients tested in the community. While the UTT strategy aims to put clients on ART after they receive an HIV positive result. The reality for clients tested in community is different. It takes an average of 8 days for clients to be initiated on ART according to the programmes data.
**THPEE698**

The effectiveness of different pediatric HIV testing approaches in reaching the first 90 in Lesotho

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**Background:** With expanding pediatric HIV programs in Lesotho, significantly more children (0-14 years) have been diagnosed and linked to identifications, and yields over time.

**Methods:** Five testing approaches were examined from October 2015 to September 2017 in two districts of Lesotho to understand the most effective strategies, measured through three metrics - testing volumes, identifications, and yields over time. Facility testing (FT) data were summarized from PEPFAR's data warehouse. Mobile outreach clinics (MOC), household index testing (HIT), sidewalk tent testing (STT), and door-to-door testing (D2D) data were collected through routine paper-based reporting.

**Results:** Figure 1 shows FT accounted for 74.72% of pediatric tests and 86.03% of identifications. MOCs tested and identified the highest number of children among the community-based approaches, 11.76% and 6.55%, respectively. The non-targeted approach of D2D tested over 8% of children, but had the lowest yield, 0.32%. Conversely, the targeted strategy of HIT had the highest yield among community approaches at 0.67%, but tested 2.96% of children. D2D tested 8.43% and identified 3.68%; HIT tested 2.96% and identified 2.64%; and STT tested 2.13% and identified 1.09%. Yields, when examined over time (Figure 2), show MOCs and FT experienced the greatest relative decrease in yields between the first and last quarter, 74.26% and 83.22%, respectively.

**Conclusions:** In Lesotho, pediatric HIV identifications are rare, making each diagnosis significant. The approaches offering integrated services at fixed locations – FT and MOC – had the highest testing volumes and accounted for >90% of all identifications; however, experienced the largest drop in yields. A targeted approach like HIT had a more consistent yet still low yield, but tested fewer than the other household-based approach of D2D.

It is recommended that FT remain the backbone of pediatric testing programs, coupled with community-based opportunities that provide integrated services. As yields significantly decrease with static approaches, household-based approaches must be introduced to fully close the gap and reach the first-90.

**THPEE699**

Lessons learned in implementing China Aids Fund for non-governmental organizations

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**Background:** In 2015, approved by the State Council, National Health and Family Planning Commission. Ministry of Civil Affairs and Finance of the People’s Republic of China jointly established the national-level public welfare fund - CHINA AIDS FUND FOR NON-GOVERNMENTAL ORGANIZATIONS (CAFNGO). It raises money from government, enterprises and other lawful ways to support NGOs to expand the intervention and testing coverage of key populations and services for PLHIV. The establishment of CAFNGO reflects the strong commitment of Government to support NGOs involvement in AIDS response, and is a fundamental step fast tracking 90-90-90 and intervention targets of national AIDS strategy 2015-2020.

**Description:** In 2016-2017, CAFNGO funded $10 million to support NGOs in 31 provinces to provide outreach, HIV testing and referral services for key groups (FSW, MSM, DU). CDCs provide technical support and CAFNGO Management Committee Office manages funding allocation and implementation, and organizes capacity building activities for NGOs. In two years, NGOs provided outreach and interventions among key populations for over 2.43 million person-times. More than 580,000 people received HIV testing services with more than 16,000 positive confirmed. The number of positive cases detected by CAFNGO in 2016 accounted for 40% of the national cases in the same period, while confirmed HIV cases among MSM by CAFNGO made up 49.4% of the total HIV cases nationwide in the same period.

**Lessons learned:** NGOs have been playing an irreplaceable role in expanding HIV testing among key populations. CAFNGO is the innovation of social governance system in public health system, while guidance and support from local administrative departments and public health institutes for NGOs development and involvement in AIDS response are insufficient. Management mechanism and capacity of NGOs are major challenges for CAFNGO to more effectively contribute to national AIDS response.

**Conclusions/Next steps:** CAFNGO provides a unique platform for NGOs to participate in national AIDS response and is widely recognized by the society and community. Furthermore, CAFNGO needs to optimize working mechanism to enlarge the engagement of NGOs in social governance for AIDS response at all levels. Deeper the multi-sectoral communication and cooperation, promote the release of related policies and encourage the whole societies' participation.

**THPEE700**

Chikurubi maximum prison: Good practice to support the implementation and scale-up of differentiated ART delivery for key populations living in prisons and correctional facilities

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**Background:** Prison populations have high incidence of HIV and TB whilst access to health services including TB treatment and Antiretroviral Therapy (ART) is often overlooked and improvements, not well documented. Chikurubi Maximum is the largest prison in Zimbabwe averaging 2600 inmates, many classified high risk with long sentences. 17% of the prison population is HIV+ and in dire need for HIV health services and peer support.

**Description:** Access to HIV information at Chikurubi is through differentiated peer service delivery, an approach that simplifies and adapts HIV services to better serve the needs of inmates living with or at risk of acquiring HIV. Through this approach, 178 peer educators have been trained.
THPEE701
Leveraging a community-led HIV testing approach to reach female sex workers in the geographic areas uncovered by the national program in India

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Background: The Indian HIV prevention program offers a package of prevention services to key populations (KP) through well-structured target intervention (TI) facilities run by non-governmental organizations. TIs are established in a geographic area for a stipulated number of KPs. Areas with more geographically dispersed or fewer KP tend to be uncovered by the TI. The TI program reports a 0.11-0.66% HIV case-finding rate. The USAID- and PEPFAR-supported LINKAGES project, in India piloted a peer-led model to reach female sex workers (FSW) in a geographic pocket not covered by the national program.

Description: During November-December 2017, eight adjoining sub-distinct units unred by the TI program in high HIV prevalence East Godavari district of India were targeted. A community-based organization (CBO) led by FSWs was engaged as lead partner. Consulting with the CBO leaders, a small team of peer mobilisers (to identify peers), a peer navigator (to link FSWs detected HIV positive to treatment) and a community coordinator was formed and nominally compensated for their time. HIV testing kits were procured from the government testing centre. FSWs were provided with prevention education and offered HIV testing at a community-convenient site and time. A lab technician was hired to mentor and monitor the HIV testing performed by the peer mobilizers.

Lessons learned: Of the 219 FSWs mobilized and provided HIV counselling and testing services, 42 (19.2%) were identified HIV positive. Of those detected positive, 17 were linked to ART by December, although the peer navigation is on-going. The majority of the FSWs mobilized by peers belonged to the 25-29 age group. In addition, nine out of the 15 sexual partners tested were detected HIV positive. By leveraging the existing CBO and government systems, the piloted model argues for its sustainability.

Conclusions/Next steps: The pilot demonstrated high case detection rate among FSWs who otherwise would not have been reached by the national TI program. It may imply that the ‘right population’ was targeted with ‘right approach’. We advocate with the national program to integrate community-based testing approaches, engaging the community proactively, to improve the efficiency of TIs in reaching KPs in uncovered geographical pockets to achieve the 90-90-90 targets.

THPEE702
A sustainable MSM-led HIV prevention, care and treatment service provision model in Vietnam

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Background: With 8.2% of HIV prevalence, Men who have sex with men (MSM) in Vietnam are disproportionately affected by HIV and their involvement in HIV interventions is limited. Worldwide, there is evidence MSM are actively involved in providing HIV services. In the context of donor transitions from direct funding to technical assistance support, a more effective and sustainable provision of HIV services for MSM is needed.

Description: Initially established as an MSM-led social enterprise in 2010 in Ho Chi Minh City, Vietnam, G-link has become a professional HIV service provider. G-link’s budget includes self-raised funding and donor grants, including Global Fund, PEPFAR and MSMGF. In response to the emerging needs for an MSM-friendly-and-culturally-adapted services, G-link established a private clinic to provide a comprehensive HIV and STIs-related service package provided by MSM medical staff, including: innovative online HIV outreach, HIV rapid testing, STIs screening and treatment, PEP, PREP and ART. To better serve the community, G-link has used the MSMST tools to improve existing services offering more flexible service hours compared to those of public clinics; 24/7 hotline service; and subsidized cost policy to MSM with modest income. Recently, G-link has been nominated Hero Award by APCOM as a groundbreaking and innovative community clinic in the Asia and Pacific region.

Lessons learned: Our outcomes show our service model increases accessibility and sustainability of services for the historically marginalized MSM reluctant to access government clinics. G-link has proven its efficient use of donors’ funding to establish holistic health services for MSM. In 2017, 7,900 MSM received HIV testing; 474 were referred to ART treatment, 203 received ART at G-link clinic, 420 received PEP and 238 received PREP. With database of 5,000 MSM, G-link manages to longitudinally follow up both HIV-negative and HIV-positive clients for HIV testing reminders, timely assistance with ART enrolment and adherence support.

Conclusions/Next steps: G-link is the first community-led healthcare provider in Vietnam and its proven success could be seen as a sustainable community-led HIV service provider in the region. With MSMGF’s technical support, G-link is documenting its service model to be shared and replicated in Vietnam and in the Southeast Asia region.

THPEE703
Crowdsourcing to expand HIV testing services: A pragmatic, stepped wedge randomized controlled trial in China

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Background: HIV testing rates are suboptimal among many key populations. Crowdsourcing may be a useful tool to increase HIV testing. Crowdsourcing has many people solve a problem and then shares the solution with the public. This study used a stepped wedge cluster randomized controlled trial to evaluate a crowdsourced intervention to promote HIV testing among men who have sex with men (MSM) in China.

Methods: Public crowds developed the intervention through a national image contest, a regional strategy designathon, and local message contests. These three activities generated images, strategies, and messages, respectively, for the final intervention (Figure 1). A pragmatic stepped wedge cluster randomized controlled trial evaluated the crowdsourced intervention to promote HIV testing among MSM in eight Chinese cities over 12 months (ClinicalTrials.gov number: NCT02796963). MSM were recruited through Blued, a gay social networking mobile application. The
primary outcome was HIV testing in the past three months. Secondary outcomes included HIV self-testing, condomless sex, and WeChat (an instant messaging application) communications about HIV testing in the past three months. Generalized linear mixed models were used to analyze primary and secondary outcomes.

Results: Most of the 1383 MSM participants were ≤ 30-years-old (82%), unmarried (86%), and had a college degree or higher (65%). In intention-to-treat analysis, the odds of receiving an HIV test during the intervention period was significantly higher than during the control periods (estimated odds ratio [OR]=1.67, 95% confidence interval [CI] 1.27-2.11). The proportion of individuals receiving an HIV test within a city was 8.9% (95% CI 2.2-15.5) greater during the intervention periods. There was no change in the secondary outcome of condomless sex. The intervention increased HIV self-testing (OR= 1.98, 95% CI 1.47-2.66, P< 0.001) and WeChat discussions about HIV testing (OR=1.73, 95% CI 1.34-2.23, P< 0.001). HIV self-testing rates were sustained following the immediate three-month period of the intervention.

Conclusions: A crowdsourced intervention was effective in promoting HIV testing among Chinese MSM. This study has implications for the scale-up of HIV testing services among MSM across low- and middle-income countries.

PHPEE705

Improving retention of HIV positive clients in care by conducting real time follow up of clients using full time community health workers (CHWs): An experience of five districts in Western Uganda

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Methodology:

Background:
Retention in care is an indicator of good adherence and a requirement for Viral suppression among people living with HIV on ART. Poor retention remains a major hindrance to the attainment of the 90-90-90 goals in Uganda. The 12 months retention was low below the 90% target for 3/5 districts. The objective of this intervention was to improve the retention of clients in care using full time CHWs to conduct real time follow up of clients who miss clinic appointments.

Description:
CHWs, a newly recruited cadre of support community staff were recruited and attached to health facilities in five scale up districts in Western Uganda. CHWs updated the clinic appointments daily and developed lists of clients that had missed clinic appointments. This was different from the use of VHTS that work on a volunteer basis and conduct monthly follow up of clients.

Lessons learned:
There was marked improvement in the retention of clients in all five districts. 4/5 districts registered retention above 90% and the fifth district improved from 86% to 89%. clients were more receptive to the CHWs who conducted the home visits because they had interacted with them at the health facility. The clients were not familiar with the VHTS were not regular at the health facility.

Conclusions:

The use of CHWs as full time recruited staff and attached to health facilities are able to conduct real time daily follow up of clients who miss appointments. The clients are more responsive to health workers with whom they have interacted with which reduces the likelihood of receiving wrong locator information.

THPEE705

Community/facility strategies to promote adherence to ART and VL awareness amongst PLHIV in Botswana


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Background: The Advancing Partners and Communities (APC) project in Botswana funded by PEPFAR through USAID established a community HIV care program to support people living with HIV (PLHIV) to reach their treatment goal in a differentiated care model lead by community health workers (CHWs). Adherence is associated with efficacy of antiretroviral treatment (ART) whilst the viral load (VL) remains the marker for treatment success. In the era of ‘Treat All’ in Botswana, adherence counseling and awareness of importance of VL monitoring requires partnership between community and facilities.

Description: Health facilities provided trained CHWs with lists of PLHIV newly initiated on ART and defaulters for enrollment in community care. CHWs conducted home visits to enroll consenting PLHIV in community care and provided individual client assessments. adherence counselling and monitored clients’ compliance to scheduled health checks including laboratory monitoring appointments with specific focus on VL monitoring. Home visits were repeated monthly or quarterly depending on clients’ adherence to treatment.

Lessons learned:
From October 2016 to September 2017, out of the 7,734 adults enrolled in community care, 7,462 (95%) self-reported adhering to ART in the past 30 days, 88 (1.1%) did not take pills and 184 (2.3%) missed pills frequency. 5,116 (69%) reported being virally suppressed, 1,401 (19%) had a detectable VL, and 1,217 (16%) did not know their VL. CHWs referred those without a documented VL in the last six months to facilities for VL measurement. All reporting adherence challenges were provided adherence counseling and followed-up monthly to evaluate progress.

Conclusions:

The limited proportion of self-reporting on viral suppression is a matter of concern. CHWs are adding value to health system by promoting viral load awareness as an indicator of treatment success rather than the CD4 count as it was the case in the old ART protocol. Joint facility and community efforts have proven to be necessary to promote ART adherence and sustained VL suppression. Task sharing ART monitoring between health workers and lay CHWs can help Botswana reach the UNAIDS 2nd and 3rd 90 targets.
THPEE706
From blueprint to action: On track to Ending the Epidemic (ETE) by end of 2020 in New York State through policy and program changes and community engagement

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Background: In June 2014, Governor Andrew Cuomo committed to end AIDS as an epidemic in New York State (NYS). An ETE Blueprint was developed by a Governor-appointed Task Force, consisting of representatives from state and local governments and other stakeholders.

Description: The community engagement and transparency embedded in the NY ETE effort continues, and the gains are astounding. The number of people newly diagnosed with HIV in NYS has fallen to historic lows, proving that efforts to End the Epidemic are making a significant impact.

Lessons learned: One example of ETE program change is a rapid access to treatment pilot to ensure immediate access to antiretroviral therapy for persons newly diagnosed, the initial cohort of rapid access participants reached viral suppression in just 41 days. Access to pre-exposure prophylaxis, or PrEP, has been expanded through dedicated funding and programs resulting in 2,300 persons having been prescribed PrEP by PrEP Specialists, the number of Medicaid recipients taking PrEP increased fourfold between 2013 and 2015, and active enrollment in the NYS PrEP Assistance Program (PrEP-AP) for the most recent one-year period is 1,627. Recently developed clinical education tools to support medical providers offering PrEP have also contributed to increased PrEP uptake. Recent policy changes aim to ensure no population is left behind when accomplishing ETE goals. In 2016, NYS eliminated the existing upper age limit of 64 for purposes of offering routine HIV testing. State regulations were recently modified to enable minors to consent to HIV testing and 11,7% accessed STI screening in last three months. Our previous studies suggest stigma and discrimination by healthcare providers offering routine testing strategy in Cameroon

Conclusions/Next steps: ETE Implementation is having an impact in NYS. Workshop participants will be able to discuss elements and implementation of ETE Blueprint recommendations, identify opportunities to inform global and country-level policy and programs, develop strategies to promote and support local initiatives to end AIDS. Data, policy, program presentation from City, State and Community representatives, with Q&A. A “fishbowl” brainstorming session will provide the opportunity to interact with NY ETE stakeholders, and discuss local efforts to end AIDS.

THPEE707
An innovative approach to HIV prevention: Equipping healthcare providers with knowledge, tools and empathy to provide inclusive, rights based and gender sensitive services to MSM and TG

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Background: In Vietnam, HIV prevalence among men who have sex with men (MSM) is 8.2% and transgender people (TG) is 17% and is predicted to increase rapidly in the coming time. Besides, they are facing many challenges in accessing HIV/STI related services. According to the Vietnam Administration of HIV/AIDS control, only 41.3% MSM has used of HIV testing and 11.7% accessed STI screening in last three months. Our previous studies suggest stigma and discrimination by healthcare providers is one of the primary barriers to service access. To strengthen clinical capacity to friendlier services provision, Lighthouse evaluated the effect of an MSM and TG-led intervention to sensitize health care providers.

Description: The intervention, from October 2016 to December 2017 in the Nam Tu Liem district center in Hanoi, Viet Nam and in partnership with the MSMGF, included five steps:
(i) mapping of healthcare facilities popular among MSM and TG community;
(ii) training of the trainers for MSM and TG involved in the intervention;
(iii) conducting pre- and post-assessment of targeted and participating healthcare facilities, including client surveys, staff interview, and simulated patients;
(iv) trainings of healthcare providers based on identified needs and issues;
(v) providing a set of recommendations based on the assessments of the clinic.

Lessons learned: The clinic improved its quality of services provision, particularly in the domains of overall friendliness and counseling on gender and sexuality. A total of 11 healthcare providers were trained and improved their knowledge on gender and sexuality, counseling skills, and communication with MSM and TG. The healthcare facility focused on reaching MSM and TG on social media with our technical assistant. Overall, client satisfaction increased from 3.5 (out of 5) to 4.1 (out of 5), and the number of MSM and TG using services has doubled.

Conclusions/Next steps: This intervention increased community demand for HIV-related services. It increased MSM&TG’s satisfaction with services provided. Its effectiveness underscores the need for collaboration between MSM-led groups and public clinics and the modeling and implementation of adequate services for MSM and TG. While focused on a Vietnamese population, this intervention provides a model that can be implemented in other provinces and countries.

Delivering paediatric HIV services

THPEE708
Parental predictors to uptake of HIV testing among children and adolescents in the context of index case testing strategy in Cameroon

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Background: Targeting children born to people living with HIV/AIDS (PLHIV) for HIV testing also known as index case HIV testing is emerging as a priority strategy to reduce the current gap in pediatric and adolescent antiretroviral treatment coverage, especially in Sub-Saharan Africa. This study aimed at identifying parental factors associated with HIV testing uptake among children of PLHIV in Cameroon.

Methods: This was a cross sectional study conducted from June—December 2016 in two district hospitals (Abong-Mbang and Ndop) in Cameroon. During this period socio-demographic information of PLHIV in care and consenting to participate in the study were collected using standardized questionnaires. In addition, they were invited to have their biological children aged 6 weeks - 19 years tested for HIV. Logistic regression was performed using SPSS and significance set at 5%.

Results: 645 parents were included in the study through whom 1438 children were enrolled for HIV testing. The parents were predominantly females (81.5%) and the age ranged from 17 to 59 years with a median of 35 years. 57.8% (37/645) of parents tested at least one child and 57.6%
(829/1438) of children enrolled were tested for HIV. Factors associated with HIV testing uptake among children included: female gender (OR=1.49, p=0.049), higher education level (OR=1.61, p<0.0001), single parent (OR=1.91, p<0.0001), and student occupation (OR=3.62, p<0.0001). When adjusting for confounders we found that female gender (aOR=1.79, p=0.023); age older than 40 years (aOR=1.47, p=0.013); higher education level (aOR=1.66, p<0.0001) and single parents (aOR=1.77, p<0.0001), were parental predictors associated to HIV testing uptake among children and adolescents.

Conclusions: PLHIV of male gender, less than 40 years, less educated and married were less likely to test their children for HIV. This suggests the need to enhance HIV counseling and testing for children among these sub-groups, especially among males and married parents in order to optimize the outcome of the index case testing strategy among children and adolescents.

THPEE709
Reaching the second 90: Improving coverage of paediatric ART uptake and quality of care using a technical assistance strategy at 46 health facilities in Haiti: Results from EQUIP

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Background: According to 2016 UNAIDS Report, Haiti’s paediatric HIV treatment coverage was only 49%. Provider-initiated HIV testing and counseling (PTTC) is necessary to identify HIV-infected children, and clinical skills and competencies are critical for their treatment. Despite roll-out of revised HIV treatment guidelines, PTTC has not been consistently implemented and providers remain reluctant to initiate children on ART. Instead, children are transferred to facilities with onsite paediatrician. Only 13% of the facilities have a paediatrician and weak bi-directional referral systems. Therefore, health outcomes for these children are unknown.

Description: EQUIP-Haiti designed a technical assistance package to improve paediatric HIV clinical management. In April 2017, EQUIP provided 3 training sessions to 59 healthcare providers from 46 institutions on PTTC, PCR testing, tracking of mother-infant care, management of HIV-infected children and shared best practices on linkage to treatment. Supportive mentorship visits were conducted post-training to assist healthcare providers on correct ARV dosing and preferred regimens for HIV-infected children. Moreover, EQUIP supported the facilities by providing job aids, M&E tools, and clinical stationery to ensure proper documentation and reporting of data. A social media forum was established after the trainings to allow real-time and continuous support for clinical paediatric HIV case management.

Lessons learned: The trainings and mentorships improved skills and confidence with an increased median score of 24% between pre and post-test, facilitated facility-community linkages, tracking and re-testing of infants and children. The establishment of a social media forum provided a real-time advisory portal to address provider questions on clinical management of HIV-infected children, drug management, data collection, documentation, and analysis. To date, 45 health care providers are actively using this forum. The linkage to care rate for children infected with HIV increased from 27% to 56% to 76% and 80% in Q1, Q2, Q3, and Q4, respectively.

Conclusions/Next steps: Bridging the knowledge-skills gap is one of the key challenges to be addressed for a sustainable upwards trajectory of paediatric ART initiation. EQUIP’s successful training and technical assistance package can be rolled-out at other facilities in Haiti for capacity building and quality improvement of HIV paediatric care and treatment.

THPEE710
Keeping the next generation HIV free: Collaborative effort on scaling up of early infant diagnosis in Myanmar

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Background: The prevention of Mother to Child Transmission (MTCT) of HIV program in Myanmar was facing challenges of scaling up the early HIV diagnosis (EID) for infants born to HIV infected pregnant women. According to National AIDS Program’s report, only 25% (558/2195) of HIV exposed infants received EID in 2014. The major drawback was being lack of proper tracking on follow-up testing and treatment services for HIV exposed infants.

Description: The Laboratory Information Management System (LIMS) for Early Infant Diagnosis was established with the collaborative effort of National AIDS Program, National Health Laboratory, Public Health Laboratory, UNICEF and CHAI in January 2015. The EID mentoring program was established at 28 AIDS/STD teams and 12 hospitals with high caseload to strengthen the follow-up mechanism and proper linkage for infant testing and prompt initiation of ART with the support of PLHIV volunteers and Basic Health Staff. In addition, 17 SMS printers and 23 mobile phones were set up to shorten the turnaround time of result delivery.

Lessons learned: From January 2015 to December 2017, there were 3,586 HIV exposed babies in the project areas, out of which, 3,269 (91%) received EID. 1,580 (44%) were tested before 2 months of their age; this result was an increase from 32% in 2015. There was a decrease in HIV DNA PCR positive rate from 9.8% in 2015 to 6.5% among tested HIV exposed babies in 2017. The percentage of HIV exposed babies tested positive and referred for ART initiation was 44% in 2015 and increased to 75% by the end of December 2017. However, the LIMS indicated that the average turnaround time of EID testing in 2017 was 38 days mainly due to the delay in sending Dried Blood Spot samples to central labs, the delay in arrival of reagents and the high turnover rate of laboratory staff.

Conclusions/Next steps: The point-of-care EID testing at local level and the proper supply planning for laboratory commodities should be established in order to reduce the turnaround time of EID testing. In addition, the collaborative effort of PMTCT stakeholders in Myanmar should be strengthened to achieve elimination of MTCT by 2025.

THPEE711
Building the capacity of health care workers and rural clinics to implement early infant diagnosis in Zimbabwe

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Background: Availability of paediatric HIV testing and treatment services in Zimbabwe had long been limited to district health centres. In 2013, with a desire to change that, the Ministry of Health and Child Care (MOHCC) undertook an accreditation assessment to understand the existing human resource capacity, pharmacy supply chain management, laboratory services, monitoring and evaluation processes, and infrastructure for HIV diagnosis and treatment at rural clinics nationwide. This assessment identified factors affecting Early Infant Diagnosis (EID) in rural clinics, including a lack of health provider confidence in diagnosis and management for infants and low capacity to test and treat.

Description: The Bantwana Initiative’s Expanded Integrated Management of Paediatric AIDS Care and Treatment Program (EIP) was designed to address critical gaps in rural health service delivery for improved paediatric HIV services across 17 underserved districts. Between 2014 and 2017, in consultation with MOHCC, the program introduced training and clinical mentorship to rural health providers on diagnosis and management of paediatric HIV, counselling, ART initiation, and retention in care. Supplemental offsite support from Roving Mentors, as well as through online platforms and learning visits to provincial hospitals was availed. The program addressed resource constraints within rural clin-
ics by working with clinic staff on supply chain management, providing critical inputs (e.g., refrigerators for reagents, medicine), and introducing Results Based Financing to incentivize attainment of paediatric ART benchmarks. The program supported HIV testing for over 460,000 children, initiated 10,904 children onto ART; trained 217 nurses in advanced paediatric HIV management; and provided clinical mentorship to 170 clinical staff.

Lessons learned: On-the-job coaching and practical hands-on mentorship is effective in enhancing skills and confidence of primary level cadres in EID and initiation of HIV+ infants on ART. EID turnaround time in target districts was reduced from 12 to 2 weeks and specimen rejection rates reduced from 11% to 4%. To date, all 248 clinics supported by the program have initiated ART initiation sites.

Conclusions/Next steps: The program has helped equip rural clinics with the capacity to respond to community HIV/AIDS needs through the introduction and scale-up of much needed comprehensive paediatric ART services previously provided only at district health facilities.

**THPEE712**

Understanding barriers and needed actions to improve HIV care for children in low income settings: Insights from five Ugandan districts

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Background: While Uganda has made remarkable progress in the fight against HIV, the delivery of treatment and care services for children living with HIV (CLHIV) remains a challenge. Treatment coverage for children 0–14 years living with HIV is estimated at 62%, far from realising universal treatment coverage. To address this gap, Aidsfonds and partners in Uganda are implementing a 2-year ‘Towards an AIDS free generation in Uganda’ program in five rural districts. To inform the program, we explored barriers and needed actions to improve HIV care for children.

Methods: Operational research was conducted in Soroti, Mukono, Mityana, Kyenjojo and Ntungamo Districts. Data were collected in August and December 2017, through 10 in-depth interviews (5 with CLHIV and 5 with their caregivers), 53 focus group discussions with CLHIV, village health teams, networks of people living with HIV, mothers in PMTCT, fathers, children in school and teachers. Seventy-nine key informant interviews with health workers and district leaders were conducted. Data were analyzed using content thematic approach.

Results: Stigma at home, in schools and communities; distant health facilities; lack of support groups for children; shortage of food and poverty makes access and adherence to treatment for children difficult. Phase out of HIV programs disrupted service provision and use. The major actions needed to improve care for CLHIV are: improving the quality of care at health facilities; strengthening linkages between health facility and community support structures, initiating support groups for children and empowering community resource persons especially expert clients to identify, follow-up and support children. Supporting families to reduce stigma, meet food, education and other livelihood needs of children is key.

Conclusions: Study findings reveal the intersecting reality of stigma, distant and non-functional health facilities and vulnerabilities related to food insecurity and poverty as major barriers to children’s access and retention into HIV care. Phase out of HIV programmes should be better coordinated to reduce the strain on health facility and community support systems. Strengthening community and lower level health care systems is critical in attaining universal treatment coverage for children living with HIV.

**THPEE713**

Lack of disclosure of HIV status and ART intake from pregnant women at delivery may jeopardize the optimal choice of PMTCT strategy. Preliminary results of the ANRS 12344-DIAVINA trial

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Background: Globally 45% of HIV-infected children are born in West and Central African countries where prevention of mother-to-child transmission (PMTCT) programs are still limited. The last revision of WHO guidelines included a reinforced HIV preventive therapy for infants at high risk of acquiring HIV that needs to be further investigated in the field.

Methods: The ANRS 12344-DIAVINA trial investigates in Conakry, Guinea, the feasibility of a strategy combining reinforced preventive antiretroviral therapy (ART) in infants at high risk of MTCT (mother diagnosed with HIV at delivery or having received ART for 4 weeks before delivery) and early infant HIV diagnosis. We present here the proportion of pregnant women at high risk of MTCT and the results of maternal HIV RNA performed at delivery.

Results: From February to December 2017, 5062 pregnant women were admitted for delivery at Ignace Deen hospital. HIV testing was offered to 5088 women (99.9%), of which 95% accepted it. Overall, 91 women were HIV-infected (1.8%). 42 (4.5%) had received ART for 4 weeks and 45 (5.4%) were at high risk of MTCT: 8 (1.9%) initiated ART < 4 weeks ago and 41 (45%) discovered their HIV infection at delivery. Among the 43 women included in the trial, HIV RNA was performed at delivery in 40 patients. HIV RNA was < 250 copies/ml in 21/40 (53%) women: 6/8 (75%) on ART for < 4 weeks and 15/32 (47%) with HIV diagnosed at delivery. Blood samples taken at delivery were retrospectively further investigated for the 10 first women with HIV RNA < 250 copies/ml at delivery (4 on ART for < 4 weeks and 6 with HIV infection diagnosed at delivery). HIV-1 was confirmed by Western-Blot; HIV RNA was confirmed < 250 copies/ml and ARVs were detected in plasma in all samples.

Conclusions: A significant proportion of women are at high risk of MTCT, however this risk can be overestimated by the lack of disclosure of HIV status and ART intake by some women to caregivers at delivery. A systematic measurement of maternal HIV viral load at the end of pregnancy seems crucial to adequately estimate the risk of MTCT and adapt the neonatal ARV prophylaxis.
Background: Outcomes for HIV-exposed infants (HEI) depend on the quality and efficacy of early infant diagnosis (EID) services. In Kenya, we evaluated the impact of the HITSystem (system-level intervention linking EID stakeholders via e-alerts for providers and SMS for mothers of HEI) on key EID outcomes.

Methods: In this non-blinded, phase 3, cluster randomized controlled trial (NCT02072603), 6 hospitals matched on region, resource level, and volume of HEI testing were randomized to receive the HITSystem (n=2) or standard of care (SOC; n=3). Eligible participants (HEI ≥30 weeks with HEI ≤24 weeks enrolled between February 2014 and December 2016) were followed to evaluate the primary outcome of complete EID defined as receipt of all EID services through 18-months (HIV-uninfected infants) or ART initiation (HIV-infants). HITSystem was hypothesized to improve retention, ART initiation, and results turnaround times (TAT) compared to SOC. Using a stepwise approach, we conducted separate multivariable logistic regression analyses with intervention group, site volume, and significant covariates as fixed effects in the models. Bonferroni corrections for multiple comparisons were applied.

Results: Among 808 eligible HEI data from 690 were analyzed (n=392 intervention, n=298 SOC); excluding 28 deaths and 91 documented transfus/mediated. Median age at enrollment was 6.0 weeks. 50% were male. Infants enrolled in HITSystem were significantly more likely to receive complete EID services compared to controls (85.2% [82-88] vs. 61.02% [55-66], p<0.0001) including the following: receipt of OI prophylaxis (99.75% vs 89.6%), PCR result returned to hospital (99% vs 96.98%), mothers notified of result (98.9% vs 89.3%), re-testing among HIV-uninfected infants (100% vs 96.98%), PCR results returned to hospital (100% vs 96.98%). TAT was similar and time to ART was faster at SOC sites (median 68 vs. 51 days, p<0.003) were faster at intervention sites. Receipt of initial HIV test was similar and time to ART was faster at SOC sites (median 51 vs. 54 days, p=0.045).

Conclusions: HITSystem significantly increased completion of EID services and reduced TAT for results and notification. Hindered by intervention settings requiring multiple adherence counseling sessions prior to initiation, time to ART was faster in SOC sites.

### THPEE715

**Predictors of timely ART initiation among HIV-positive infants in Kenya**

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**Background:** Early initiation of ART (before 12 weeks of age) among HIV-infected infants reduces infant mortality by 76% and slows disease progression. Both the World Health Organization and Kenyan National Guidelines recommend immediate ART initiation for all HIV-infected infants; however, inefficiencies in early infant diagnosis prevents timely ART initiation among HIV-infected Kenyan infants. This study assesses timing of ART initiation and predictors of timely ART initiation among HIV-infected Kenyan infants.

**Methods:** We retrospectively reviewed data from 96 infants identified as HIV-infected between January 2013 and December, 2017 at 6 Kenyan government hospitals. The primary outcomes were:

1. infant receipt of ART by 12 weeks of age and
2. immediate ART initiation (within 3 days of maternal notification of the infant’s positive test result).

We assessed bivariate and multivariable predictors of ART initiation by 12 weeks of age.

**Results:** Among 96 HIV-infected infants, 82 (85.4%) infants started ART. Average infant age at ART initiation was 19.3 weeks and average time from mother notification of a positive result to ART initiation was 22.5 days.

Of the 82 infants that started ART, only 17 (20.7%) initiated ART by 12 weeks of age. Even when diagnosed early (<7 weeks), more than half (51.3%) failed to initiate ART by 12 weeks of age. Of the 78 infants with recorded dates of mother notification and infant ART initiation, only 30 (38.5%) received ART within 3 days. In multivariable logistic regression analyses, infants tested <7 weeks of age and those who initiated ART within 3 days of result notification were significantly more likely to initiate ART by 12 weeks of age (AOR 1.45 [1.2-1.7], p=0.002) and (AOR 20.1 [1.9-213.2], p=0.013), respectively.

Each additional week for results notification significantly reduced the odds of ART initiation by the 12 week target (AOR 0.39 [0.21-0.75], p=0.004).

**Conclusions:** Delays in initiation of ART compromise the benefits of life-saving ART for HIV-infected infants. These findings highlight the need for urgent engagement with key stakeholders (clinicians, patients/guardians, and policy makers) to ensure immediate initiation of ART for HIV-infected infants to significantly increase the proportion of HIV-infected infants initiating ART by 12 weeks of age.

### THPEE716

**Evaluation of a comprehensive approach to close the paediatric HIV programme gap in Johannesburg, South Africa**

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**Background:** Since the rollout of the South African HIV programme, the country has made tremendous progress in expanding paediatric treatment coverage. Despite this, considerable effort is required to ensure that all HIV-infected children are linked to treatment. The Paediatric and Adolescent Scale-up Project collaborative aimed to close this programme gap.

**Description:** We implemented a comprehensive approach of technical assistance and direct service delivery by roving teams to target children (<15 years of age) missing from the HIV programme in sub-districts CDEG in Johannesburg Health District, between September 2015 and December 2016.

**Objectives:** To evaluate the impact of a comprehensive approach to close the paediatric HIV programme gap in Johannesburg, South Africa.
ber 2017. Interventions included case-finding strategies, data driven link- age to care support, paediatric case management strengthening and data systems improvement. Routine operational and programme data were collected and analysed.

**Lessons learned:** Over a two-year period, a total of 8,497 children were tested for HIV at facilities in the supported sub-districts. 2,317 (28.3%) of whom tested HIV-positive. 69.6% (n=1,584) of the total tests were in under-five children, and 51.4% (n=1,192) of the positive tests were in this age group. Project implementation resulted in a significant increase in testing uptake (from 1050 to 3,504/month; p < 0.001) and number of children testing positive (from 61 to 96/month; p < 0.001; test positivity rate dropped from 4.0% to 2.3% (p < 0.05). The absolute number of children initiated on ART remained in a similar range, at around 800 per year. Illustrating reduction in linkage to care. Despite intensive efforts, programme retention rate decreased over time with one-year loss to follow-up in- creasing from 18% to 21% overall, but 27% in under-fives; one-year viral suppression rate also decreased from 72% to 66%.

**Conclusions/Next steps:** Our comprehensive model has successfully enhanced scale-up of paediatric HIV testing and case finding in regions CDEG of Johannesburg over time, although other factors could also have played a role. The high rate of loss to follow-up and low rate of viral suppression and attrition especially in children under 5. In order to close the paediatric HIV programme gap, focus of effort should shift from case finding strategies to strengthening the quality of care and psychosocial adherence support to dramatically improve linkage and reten- tion in care.

**THPee717 Evaluation of PMTCT program performance using HIV exposed infants final outcomes in eight districts of mid-western Uganda**

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**Background:** The Uganda AIDS Control Program with support from the Centres for Disease Control and Prevention (CDC) and Implementing partners began implementation of HIV Exposed Infant (HEI) birth cohort monitoring in April 2016. Using the birth month and year, each exposed infant is followed up longitudinally for a recommended period of 18 months. At every visit, HEI receives comprehensive clinical care includ- ing HIV testing, growth monitoring and Cotrimoxazole prophylaxis. This study evaluates performance of Prevention of Mother to Child Transmission of HIV (PMTCT) programs using HEI final outcomes.

**Description:** We conducted a retrospective data review of final out- comes for HEI that turned 18 months of age using monthly final out- comes reports from 126 health facilities in eight districts of western Uganda. At the end of the follow-up period, HEI received a final HIV test if they previously tested HIV negative or if previously tested HIV positivemy they continue receiving antiretroviral treatment. HEI not active in care are documented as: (i) transferred out or died before 18 months of age.

**Lessons learned:** A total 4,484 HIV exposed infants were registered in the birth cohort from January to December 2015. Eighteen months later, 81% (3,563/4,484) received HIV testing services within the recommended two months of age. 76% (3,429/4,484) completed 18 months follow up and were discharged HIV negative while 3% (136/4,484) tested HIV posi- tive and 95% of positive infants were initiated on lifelong antiretroviral therapy. 2.5% (111/4,484) died. 5% (237/4,484) were lost to follow and 11% (503/4,484) were transferred to other health facilities before the recom- mended 18 months of age. 2.2% (99/4,484) of HEI were active in care at 18 months but not tested for HIV.

**Conclusions/Next steps:** In predominantly breastfeeding populations, the proportion of HEI that tested HIV positive at 18 months of age was less than the World Health Organization PMTCT target of < 5%. Given that Mother to Child Transmission of HIV is a key PMTCT outcome indicator, the above HEI final outcomes indicators are useful in evaluating effec- tiveness of PMTCT in resource limited settings.

**THPee718 Factors affecting formal education of children living with HIV in Coastal Kenya: Findings from a qualitative inquiry**

A. Shamsudin1, J. Kwatampora1


**Background:** The HIV pandemic has had a profound negative impact on the education sector globally and in Kenya. HIV infected children liv- ing in sub-Saharan Africa have been disproportionately affected in terms of their academic progression and achievement. With over 15 million people living with HIV (PLWH) in the country, Kenya has the fourth larg- est HIV epidemic globally. Of these PLWH, close to 100,000 are children aged 15 years and below. The objective of this study was to explore fac- tors that affect the formal education of children living with HIV (CLWH) in Coastal Kenya.

**Methods:** A qualitative study design using the phenomenological app- roach was employed. In-depth interviews and focused group discus- sions were conducted with 42 caregivers and school teachers of CLWH in Mombasa, Mtwapo and Kilifi towns of Coastal Kenya. The study partici- pants were recruited through purposeful and snowball sampling. Data were collected between November and December 2017 and subjected to thematic content analysis. Ethical considerations were observed in accordance with the principles of the Declaration of Helsinki.

**Results:** The major themes identified were: (i) Socioeconomic difficul- ties in skipped-generation households where children orphaned by HIV had to drop out of schools and become breadwinners for their siblings and aging grandparents. (ii) Stigma and discrimination because of the child’s HIV status affected their access to formal education. (iii) Ab- senteeism from school because of prolonged illness and frequent clinic visits prevented CLWH from doing well in school. (iv) The psychological impact of HIV on children leading to fear, depression, anxiety, hopeless- ness, and self-guilt affected their academic performance.

**Conclusions:** Access to quality education is a fundamental right of all children and it should continue to be an important agenda of all Public Health interventions targeting CLWH. Further research is needed to elicit perspectives among population segments not sampled in this study.

**THPee719 A move towards targeted case-finding:** A comparison of HIV testingmodality implementation by two unfinished business clusters

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**Background:** UNAIDS 90-90-90 targets set country goals for HIV case finding. ART initiation and retention in care. Based on recent evidence, there has been shift from general testing to targeted approach of HIV case-finding. To increase efficiency of HIV testing services, new ap- proaches are being adopted to identify priority populations. This analy- sis seeks to explore differences in testing yields from different testing modalities, at a community level.

**Description:** Data on HIV testing strategies were collected from two districts of KwaZulu Natal. one peri-urban and one predominantly ru- ral community. Strategies for finding HIV positive children 18months - 1year included: adult index client tracing, targeted door-to-door testing and wellness days targeted at high risk areas. This analysis includes data collected over a period of seven months. The different testing mo- dalities were tried out in the different sites and recording of the data un- der the appropriate testing modalities was done.

**Lessons learned:** HIV testing yields differed between the two clusters, and between testing strategies. Door-to-door testing, which has over the years been a main strategy in the community, initially showed a higher yield (70% in May 2017) in the peri-urban community where hot spots and informal settlements were targeted. However, this yield reduced af-
ter six months, reaching 1.0% by Nov 2017. This reduction was thought to result from team exhausting households with individuals at higher risk, in the area. In the predominantly rural community, adult index tracing showed slightly higher yield. Index testing yield started picking slowly but soon increased in August to reach 70%, far exceeding the other strategies. Wellness days held in both peri-urban and rural communities showed low yields compared to the other strategies.

Conclusions/Next steps: A blanket approach in adopting HIV testing modalities cannot be applied, as different settings have different modalities that yield higher positivity. Both index tracing and targeted door-to-door approaches could produce higher yield, if implemented in the correct context.

### THPEE720

**Improvements in pediatric HIV case identification across 17 health facilities in Lagos, Nigeria: A quality improvement collaborative approach**


1 AIDS Prevention Initiative Nigeria (APIN), Abuja, Nigeria, 2IH, Boston, United States, 3Health Resources and Services Administration, Rockville, United States, 4HEALTHQUAL - UCSF, San Francisco, United States

**Background:** Over 300,000 children (<15 years) are estimated to be living with HIV in Nigeria, yet less than 15% are receiving antiretroviral therapy (ART). Despite national recommendations to offer HIV testing to pediatric patients of unknown HIV status with high suspicion of infection, testing coverage among these patients remains low, indicating suboptimal uptake of these recommendations.

**Description:** AIDS Prevention Initiative Nigeria (APIN) partnered with HEALTHQUAL at the University of California, San Francisco to implement a quality improvement collaborative (QIC) with the aim of improving pediatric HIV case identification in high-yield service delivery points across 17 primary and tertiary health facilities in Lagos State. Facility-level training, guidance, and coaching on quality improvement (QI) methods were provided by APIN with technical support and mentorship from HEALTHQUAL and improvement advisors from the Institute for Healthcare Improvement. Performance measurement data on HIV testing rate and yield were reported on a fortnightly basis, with facilities conducting root cause analyses, process mapping, and rapid-cycle PDSA to devise interventions based on analyses of performance data. Teams from participating sites were convened on a routine basis to present implementation plans and compare progress.

**Lessons learned:** In the first quarter of QIC implementation, testing coverage of eligible pediatric patients increased by 27% compared to baseline. Among 16,146 children who received HIV testing services in the QIC’s first quarter, 69 (0.43%) were newly identified as HIV-positive, representing a 36% increase in the number of newly diagnosed children compared to baseline. Change ideas adopted by facilities to improve case identification included intensified index case finding, training of healthcare workers on HIV testing services and optimal documentation, and screening of all children using a validated screening tool (Bandason et al. 2016). QIC implementation is ongoing as of February 2018.

**Conclusions/Next steps:** Implementation of a QIC led to improvements in case identification of HIV-infected children in Lagos State, and to the compilation of evidence-based interventions (“a change package”) that will be spread to APIN-supported facilities in Benue State in 2018.

### Table 1: Comparison of select parameters in 5411 CLHA in Telemedicine Linked-regular, Linked-irregular & Non-Linked ART centres in Maharashtra, India

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Total CLHA</th>
<th>Non-Linked Centers</th>
<th>Linked-irregular Centers</th>
<th>Linked-regular Centers</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alive</td>
<td>2608 (100%)</td>
<td>1972 (76%)</td>
<td>973 (81%)</td>
<td>1123 (88%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Dead</td>
<td>415 (1%)</td>
<td>110 (6%)</td>
<td>34 (4%)</td>
<td>76 (6%)</td>
<td></td>
</tr>
<tr>
<td>Last to follow-up</td>
<td>386 (3%)</td>
<td>177 (4%)</td>
<td>213 (5%)</td>
<td>96 (5%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median CD4 count</td>
<td>230 (10-45)</td>
<td>96 (4%)</td>
<td>249 (10-45)</td>
<td>74 (5%)</td>
<td>0.13</td>
</tr>
<tr>
<td>Latest CD4 count</td>
<td>493 (26-100)</td>
<td>386 (179-248)</td>
<td>420 (217-771)</td>
<td>497 (5)</td>
<td>0.009</td>
</tr>
</tbody>
</table>

**Background:** The study was designed to compare the outcomes in Children Living with HIV/AIDS (CLHA) receiving care & treatment from ART centres linked to Pediatric Center of Excellence for HIV Care through telemedicine versus those that are not linked and to determine if the initiative has improved the quality of care in the linked ART Centers compared to the non-linked ART Centers.

**Methods:** A retrospective analysis of 5411 children up to 18 years of age, from 31 Telemedicine Linked (19 Linked-regular (12 video-conference sessions) and 12 Linked-irregular (12 video-conference sessions) centres and 28 Non-Linked centres in the state of Maharashtra, India. We compared CLHA alive and deceased in Pre-ART/ ART; lost to follow-up (LFU) on Pre-ART/ ART; death during the Pre-ART/ ART, eligible but not initiated on ART; baseline CD4 counts (actual and number missing), latest CD4 counts, and regular visits between these three types of centres.

**Results:** Of the total children, 3675 (68%) were on ART and 1733 (32%) were in the Pre-ART group. In the Pre-ART group, the proportion of children alive was high in the linked-regular centres compared with Linked-irregular centres, and Non-Linked centres (73% vs 76% vs 70%, p<0.001) and proportion of children who were LFU was lower in Linked centres (regular and irregular) compared with Non-Linked centres (6% vs 5% vs 8%, p<0.05). In the ART group, the baseline CD4 counts were missing in a significantly lower proportion of children in the Linked-regular centres compared with Linked-irregular centres and Non-Linked centres (11% vs. 7% vs. 3%, p<0.05), and the latest CD4 counts were missing in a significantly lower proportion in the Linked-regular centres compared with Linked-irregular centres and Non-Linked centres (12% vs. 31% vs. 30%, p<0.001). Comparison between three groups is in Table 1.

**Conclusions:** Our study showed that the centers linked through regular telemedicine performed better in terms of patient care & treatment - higher proportion of CLHA alive and fewer LFUs. Overall, this pilot project of Telemedicine for Pediatric HIV has proved to be acceptable, feasible, and effective in improving the quality of care for children living with HIV across the state of Maharashtra.
Approaches to minimising loss in the prevention/treatment cascade

**THPee722**

High rates of successful tracing and re-engagement in HIV care using Expert Clients in Malawi


**Background:** Tracing and re-engaging HIV-positive clients who have difficulty staying in care is a growing challenge for the health system in Malawi. Partners in Hope, an EQUIP partner, introduced Expert Clients (ECs), who are HIV-positive volunteers from the local community, to assist in client tracing and follow-up.

**Methods:** Between October - December 2017, ECs received a 2-day training on client tracking tools and strategies for re-engaging HIV-positive clients in care. Facility data clerks reviewed medical records at 69 EQUIP supported health facilities and generated lists of clients with one or more criteria for tracking (defined as: defaulted from ART; missed ART appointment; high viral load; new positive but not initiated ART; or HIV-positive infants). Clients from the list were assigned to ECs for tracing and follow-up through phone calls, SMS, or home visits. Tracing outcomes were documented by ECs on a standardized client follow-up form. Client follow-up forms were reviewed to determine the proportion of clients traced, outcomes and re-engagement in care.

**Results:** 12,008 clients met one or more criteria for tracing, with nearly half of clients missing an ART appointment (Table). 6,698 (69.1%) of those traced re-engaged in care. Defaulters and HIV-positive clients who never initiated ART were least likely to return to care (48.9% and 51.4%, respectively). Reasons for not re-engaging in care included death, undocumented transfer to another health facility, or unwilling to come back to care.

**Conclusions:** We were able to reach a high proportion of clients in need of tracing through the use of EC volunteers who were familiar with the local community. In order for countries to meet the 90/90/90 goals in hIV care using Expert Clients in Malawi.

<table>
<thead>
<tr>
<th>Classification</th>
<th># Out of Care</th>
<th># Traced</th>
<th>Returned to Care (of those traced)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defaulters</td>
<td>3437 (28.6%)</td>
<td>2646 (77%)</td>
<td>1217 (45.8%)</td>
</tr>
<tr>
<td>Missed appointments</td>
<td>5651 (47%)</td>
<td>4609 (82%)</td>
<td>3035 (65.5%)</td>
</tr>
<tr>
<td>Clients with high VL</td>
<td>1662 (13.6%)</td>
<td>1358 (83%)</td>
<td>1081 (79.7%)</td>
</tr>
<tr>
<td>New Diagnosis without ART initiation</td>
<td>120 (10%)</td>
<td>92 (76.8%)</td>
<td>618 (54.1%)</td>
</tr>
<tr>
<td>HIV Positive Infant</td>
<td>77 (0.6%)</td>
<td>69 (90%)</td>
<td>45 (63.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>12,008</td>
<td>9685</td>
<td>6694</td>
</tr>
</tbody>
</table>

(The table shows the percentage of digital HIVVL results acknowledged on Reporter by HCW: secondary Y axis shows the mean time in days to acknowledgement)
Progress towards elimination of new HIV infections in Oyo State, Nigeria, through prevention of mother to child transmission of HIV

O. Ayinde, B. Ladi Akinyemi, O. Ogunosal

Background: The global community has set an ambitious target in agreement with the Sustainable Development Goals of “virtual elimination” of pediatric HIV. This appears feasible, due to new advances in health policies. Efforts have been made to prevent mother-to-child transmission (PMTCT) of HIV in sub-Saharan Africa. Nigeria still has the second highest burden in PMTCT. Little evidence has been published on eliminating MTCT of HIV. In Nigeria. This study seeks to analyze PMTCT implementation progress, towards elimination of HIV infections among children in Oyo State, Nigeria.

Methods: A cross sectional retrospective study was carried out. A 5-year period (2012 to 2016), data, was collected from all PMTCT facilities in Oyo State. The study population included all pregnant women who utilized ANC and PMTCT services during the study period. Data collected was analyzed, using SPSS version 20.

Results: PMTCT facilities increased from 9 in 2012, to 176 in 2016. A total of 486,877 (56,953 in 2012 and 109,221 in 2016), pregnant women, aged 15 to 44 years, (mean, 26.6 ± 5 years) attended ANC. Women tested for HIV at ANC increased significantly. (t = 8.502; CI = 95%; P<0.05). From 55,666 in 2012, to 104,551, at the end of 2016. During every first ANC visit, women were screened for HIV (r = 1.0.866; CI = 95%, at the end of 2016. Women had 86.6% likelihood of getting tested for HIV (r = 1.0.866; CI = 95%; P<0.05).

The HIV positivity rate decreased from 1572 (2.26%) to 1,475 (1.40%), at P<0.05. Women who were tested increased from 103 (67%) to 1,235 (83.73%). Early Infant Diagnosis (EID) services showed that HIV Exposed Infants (HEI), placed on ARVs increased significantly from 416 (28%) to 768 (52%), significantly at P<0.05. The increase was significantly influenced by the number of HIV positive women receiving ARV, by 90.8% (F = 29.76; R² = 0.908; P<0.05). HEI who had Cotrimoxazole prophylaxis increased by 39% (F = 29.76; R² = 0.908; P<0.05). HEI who had Cotrimoxazole prophylaxis increased by 39% (F = 29.76; R² = 0.908; P<0.05).

Conclusions: In conclusion, there was progress towards elimination of new HIV infections among children. Further studies are recommended to determine how best to reach children with effective services in the state, to eliminate MTCT of HIV in line with UNAIDS (2016). Start-Free, Stay-Free, AIDS-Free Framework.

Patients’ satisfaction with HIV care providers in public health facilities in Lusaka – a study of patients who were lost-to-follow-up from HIV care and treatment

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Background: In North America and Europe, health systems routinely survey patient satisfaction in order to improve health services. Despite widespread problems with retention of HIV patients in Africa in HIV care, assessments of patient perspective as a basis for improvement activities remain rare. We assessed satisfaction among patients previously lost-to-follow up from HIV care in Zambia and associations with re-engagement in care at a new facility.

Methods: Lost patients (>90 days late for last visit) identified through electronic medical record review were randomly sampled and intensive-ly sought in Lusaka province. We used a structured 9-item questionnaire to measure patients’ satisfaction with their healthcare providers, adapted from Adult Primary Care Questionnaire previously validated in the US. Internal consistency across items was assessed with Cronbach’s alpha. Exploratory and confirmatory factor analysis was used to assess tool performance and develop a satisfaction score subsequently used in logistic regression to model association with patient satisfaction and care status. The satisfaction score was a summation of responses to all 9 items on 5-point Likert scale range (1-5). A score ≥27 indicated satisfaction while ≤27 indicated dissatisfaction.

Results: Of patients contacted in person (n=815), 422 completed the satisfaction scale; overall among the 422, 57% (n=242) were out-of-care, while 43% (n=174) were in-care. The Cronbach’s coefficient alpha for patient satisfaction scale was 0.98. Results indicated a high overall satisfaction of 76% (n=306) with healthcare providers. However, there were monly documented reason for no ART initiation was client subsequently identified as already on ART with known HIV positive status during pre-ART counseling 29.0% (n=76). ‘Not ready’ factors (psychosocial, disclosure or refusal) accounted for 6.2% (27/262) of documented reasons for failure to link to ART.

Are you ready? Patient readiness for ART in treatment era, Zimbabwe

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Background: Failure to link to treatment following HIV positive diagnosis accounts for greatest leakages across the HIV care cascade. With an adult prevalence of 14.6%, linkage to HIV treatment is a key performance indicator in Zimbabwe’s HIV Care and Treatment Program. However, aggregated data precludes routine reporting of reasons clients fail to initiate ART after diagnosis. Our objective was to establish the reasons for failure to start ART among clients newly testing HIV positive.

Description: We conducted a retrospective cohort analysis of routinely collected facility data among clients testing HIV positive from Oct-Dec 2017 at 7 purposively selected health facilities in 5 Districts of Zimbabwe. Selected facilities had < 85% linkage of new HIV positive clients to ART initiation in aggregate program data. Client characteristics, ART initiation, and reasons for no ART initiation were entered into MS Access and analysed using STATAV12. A facility survey of perceived facilitators and barriers to patient readiness for ART was conducted with health care workers and PLHIV to identify key operational themes.

Lessons learned: Among 894 patients diagnosed HIV positive, 29.3% (n=262) had no documented ART initiation. There was no reason documented for 42.4% (n=124) of clients not initiated. The most commonly documented reason for no ART initiation was client subsequently identified as already on ART with known HIV positive status during pre-ART counseling 29.0% (n=76). ‘Not ready’ factors (psychosocial, disclosure or refusal) accounted for 6.2% (27/262) of documented reasons for failure to link to ART.
higher levels of dissatisfaction with regard to time that healthcare providers spent with patients (37%) and carefully listened to them (29%). After adjusting for age, gender, facility type and CD4 count, satisfaction with healthcare providers was associated with higher odds of being in care (adjusted odds ratio: 2.95 [95% CI1.58, 5.50], p < 0.01). Re-engagement at a new facility was 23% among those with low satisfaction and 48% among those with higher satisfaction.

Conclusions: An existing patient satisfaction scale from US exhibited construct validity in Zambia. Among lost patients, those expressing satisfaction were about twice more likely to have re-engaged in care even in an environment where structural (e.g. transport costs) and psychosocial barriers (e.g. stigma) are common. HIV services may want to routinely measure satisfaction to improve performance of HIV care and services in Africa.

ThPee727
Determining denominator - national effort to firm data on Lost to Follow up (LFU) on treatment for optimization of resources

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1India HIV/AIDS-Alliance, Strategic Information, New Delhi, India, 2National AIDS Control Organization, Care and Support Treatment, New Delhi, India, 3India HIV/AIDS-Alliance, Program and Policy, New Delhi, India

Background: Lost to follow up (LFU) on treatment is universal problem which most countries cannot resolve. India has an estimated 2.1 million people living with HIV, of which 1.2 million are registered and on ART. As per NACO data, 493,000 are LFU for treatment. Vihaan care and support programme that partners with NACO promises to bring the LFU cases back to treatment. However, there was a challenge in sharing the LFU list with outreach workers with traceable address. As principle recipient, India HIV/AIDS Alliance carried out collaborative intensive LFU drive with national, state and treatment units across the country between March 2017 to December 2017 to firm up the traceable LFU clients and bring back to the treatment for improved health outcome.

Methods: 437,774 LFU clients’ line lists (till December 2017) were collected from 537 ARTCs. Collected line lists were transferred to standardized uniform formats and checked the quality in terms of completeness and accuracy at central level. Duplications and unclean data was removed. Cleaned line lists were shared with CSCs for tracing LFU clients and update the current status. During this validation process, ARTC documents and CSC records were reviewed and updated including the current status of client details. After data verification and validation, the updated LFU lists were collected back and analyzed to firm up the traceable clients.

Results: Out of the 437,774, 79.2% were contacted by CSCs. Of which, 12.2% were definite outcome (including brought back, death or transfer); 46.1% (201,781) with indefinite outcome (migrated or incorrect address); and the remaining 42% of the clients need focused intervention to link back to the treatment. The list now became half than the original which needed them. CCs continue weekly telephonic contact with clients until they self-report a visit to a clinic for HIV treatment. In 2016 the Cali Centre was further enhanced by the appointment of a dedicated manager. The hiring of additional CCs, and the training of all CCs in Motivational Interviewing.

THPee728
Early linkage to care by index patient design at large scale - experience from Vihaan care and support programme India

P. Kumar
India HIV/AIDS ALLIANCE. Programme. New Delhi, India

Background: India HIV/AIDS Alliance and its partners implements the Global Fund supported Vihaan programme across India through 361 care and support centres (CSCs) complementing the national treatment programme. It promotes early HIV diagnosis and linkages to treatment service for sexual partners and family members of PLHIV. Vihaan works closely with national Integrated Counselling and Testing Centres (ICTCs) and antiretroviral therapy (ART) centres. Outreach workers from PLHIV community through home visits motivates family members for HIV testing by counselling on importance of early testing.

Methods: CSC report on HIV testing and linkages to ART centre of sexual partners and family members reported in management information system from CSCs between January to September 2017 was reviewed and analysed. Health parameter (CD4) were analysed for clients linked by CSC to ART centres and compared with state average CD4 of the PLHIV registered in the same period (between January to September 2017) at ART centre to measure early linkage.

Results: Among total 232,958 sexual partners and family members of PLHIV registered with Vihaan programme, 13,068 are eligible for HIV testing (6%). Among eligible clients, 7,209 (55%) got their HIV test done, received their report and 163 of them found positive, which accounts for 2% positivity (nationally positivity is <1% as per ICTC data). Descriptive analyses found that median CD4 of Vihaan linked PLHIV is higher (404 cells/mm³) than the national CD4 average of those registered in the same period (254 cells/mm³).

Conclusions: Focused intervention amongst family members of PLHIV who are most at risk of acquiring HIV through a peer led outreach and treatment literacy approach is effective for early detection and linkages with treatment. While India’s public health system is working effectively, community-based models are essential to support the health and well-being of PLHIV and ensure successful HIV control across the country.

THPee729
How a mobile HIV testing service in South Africa uses a centralised call centre to strengthen linkage to treatment care among newly-diagnosed HIV positive clients

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Shout-it-Now, Tokai, South Africa

Background: In service to South Africa’s 90-90-90 goals, Shout-it-Now (S-N) provides a community-based mobile HIV testing service (HTS) that has engaged more than one million clients since 2007. Of whom 64,850 have been identified as HIV+. Linking community diagnosed HIV+ clients to care is a global challenge, and S-N has strived to minimize attrition from the “first 90” to the “second 90” through an iterative design of its linkage to care (LTC) services.

Description: From 2007–2011, S-N provided a standard LTC service for newly-diagnosed HIV+ clients comprised of onsite post-test counseling and a referral letter to a local clinic. Seeking improvements in its LTC rate, in 2012 S-N launched a multi-layered LTC process that utilized re-trained test site Counselors to immediately support clients. Community Liaisons to build stronger referral relationships with local clinics, and Care Coordinators (CCs) to provide free, 24-hour telephonic LTC support from a centralized Call Centre. Daily, a list of newly identified HIV individuals is automatically uploaded by S-N’s integrated database to the Call Centre. Within 48 hours of an HIV diagnosis, a CC from the Call Centre contacts clients to commence a LTC support process. CCs continue weekly telephonic contact with clients until they self-report a visit to a clinic for HIV treatment. In 2016 the Call Centre was further enhanced by the appointment of a dedicated manager. The hiring of additional CCs, and the training of all CCs in Motivational Interviewing.
Decentralization of ARV refill for stable patients significantly reduces ‘miss appointments’; thus, improves patient adherence. This reduces clinic congestion, provider workload and overall patients’ waiting time at both facilities. Programs should continue to use service delivery data to develop suitable patient-tailored local interventions to respond to emerging clients’ needs.

**THPee730**

Decentralization of ARV refill in Njombe region, Tanzania; USAID Boresa Afya Southern Zone strategy towards reaching the ‘hard-to-reach’ patients

E. Okechukwu1, J. Gamaliel1, S. Msukwa1, E. Mlacha2, B. Christian2, M. Njoli2, A. Ikone3, M. Nidler1, J. Bismar1, P. Sava1, M. Njilekela2


**Background:** Successful Antiretroviral therapy (ART) depends critically on good medication adherence, which in turn depends on regular ARV refill and retention on treatment. Since ART is lifelong, this need to be sustainable by the clients. Distance and transportation costs to the health facility are known barriers. In this study, USAID Boresa Afya Southern Zone program evaluated decentralized ARV outreach strategy implemented in ‘hard-to-reach’ areas in Njombe Region, Tanzania.

**Description:** The program proactively tracks ‘missed appointments’ and document tracking outcome. Analysis of these data from nine ART facilities in Njombe Region revealed that distance to the facility and cost of transportation were the major factors. The ‘returned clients’ were counseled and re-assessed. Using their addresses, all patients who were categorized as ‘stable on ART’ were mapped and assigned to Dispensaries serving as ‘Community ARV Refill Centers’ in the communities closer to their homes. A team of healthcare providers (Adherence Counselors and Clinicians) from the ART facilities conducted monthly ARV refill outreach on designated days at these Dispensaries. The clients were evaluated using the national tools and those with additional need were referred to the ‘parent’ ART facility. Six months (May-November 2017) data on the missed appointments and ARV pick up rate in both centers were analyzed and compared using STATA 15.1.

**Lessons learned:** Overall, 13,762 and 1,585 ART clients were served at ART health facilities and Dispensaries respectively. The mean percentage of missed appointment at ART health facilities was 12.6 (7.3-18.0) while for Dispensaries was 2.4(1.3-3.7). This result shows a significant difference in missed appointments between patients served at both centers. 10.2 (5.4-15.0) p<0.001. Also, using ARV refill rate as a proxy for adherence; good medication adherence was observed among those served at the Dispensaries (98%) compared to those served at the ART facility (87%).

**Conclusions/Next steps:** Decentralization of ARV refill for stable patients significantly reduces ‘miss appointments’; thus, improves patient adherence. This reduces clinic congestion, provider workload and overall patients’ waiting time at both facilities. Programs should continue to use service delivery data to develop suitable patient-tailored local interventions to respond to emerging clients’ needs.

**THPee731**

High linkage and retention in HIV treatment among men who have sex with men receiving health navigation services in Guatemala City

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**Background:** Men who have sex with men (MSM) have a high HIV prevalence in Guatemala City and face multiple barriers to health, including suboptimal linkage and retention in HIV treatment. We implemented a health navigator model in three government-run clinics offering HIV testing and counseling to MSM in Guatemala City to increase adherence to treatment among individuals newly diagnosed with HIV.

**Description:** The model included three distinct phases: HIV result acceptance, linkage to care, and retention and adherence to treatment. Individuals newly diagnosed with HIV were offered health navigation services on the same day they were diagnosed. Consenting individuals discussed their preferences regarding HIV treatment access and social support with the assigned navigator. Navigators worked with patients to establish a date for their first medical appointment or create a follow-up plan if the patient was not emotionally ready. In the subsequent 6 months, navigators followed up via phone calls or visits to check on patient’s medical and emotional status and their experience receiving clinical care. Navigators engaged with HIV reference hospital clinical staff to ensure patients received a clinical evaluation, had laboratory tests conducted (including HIV viral load and CD4 count), and received prophylactic treatment for opportunistic infections. When requested, navigators assisted patient disclosure of HIV status to their social network, partner referral to HIV testing, and linkage to social support programs.

**Lessons learned:** From October 2016 to September 2017, 254 individuals were newly diagnosed with HIV at participating sites. Of these, 95% consented to navigation services, 92% were linked to ART clinics within a median of 3 days (IQR 1-6.5), and 85% were retained in treatment at 6 months, compared to the national average of 56% for both linkage and retention. Navigators frequently provided emotional support in non-working hours. For optimal results, navigator workload should not exceed 20 newly diagnosed and 40 follow-up clients per month.

**Conclusions/Next steps:** The Ministry of Health could integrate navigation into its HIV service portfolio and expand the model to additional HIV testing sites in high burden areas. Strategies to hone navigator’s emotional support skills, promote assisted partner notification, and maintain viral suppression among navigated patients should be considered.
THPee732
Bridging communication gap in HIV treatment programs through Closed user group (CUG) mobile technology: Approach to HIV patient monitoring and referrals services on the strengthening integrated delivery of HIV/AIDS services project

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Background: Timely and complete referrals for HIV clients in need of care within health facilities, facility-community and inter facility is crucial in closing the gaps for HIV care. Monitoring, tracking and routine interaction with HIV clients by health workers and case managers has been proven to reduce leakages in treatment cascades and improve retention in care.

However, most health facilities in Nigeria are challenged by the non-existence of communication infrastructure or resources required to facilitate timely tracking and completion of referrals for HIV positive clients. The USAID-funded Strengthening integrated delivery of HIV/AIDS services (SIDHAS) project implemented the provision of closed user group (CUG) mobile technology as a strategy to closing the gap.

Description: SIDHAS procured 2,606 mobile phones and lines, distributed to 756 health facilities, laboratories and 28 community based organizations across 13 states in Nigeria. Mobile networks were distributed according to the strength of network available in the locale. The CUG allowed health workers providing HIV care and treatment services to call each other within the network with zero charges and to follow up HIV clients referred service delivery points and those referred to other health facilities to ensure complete referrals. A desk review was conducted on the CUG directory and communication logs for 4 states between June - December 2017.

Lessons learned: Review of the phone directory and call logs shows evidence of inter and intra facility communications, therefore contributing to improved referral and linkage rate from 39% to 74% within the period for some states. Data collected from 4 states also showed about 2,200 defaulter returned within the period compared to 785 that returned before the CUG implementation. Overall, Improvement in completion rates for referrals and tracking and provision of adherence support to HIV clients was recorded.

Conclusions/Next steps: Given the results demonstrated by removing communication barriers and bridging the gap through CUG innovation, expanding CUG distribution to support groups in communities can be explored to reducing stigma and closing communication gaps amongst affected individuals.

Getting policies into practice

THPee733
Time to first viral load testing among HIV positive pregnant women initiated on Option B+ at 5 government clinics in Kampala

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Background: Timely viral load (VL) testing is critical in the care of Human Immunodeficiency Virus (HIV) infected pregnant women in order to measure treatment success and assure elimination of mother-to-child transmission (eMTCT) of HIV to unborn children. Though the World Health Organization (WHO) recommends Time to First Viral Load (TFVL) testing as 6 months post initiation of Anti-retroviral therapy (ART), this is not always logistically feasible in resource-limited settings. We sought to establish the TFVL testing and associated patient factors at five eMTCT clinics in Kampala, Uganda.

Methods: We extracted clinical and VL test data from maternal ART records of a retrospective cohort of HIV infected ART naive pregnant women who initiated Option B+ between 01 January 2015 and 31 Dec 2015. The data were verified against laboratory VL registers. TFVL (in months) was calculated based on the time difference between date of ART initiation and that of first VL test. Descriptive and Cox regression analyses of data up to 30 Sep 2017 (33 months later) were done.

Results: Based on the electronic data base master list, 622/913 (68%) records were successfully retrieved. The rest (32%) were misplaced. Through the 33 months review period; 174/622 (27.9%), 23/622 (3.7%), and 1/622 (0.1%) respectively were lost, transferred, died and died. Of 442 women retained in care, 182/442 (41%) had at least one VL result post ART initiation, 30/424 (7%) had a second VL while 422/424 (57%) had no VL performed. At six, nine, and twelve months; only 8/424 (4.1%), 47/424 (11.1%) and 96/424 (22.6%) had VL testing performed respectively. The median TFVL testing was 6 months (95 CI 5.02-6.98) beyond the recommended time point. Across the five clinics; age, number of previous pregnancies, baseline CD4 cell count, WHO clinical stage, and adherence at 6 months were not statistically significant.

Conclusions: A dismal 13% rate of achieving WHO recommended TFVL testing, with a median TFVL testing of six months beyond recommended time were observed. The non-association of patient factors to these observations and 32% missing records may suggest a serious need to review health system factors likely associated with these observations and their effective implementations.

THPee734
Status of provision of isoniazid preventive therapy for people living with HIV and lessons learnt from the challenges in the programmatic implementation and expansion in India

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Background: Isoniazid Preventive Therapy (IPT) is one of the key interventions recommended by WHO to reduce the burden of TB in PLHIV. The initiative was launched by Ministry of Health, Government of India (GoI on 01st December 2016. This article describes the progress from the policy decision, uptake of IPT and the programmatic challenges in its implementation. The uptake of IPT across ART centres for 2017 was analysed using secondary program data & interaction with programme personal & health providers during meetings cum routine field visits.

Description: The IPT Implementation plan was approved in National Technical working group (NTWG) in August 2015 and the procurement of drugs was budgeted in New Funding Model Global Fund for AIDS Tuberculosis and Malaria (GFATM) Grant joint concept note for HIV/TB for 2014-17. The operational manual on IPT was approved in June 2016 and trainings of all ART centre staff were completed in September 2016. The GoI formally launched the initiative on 01st December 2016 for all ART centres in the country. As of December 2017, all States/UTs except Arunachal Pradesh were implementing IPT services, with nearly 74% (392/533) ART centres having initiated patients. Among the 1.2 million eligible PLHIV, 21% (0.27 million) were initiated on IPT, with wide variation among the states ranging from 1% in Goa to 92% in Jammu & Kashmir. The gap in coverage of PLHIV by absolute numbers was highest in Maharashtra (0.18 million), followed by Andhra Pradesh (0.14 million).

Lessons learned: The slow uptake of IPT services in the ART centres was due to knowledge gaps in provision of IPT, non-availability of adequate quantities, especially Tablet Pyridoxine, and recommended dosage of drugs. Moreover there was incomplete documentation of cascade of patient’s initiated on IPT. Capacity building on screening of
PLHIV, IPT eligibility and documentation was ensured during meetings and supervisory visits, permission was given to states to locally procure the non-available drugs and recommended dosages of Pyridoxine were modified based on local availability.


**Conclusions:** The effort by CDC leadership to introduce program science into HIV/STD prevention planning and practices had no discernible impact in Miami-Dade County. The local program continued to select “high impact” biomedical interventions and supported enhanced pre-exposure and post-exposure prophylaxis, testing in non-traditional settings, linkage and retention in medical care. Future research must determine why HIV/STD programs adopt, ignore, or resist recommended changes for improving their theoretical methods, practical applications, and prevention services.

**THPEE735**

Program science, program planning, and HIV/STD program practices in Miami, Florida, USA 2012-2018

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**Background:** At the National STD Prevention Conference held in Minneapolis, Minnesota, on March 12, 2012, the Associate Director for Science for the Division of STD Prevention at the Centers for Disease Control and Prevention (CDC) and her colleagues introduced “Program Science: A New Approach to STD Prevention Programs.” Program science with its “systems thinking” was proposed as “complementary” to traditional “linear thinking” importantly, “systems science” was offered as a vehicle to close the gap between interdisciplinary scientific research and program practice.

The purpose of our research was to evaluate the impact of the new “systems science” initiative on HIV/STD program planning and practices in Miami-Dade County, Florida, from 2012 to 2018.

**Methods:** Process evaluation was conducted by participant observation at publicly announced planning meetings of the Florida Department of Health and Ryan White Partnership, reviews of meeting notes and minutes, and studies of epidemiological reports, program updates, and other relevant documents distributed electronically or as photocopies. Content was reviewed for “program science,” “systems dynamics,” “network analysis,” “microsimulation,” and other terms and phrases that local planners might have used to suggest the application of systems thinking and program science to the development of innovative HIV/STD prevention programs.

**Results:** There was a decline in the rejection of VL samples from 43% to 3%. The decline was different across the 15 health facilities and was gradual over time. Health workers were more competent in sample collection and VL rejection. Non laboratory health care workers were able to...
to do DBS phlebotomy which reduced client waiting time. An increase in the rejection rates was observed when new staff attempted to do DBS VL phlebotomy for the first time, this improved with coaching and mentorship.

Conclusions: Mentorship and coaching is critical to building skill and capacity in the collection of VL samples using DBS and filing of the sample collection VL form. Follow-up of is critical to the effectiveness of the mentorship and acquisition of skill to address the capacity gaps of newly hired staff.

THPEE737
Guidelines on the go: Evaluation of clinical cards for New York State medical providers

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Background: New York State (NYS) clinical guidelines exist online to assist clinicians in delivering quality HIV and hepatitis C (HCV) screening and prevention. Clinical cards disseminate guidelines and policy information through a concise and portable reference. The NYS Department of Health AIDS Institute Clinical Education Initiative (CEI) has developed clinical cards on post-exposure prophylaxis (PEP), pre-exposure prophylaxis (PrEP), and HCV testing. These double-sided cards provide clinically relevant information on regimens, screening protocols, lab tests, and monitoring. These cards are free, can be ordered online, and are distributed at statewide training events.

Methods: A REDCap survey was launched on September 5, 2017 and closed on October 30, 2017. Comprised of quantitative and qualitative questions, it was sent to individuals who ordered clinical cards and via CEI’s regular marketing channels (e-mails, social media). Univariate and bivariate statistics were conducted using Stata v15.

Results: 118 people completed the survey. The majority had ordered clinical cards (77%) with the rest obtaining them through other means (e.g., training events). Respondents could order more than one card; 89% ordered PEP; 82% ordered PrEP; and 61% ordered HCV testing. Of those ordering the cards, the majority ordered them for clinicians in their health agency (61%), communities (28%), medical society (6%), or for themselves (2%).

Conclusions: As NYS moves toward ending the AIDS epidemic and eliminating HCV, it is critical that clinicians have PEP, PrEP, and HCV information easily available. Next steps include updating the PrEP card, assessing and addressing gaps in geographic distribution, and developing new clinical card content.

THPEE738
Lessons learnt from delivering Pre-Exposure Prophylaxis (PrEP) to vulnerable populations at high risk of HIV infection in the public health sector in Brazil

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Background: Making PrEP delivery compatible with the diverse organizational structures of health services and realities of most vulnerable populations so as to scale-up PrEP to universal coverage has been a global challenge. We analyzed PrEP uptake and aspects of service organization over the first year of PrEP implementation in the Combine! Study in Brazil.

Description: Combine! is a pragmatic clinical trial on the effectiveness of post-exposure prophylaxis (PEP) for consensual sexual activity, combination HIV prevention and PrEP. PrEP delivery began in Nov 2016 in five public HIV clinics in southeastern, northeastern, and southern regions in Brazil.

Lessons learned: By December 2017, 526 participants were taking PrEP. Participants had a high risk of HIV infection: in the previous six months, 26% had been treated for an STI, 40% had 10-49 sexual partners, 10% had engaged in sex work, and 53% had used PEP. Most participants were males (96.6%), homosexual (93.4%), white (63.7%), and had high education (59.7%). Retention was high (90%), and no participants became infected after starting PrEP. Three HIV-negative individuals got infected between triage and first medical consultation. As a result of insufficient staffing, services were sometimes interrupted due to providers’ vacation and doctors’ limited schedule. Health workers reported resistance to providing PrEP, citing fears of side effects, perceived superior efficacy and safety of other prevention methods, and lack of time. Duplication of procedures by different providers occurred in complex facilities offering a wide range of services. In services focused on HIV treatment, counsellors were not available while voluntary counselling and testing services struggled with timely drug safety checks and patient follow-up. All services had frequent difficulties enrolling new patients due to providers’ vacation and doctors’ limited schedule. Health workers reported resistance to providing PrEP, citing fears of side effects, perceived superior efficacy and safety of other prevention methods, and lack of time. Duplication of procedures by different providers occurred in complex facilities offering a wide range of services. In services focused on HIV treatment, counsellors were not available while voluntary counselling and testing services struggled with timely drug safety checks and patient follow-up.

Conclusions/next steps: Simplified protocols with fewer initial and follow-up procedures would help increase uptake of PrEP. Additional, complementary strategies required include: promoting access to PrEP for vulnerable populations and populations at high risk of HIV infection; routinizing the offer of PrEP in HIV services; ensuring access to follow-up, and increasing the number of health workers trained in and confident to deliver PrEP. These lessons are equally applicable to other countries offering PrEP as part of combination HIV prevention services.

THPEE739
Time to antiretroviral therapy initiation under universal test and treat strategy in Swaziland: A stepped-wedge implementation trial

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Background: In 2015, the World Health Organization’s (WHO) released guidelines that removed all limitations on eligibility for antiretroviral therapy (ART) and recommended that countries offer ART to anyone infected with HIV upon diagnosis. However, no study so far had examined the changes in time to ART initiation with the adoption of a Universal Test and Treat (UTT) strategy in a “real-world” setting under a public health sector.
Experiences from Midlands province in Zimbabwe and patient ART books.

Methods: We conducted a stepped-wedge implementation trial in 14 health facilities in Swaziland’s public health sector. Clinics were paired and each pair was randomly assigned to transition at four month intervals from the current standard of care (SOC) (2013 guidelines) to UTT, or intervention, on pre-specified start dates. All ART-naive 18 years or older clients, who are not pregnant or breastfeeding were eligible to enroll in the study. This secondary analysis presents the time to ART initiation under SOC versus UTT. The analysis was conducted using survival analysis with time-varying exposure.

Results: Between September 2014 to August 2017, 3405 eligible clients were enrolled in the study. Sixty-two percent of clients were female and 36% were between 30-40 years old. Sixty-one percent (95% CI: 59-63) of UTT clients and 28% (95% CI: 19-18) of SOC clients initiated ART on the same day, while 70% (95% CI: 68-72) and 33% (95% CI: 31-35) in two weeks, respectively. In multivariable Cox proportional-hazards regression model, time to ART initiation was two times shorter under UTT (HR 2.13 (95% CI 1.99-2.29)) than SOC, while age, sex and CD4 were not significantly associated.

Conclusions: Adoption of UTT was associated with shorter time to ART initiation in Swaziland’s public health sector. The results suggest acceptability of the clients to initiate ART under UTT. However, there still remain outstanding questions on long-term retention and viral suppression of clients initiating under UTT strategy to achieve the long-term health benefits.

Lessons learned: Only 5 out of 27 nurses in one facility were trained on VL monitoring. The nurses were not trained in switching to second-line ART in cases of treatment failure. The facilities had a VL suppression rate of 87%. However, there was no structured communication system of recapping patients with unsuppressed VLs. Approximately 3% of the samples processed were rejected due to insufficient sample collection. Frequent use of VL consumables for other laboratory tests resulted in commodity shortages.

Conclusions/Next steps: Adressing the gaps and barriers identified is expected to lead to an increase in VL uptake in line with the global targets of having 90% of clients on ART being virologically suppressed. There was need to facilitate training of primary health care nurses on VL monitoring. The training of nurses would also include second line treatment management. There was need to facilitate mobile health service communication between facilities and clients when results are ready for collection to ensure timely collection. The laboratory consumables supply chain system needed to be strengthened to avoid misuse of laboratory commodities in the facilities.

**THPEE741**

Understanding the impact of policies for delivering universal antiretroviral therapy on the health workforce in Tanzania and Malawi: Evidence from repeated health facility surveys from 2013-2017 and qualitative interviews

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Background: Policies for universal antiretroviral therapy (ART) may negatively impact on the health workforce in African settings if task-shifting and training efforts are outpaced by growing patient numbers and evolving guidelines. Our study examines the impacts of universal ART policies on the health workforce in Malawi and Tanzania from 2013-2017.

Methods: Three rounds of facility surveys were conducted (2013, 2015, 2017) in health facilities serving the populations of rural demographic surveillance sites in Malawi (n=9) and Tanzania (n=10). Data were collected on HIV counseling and testing (HCT), ART and prevention of mother-to-child transmission (PMTCT) services. In-depth interviews were conducted with HIV providers to understand their experiences of offering care in the context of changing ART guidelines. Interview transcripts were coded and analyzed thematically.

Results: In both sites, increasing patient numbers in HCT, PMTCT and ART services were not always met with corresponding increases in providers. This resulted in progressively higher patient loads per HCT provider in both sites, and a nearly 4-fold increase in patient load for ART providers in Tanzania between 2013 and 2017 (Figure 1). The cadre mix of providers varied by site and changed over time, with a higher and growing proportion of lower cadre staff in Malawi (Figure 1). Overall, a higher proportion of HCT providers reported undergoing refresher training compared to PMTCT or ART providers (Table 1). The proportion of PMTCT providers undergoing refresher training peaked in 2013 in Malawi and 2015 in Tanzania, following Option B+ implementation. Providers in both sites reported that high patient loads and insufficient training hampered the quality of care. Furthermore, training was more often described as being “on the job” in Tanzania, which some providers felt hindered their learning. In Malawi, the introduction of lay counselors eased the workload of HCT providers, but challenges included their integration within clinics.

Conclusions: Although increasing patient numbers in both settings posed well for achieving the first two of the two 90 targets, the quality of care may be undermined by increased workloads for many providers. Task-shifting strategies are helping to address workload concerns in Malawi but should be carefully monitored to ensure effective implementation.
Implementation of the action plan for health sector response to HIV for WHO European Region: Early results from EECA and non-EU/EEA countries

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Background: The Action plan for the health sector response to HIV in the WHO European Region, accompanied by a resolution, was officially adopted at the 68th session of the WHO Regional Committee for Europe in September 2016. It advocates for an urgent and accelerated health sector response to HIV epidemic: promotes comprehensive combination prevention, a “treat all” approach, and asks Member States to define national health benefit package, which are patient-centred, accessible, and deliver an essential package of HIV services, to be included in the national health benefits package is essential to reach the 90-90-90 targets.

Methods: An evaluation questionnaire was developed prior to and dissemnated at the regional consultation of HIV programme managers of eastern Europe and central Asia (EECA) and non-EU/EEA countries based on actions stipulated in the Action plan structured around five methods:

1. National strategies: information for focused action; interventions for implementation of the action plan, self-reported data showed that most of the actions and interventions recommended by the regional Action plan are integrated into the national strategies. Major gaps included lower level of integration of: needles and syringes exchange programmes in prisons (27%), PrEP for populations at substantial risk (33%). HIV testing by lay providers (33%) and HIV self-testing (20%). An essential comprehensive package of HIV services integrated into the national health benefits is defined by national strategies in 60% of countries.

2. National strategy prioritizes community-based HIV service provision (60%)

3. National strategy includes needle and syringe exchange programmes in prisons (27%)

4. National strategy includes opioid substitution therapy programmes in prisons (60%)

5. National strategy includes pre-exposure prophylaxis (PrEP) for populations at substantial risk of HIV (33%)

6. National strategy promotes early congenital syphilis diagnosis of infants and immediate treatment for all infants diagnosed with congenital syphilis (53%)

7. National strategy promotes HIV testing conducted by trained lay service providers (33%)

8. National strategy promotes HIV self-testing (20%)

9. National strategy encourages innovative financing in the HIV response (67%)

Results: 15 countries participated in the National HIV Programme managers meeting of EECA and non-EU/EEA countries in September 2017 and completed the questionnaire. The self-reported data showed that most of the actions and interventions recommended by the regional Action plan are integrated into the national strategies. Major gaps included lower level of integration of: needles and syringes exchange programmes in prisons (27%), PrEP for populations at substantial risk (33%). HIV testing by lay providers (33%) and HIV self-testing (20%). An essential comprehensive package of HIV services integrated into the national health benefits is defined by national strategies in 60% of countries.

Conclusions: Regional policy update is overall adequate on most of the actions per the results of this early assessment of countries’ progress. However, particular attention is required to improve NSP in prisons settings and PrEP: Provision of HIV testing by lay providers and HIV self-testing are areas to whom WHO may consider increasing advocacy and policy review activities. Integrating the essential comprehensive package of HIV services into the national health benefits package is essential to reach the 90-90-90 targets.
without a place of residence. At the same time, 186 people of the medi-
cal staff of public hospitals and 101 employers of the migrants were
trained on the questions of "TB/HIV" and "stigma and discrimination".
The results of the successful work served as a basis for creating a mech-
anism for cooperation between NGOs and state bodies. In 2017, for the
first time, the Almaty City Health Department provided 3 state social or-
ders for carrying out activities for the prevention of tuberculosis and HIV
infection among migrants.

Conclusions/Next steps: 27806 migrants were informed about tu-
berculosis, of which 85% were external migrants. It was revealed and
given assistance in organizing the treatment of 9 internal migrants who
did not have registration, documents, a certain place of residence, and
had other social problems. All migrants are receiving the proper legal
consultations. The NGO will continue work towards building an effective
system for redirecting migrants to obtain the necessary medical and le-
gal assistance, inform employers and representatives of local authorities
about the rights of migrants and the rights to detect and treat TB/HIV.

**THPEE744**
Scaling-up HIV testing, treatment, care and support for men who have sex with men, transgender and sex workers in Liberia

**I Sempungu, E.Z. Addy**

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Background: In Liberia, HIV prevalence rate among (15-49) age group
is 21%. Among the key population however, it is 19.8% among men who
have sex with men (MSM), 9.8% among female sex workers (FSWs), and
5% among People Who Inject Drugs (PWID). Limited access to HIV test-
ing, treatment, and care services; stigmatization; are major contributing
factors.

Description: Stop AIDS in Liberia (SAIL) implemented a project titled: HIV
Prevention, Care, and Support for the Key Population, People Living with
HIV, and the General Population. Funding was provided by the Global
Fund against AIDS, Tuberculosis, and Malaria (GFATM), and Population
Services International (PSI) Liberia. Between July 2016 and December 2017, the project trained MSM, Transgender (TG), and FSW as peer edu-
cators to register project participants using Unique Identification codes
(UICs) disseminate HIV and STI information, distribute condoms and
lubes, organize question and answer HIV/STI community-based sup-
port group meetings; and link project participants to health facilities
for HIV and STI testing and treatment. On the other hand, 3 drop in centers
(DICs) were established to provide STI diagnosis and treatment; HIV
counseling and Testing; TB symptomatic screening; ART enrolment and
referral; and Legal and psycho-social support.

Lessons learnt: An approximate of 2,258 out of 3,000 targeted MSM/ TGs, and 2,674 out of 2,075 targeted FSWs were registered using Unique
Identification Codes. About 1,387 MSM/TG tested for HIV, (4.5%) were HIV
positive, and 46 were enrolled into antiretroviral therapy (ART). Similarly, 532 FSWs tested for HIV, (11%) were HIV positive, and none was enrolled
into (ART). Service linkages with seven (7) government health facilities
across Liberia got established, and key stakeholders including 97 police
personnel (93 female), 60 religious leaders (62 female), and 62 medical
practitioners (62 female) were trained in human rights advocacy for the
key population.

Conclusions/Next steps: An integrated approach promoted access to
HCT and SRHR services for the key population, and enabled client trac-
ing through UICS. HIV stigma is however, still high affecting disclosure
and ART enrollment. We need to improve on documentation of project
outcomes for evidence-based advocacy, and involve other key popula-
tion groups such as, people who inject drugs (PWID) in HIV programming.

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**THPEE745**
Reaching the rural in Uganda: A cluster-randomised exploration of community health entrepreneurs’ impact on sexual and reproductive health

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Background: The international health community aims to reach univer-
sal health coverage by 2030. Recent reports, however, hint at access to
sexual and reproductive health services being far from universal, hold-
ing especially true for rural, hard-to-reach areas. A proposed solution
is organising primary care through community health entrepreneurship.
Community health entrepreneurship is a sustainable approach to reach
underserved populations by harnessing the entrepreneurial skills of ex-
isting community health workers.

This study provides a first evaluation of the impact of the ‘Healthy Entre-
preneurs’ social enterprise model. This model may be key in HIV preven-
tion by proactively ensuring rural populations access to the knowledge
and means required for increasing and sustaining sexual and reproduc-
tive health.

Methods: The study was conducted using tablet-based surveys in a
cluster-randomised cross-sectional cohort study. The sample entailed
household members from 25 villages in a rural West-Ugandan district.
The association between four validated sexual and reproductive health
outcome indicators and exposure to community health entrepreneur-
ship was assessed using wealth-adjusted mixed-effects logistic regres-
sion models.

Results: Data were obtained from 2202 household members who vol-
teered to participate (83% female). Table 1 shows the wealth-adjusted
odds ratios per indicator. The results show that household members
who lived in areas where community health entrepreneurs were active
had both higher odds on currently using modern contraception and hav-
ing knowledge of modern contraceptive methods, sexually transmitted
infections, and the symptoms of sexually transmitted infections.

**Table 1. Adjusted odds ratios (OR) with 95% confidence interval per key
indicator)**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Odds ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowledge of modern contraceptive methods</td>
<td>6.49</td>
<td>(2.46; 17.17)</td>
</tr>
<tr>
<td>2. Current use of modern contraceptive methods</td>
<td>1.63</td>
<td>(0.60; 4.40)</td>
</tr>
<tr>
<td>3. Knowledge of sexually transmitted infections</td>
<td>2.04</td>
<td>(1.01; 4.12)</td>
</tr>
<tr>
<td>4. Knowledge of symptoms of sexually transmitted infections</td>
<td>3.58</td>
<td>(1.86; 6.87)</td>
</tr>
</tbody>
</table>

* For exposed:unexposed, adjusted for International Wealth Index (IWI)

Conclusions: Household members in areas where community health
entrepreneurs were active had higher odds on using modern contra-
ceptive and had more knowledge of modern contraceptive methods,
sexually transmitted infections, and symptoms of sexually transmitted
infections.
THPEE746
Medicycles: Using micro-financed motorcycle taxis and cost-sharing to ensure continuity of care in difficult-to-reach Ugandan villages

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Health Access Connect, Kampala, Uganda

Background: HIV service providers are using models of ‘differentiated care’ to target key populations with interventions that are suited to their contexts. One key population in Uganda is fishing communities where HIV prevalence rates have been documented to be as high as 36%. Many of these communities are over 5km/3miles from the nearest health facility and have high ART default rates.

Description: Health Access Connect (HAC) is a Ugandan NGO that has been implementing the Medicycles program since August 2015. Monthly, one-day comprehensive health outreach clinics are set up in remote villages in the Lake Victoria region with high HIV prevalence. The HAC model has three components:

1) Partner health facilities identify villages to target, and then use HAC micro-financed motorcycle or boat taxis to transport staff and supplies to remote villages.

2) During the monthly one-day outreach clinics, 3-10 health workers provide comprehensive health services, including HIV testing, ART, maternal & child healthcare, vaccinations, and essential health services.

3) Community oversight and cost-sharing is achieved through community mobilization by Community Health Workers (CHWs) as well as patient contribution of $0.55 to cover transportation expenses ($22-28/day). Between August 2015 and December 2017, over 3,900 patients (57.3% female, 42.7% male, 31.6% under 18yo) were served, including distributing ART to 1,954 clients in 10 remote villages with an average of 50.6 patients/clinic.*

*Reporting data are for patient services distributed. Many patients are repeat.

Lessons learned:

- Microfinance helps to lower cost while providing quality services.
- HAC originally used community groups to coordinate clinics and found using CHWs for community mobilization improves attendance and coordination.

- Coordination with district and facility health leadership is critical to ensuring continuity and quality of care.

- Targeted outreach clinics increase numbers of clients accessing HIV testing (90#1), receiving treatment (90#2), and suppressing viral load (90#3); thus contributing towards Uganda’s pursuit of 90-90-90 by 2020.

Conclusions/Next steps: The HAC model emphasizes providing transport and cost-sharing to provide continuity of care to difficult-to-reach populations. Expansion to villages in the districts of Kalangala, Masaka, and Rakai District has demonstrated that the model can be adapted to many contexts.

THPEE747
Main adverse reactions motivating the substitution of Dolutegravir in antiretroviral therapy regimens in Brazil

Ministry of Health, STI/AIDS and Viral Hepatitis, Brasília, Brazil

Background: The Brazilian AIDS policy has included the free distribution of antiretroviral drugs since 1996, and since 1997, the government has conducted the logistic management of these drugs and patient clinical monitoring through the Medication Logistics Control System (SICLOM), with online access nationwide. In this context, the Ministry of Health started, in 2017, the distribution of the antiretroviral drug Dolutegravir (DTG) 50mg to all people living with HIV who start first line Antiretroviral Therapy (ART), as well as for third-line in substitution to Raltegravir 400 mg. Although DTG is seen as having better tolerability levels and lower possibility of causing adverse reactions, there is the need to continuously evaluate the safety profile of the drug in the population. In order to assess the safety profile of DTG in Brazil, an active pharmacovigilance project was implemented, consisting of interviews and online questionnaires available by SICLOM. This study proposes to study the main reactions that motivated the substitution of this drug and the frequency percentage of each one in active pharmacovigilance project.

Methods: SICLOM’s database was used to verify the list of patients who had DTG substituted in their therapy regimens due to adverse reactions in the period between April and December 2017. Based on this list, the 10 main adverse reactions were identified as well as the percentage frequency of each one.

Results: Out of the 72,032 people on DTG in Brazil, 149 (0.20%) had their therapy regimens changed due to adverse reactions - demographic data can be observed in Table 1. 398 adverse reactions were reported and the main and most frequent ones are shown in Figure 1.

Conclusions: Data indicate that the most of the adverse reactions that motivated the discontinuation of DTG in Brazil are described in the package leaflet. Nausea, diarrhea, and headaches are the most frequent (>10%); dizziness, insomnia, vomiting and abdominal pain are commonly associated with the use of Dolutegravir (1 to 10%); and hypersensitivity presents lower frequency and are considered unusual (0.1 to 1%). This finding, however, corroborates the more consolidated knowledge of the medicinal product and, therefore, for greater patient safety.

THPEE748
Health4All: A technology-enabled, locally relevant campaign to reduce stigma and discrimination against key populations

K. Pedersen1, K. Skattenv2
1IntraHealth International, Chapel Hill, United States, 2IntraHealth International, Programs, Chapel Hill, United States

Background: Key populations (KP) disproportionately impacted by HIV (including men who have sex with men, transgender populations, sex workers, and people who inject drugs) report stigma and discrimination (S&D) from health workers as significant barriers to seeking or continuing care. One key population in Uganda is fishing communities where individuals report stigma and discrimination as a key barrier to HIV care.

Methods: IntraHealth International, a key partner in the USAID- and PEPFAR-supported LINKAGES project led by FHI 360, supports the Health4All campaign designed to both champion and ensure stigma-
free, rights-based, and high-quality KP services and support. Developed to be flexible and meet local needs, components of Health4All include:

1. Locally relevant trainings of health workers with KP participation to address stigmatizing and discriminatory attitudes and KP clinical competencies.
2. Technology-enabled self-assessments by health workers and service quality surveys from KP clients who visited, or wanted to visit, facilities—called the SMS Service Quality Monitoring System (SMS5*), and;
3. Ongoing health worker, facility, and community support efforts—partially informed by SMS5 data—to reduce S&D. Since 2016, 15 countries in Africa, Asia, and the Caribbean have implemented at least one Health4All component.

Lessons learned: Pre/post-test evaluation findings from training activities, now conducted in 12 countries, suggest the trainings consistently improved participants HIV- and S&D-related knowledge and attitudes. Lessons learned from trainings include the need to identify trainees carefully, support active KP engagement, and carefully plan post-training support. An important enhancement has been to focus on the needs of young KP and KP who engage in multiple high-risk behaviors. Monitoring of SMS data after the training supports strong links among communities, health workers trained through Health4All, and program stakeholders to target post-training follow up.

Conclusions/Next steps: Our experiences suggest the importance of ensuring the S&D- and KP-friendly trainings are included in both health worker pre-service training programs and larger HIV service delivery improvement efforts. All health workers that interface with KPs, including clinic security guards and receptionists, must be sensitized to and able to offer KP-friendly support. In addition, the use of ongoing S&D self-assessments by health workers to complement trainings and KP assessments using SMS5 can prompt targeted action by HIV program implementers.

**THPEE749**

Lessons from implementing SKILLZ for life: A sport-based HIV and life skills programme for youth with intellectual disabilities in Namibia, Nigeria, and South Africa

N. Mutongzio1, R. Banciu1, S. Miller1, K. Hughes2, S. Oboh3

1 Grassroot Soccer, Inc., Norwich, United States, 2 Special Olympics International, Washington, DC, United States, 3 Special Olympics Nigeria, Lagos, Nigeria

**Background:** SKILLZ for Life (SFL) equips youth with intellectual disabilities (YWID) with HIV and life-skills information. YWID are especially vulnerable to HIV infection(s), and findings from this evaluation suggest they are often excluded from HIV education programs. Special Olympics (SO) and Grassroot Soccer (GRS) implemented SFL in Namibia, Nigeria, and South Africa (SA).

The intended outcomes of SFL are increased HIV knowledge, malaria / HIV testing, self-esteem, knowledge of sexual rights and improved attitudes towards health services.

**Description:** SFL consists of six, 60-minute sports-based sessions and a graduation, coupled with a voluntary counselling and HTS event. Sessions are delivered in schools or camps by trained “Coaches”, to YWID (“Athletes”) and participants without intellectual disabilities (“Partners”). Athletes and Partners are paired-up in a “buddy-system” and learn about HIV prevention, support each other to lead healthy lifestyles and identify abuse. SFL was implemented in Namibia (2009-2012), Nigeria and SA (since 2014 and 2016).

**Lessons learned:** A 2015 external evaluation(s) showed that SFL largely accomplished its objectives, determining positive change in the knowledge, attitudes and communication on HIV of its participants. A 2017/18 process evaluation included interviews and focus groups with staff, coaches, parents and teachers, to assess its scalability. It concluded that SFL can be successfully scaled, once certain conditions are met that are delineated below.

**Conclusions/Next steps:** SFL has been shown to benefit YWID and their families. The lessons learned indicate that SFL requires significantly more investment of human and financial resources in sensitisation, training and ongoing oversight. The findings in Table 1 provide viable next steps to scale-up SFL, and for other organizations that implement programmes for YWID.

**References:**

1. Aderemi, T. et al. 2013, Differences in HIV knowledge and sexual practices of learners with intellectual disabilities and non-disabled learners in Nigeria


**Table 1. Summary Themes and Lessons Learned**

<table>
<thead>
<tr>
<th>THEMES</th>
<th>RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set-up, resources and capacity needed</td>
<td>1. Consider the higher initial program set-up phase burden (capacity building and staff-structure, written guidelines for policies and procedures); 2. Ensure adequate, long-term funding (+/- 5 years); 3. Optimum community sensitization, stakeholder (including government institutions) engagement and show-casing for smooth implementation.</td>
</tr>
<tr>
<td>Curriculum and content</td>
<td>1. Ensure rigorous curriculum adaptations and field-testing; 2. Simplify curriculum and reduce the number of key messages; 3. Remove abstract activities with symbolism; 4. Use repetition as a way to ensure learning.</td>
</tr>
<tr>
<td>Delivery model</td>
<td>1. Use sports for dual benefits (engagement and fitness); 2. Carefully consider the Partner Athlete ratio;</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>1. Use images to assess change in knowledge and attitudes among Athletes, instead of words. 2. Pre/post test insufficient to assess change in knowledge and attitudes.</td>
</tr>
<tr>
<td>Training</td>
<td>1. Train coaches, parents and teachers on working with YWID.</td>
</tr>
</tbody>
</table>

**THPEE750**

Implementation of a comprehensive HIV and stimulant prevention intervention with Cambodian female entertainment and sex workers reduces sexual and drug risk and addresses multiple vulnerabilities

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**Background:** Comprehensive HIV prevention targeting female entertainment and sex workers (FESW) in Cambodia is needed due to synergies of HIV, viral hepatitis, amphetamine-type stimulants (ATS), and poverty. Using an implementation science approach, we delivered multi-level interventions to FESW to decrease ATS use and improve health and social vulnerabilities within HIV risk reduction.

**Methods:** The Cambodia Integrated HIV and Drug Prevention Implementation (CIPI) trial used a cluster randomized stepped-wedge design to test effectiveness of a multi-level intervention to reduce HIV and ATS risk in 10 provinces. CIPI leveraged an existing HIV prevention platform for FESW - SMARTGirl – as an innovative cross-sectoral cross approach to jointly tackle the multiple vulnerabilities experienced by FESW. CIPI added a conditional cash transfer with cognitive-behavioral aftercare (CCT+AC) intervention to reduce ATS use among women identified with ATS use disorder.

A microenterprise opportunity that included a 3-day financial literacy training was offered to ATS-free women, including those who successfully completed CCT+AC. 149 enrolled women were surveyed pre-intervention. Co-primary outcomes were assessed in 600 FESW purposively targeted at 6-month intervals over an 18-month follow-up.
THPEE751
Scalability of SKILLZ for Life: A sports-based behaviour change HIV/AIDS and Malaria programme for young people with intellectual disabilities

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Background: While HIV prevalence is relatively low in Nigeria (3.4%), it is second only to South Africa in the number of people living with HIV (PLHIV) at 3.2 million (UNAIDS, 2016). To contribute to the prevention response in both countries, SKILLZ for Life (SfL) was designed for youth with intellectual disabilities (ID) aged 8-30, to increase health-seeking behaviors and facilitate access to and uptake of malaria and HIV services. SfL consists of a sports-based behaviour change programme comprised of six, 60-minute sessions and a graduation. Special Olympics implemented SfL in Nigeria and South Africa in partnership with Grassroot Soccer (GRS). An internal evaluation was conducted from June 2017 - January 2018 to ascertain whether SfL is scalable in other geographies.

Methods: A mixed-methods design was utilised, incorporating ten in-depth interviews (IDIs), seven focus group discussions (FGDs), 3 observations; and quantitative surveys. For the qualitative methods, respondents were purposively selected from Special Olympics program staff in Nigeria and South Africa. Grassroot Soccer staff, Coaches delivering SfL in Nigeria, teachers, and parents. IDIs, FGDs, and observation visits were conducted both in-person and via Skype. Qualitative data were analysed using NVivo, while quantitative data measuring changes in participants’ knowledge, behaviour and attitudes in Nigeria and South Africa programmes were analysed in R and significance was assessed using Wilcoxon Signed Rank Test (n=1,389)

Results: Evaluation findings point to scalability and expansion possibilities of SfL due to positive programme outcomes and strategic programme components such as visual resources and GRS Culture. Post survey results from SO Nigeria show significant positive change from baseline to endline as seen in Table 1. Evaluation respondents stated the specific conditions that must be met for scale include curriculum adaptation to local context and training community stakeholders with the intention of sustaining health behaviour outcomes.

Conclusions: Based on this study, the evaluators deem SfL scalable. The program has been very effective at changing knowledge and behaviours around HIV and malaria, reducing community stigma around ID and is considered a success story for how to engage youth with intellectual disabilities in behaviour change communication and stigma reduction programs.

THPEE752
Increasing HIV screening, diagnosis, and treatment in a large Zambian correctional facility: Interim results from a prison-focused universal test and treat program

S. Hatzivlasis1, H. Smith2, M. Nanyangwe3, P. Chilimbo1, M. Siyambango2, L. Kasheha1, C. Yenga1, A. Kayuni3, C. Moonga1, M. Muyoyeta1, C. Chisela1, Y. Lungu4, S. Reid1, S. Topp1, M. Hercel1
1Centre for Infectious Disease Research in Zambia, Lusaka, Zambia, 2Zambia Correctional Service, Ministry of Home Affairs, Government of the Republic of Zambia, Kafuli, Zambia, 3Centre for Infectious Disease Research in Zambia, Lusaka, Zambia, 4University of Alabama at Birmingham, Division of Infectious Diseases, Department of Medicine, Birmingham, United States, 5James Cook University, College of Public Health, Medical & Veterinary Sciences, Townsville, Australia, 6University of North Carolina at Chapel Hill, Division of Infectious Diseases, Department of Medicine, Chapel Hill, United States

Background: We conducted an interim impact evaluation of a universal test and treat (UTT) program implemented with the Zambian Ministry of Health (MOH) and Correctional Service (CSCS) within a large Zambian correctional facility, Lusaka Central.

Methods: Applying RE-AIM, we evaluated reach, effectiveness, adoption, implementation and maintenance of a UTT program using routine and prospective data collected over the program period spanning 1st July 2016-30th June 2017. We compared RE-AIM measures between the program period and the year prior to UTT introduction (1st June 2015 - 30th June 2016).

Results: During the program period, the total cumulative inmate population, including the static population plus all new admissions, was 6,850. Of these, we offered HIV testing services (HTS) to 3,419 (n/N=3,419/6,850, 49.9%). HTS reach was significantly higher in the program versus baseline period (n/N=714/3,755, 9.7%) (p<0.001).

Conclusions: Based on this study, the evaluators deem SfL scalable. The program has been very effective at changing knowledge and behaviours around HIV and malaria, reducing community stigma around ID and is considered a success story for how to engage youth with intellectual disabilities in behaviour change communication and stigma reduction programs.

Pre/Post Outcome Analysis

<table>
<thead>
<tr>
<th>Pre/Post Outcome Analysis</th>
<th>Baseline</th>
<th>Endline</th>
<th>% Change</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV Stigma: Have you ever talked to anyone about HIV (i.e. prevention, treatment, or transmission) outside of the SKILLZ for Life Program?</td>
<td>39%</td>
<td>66%</td>
<td>67%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>HIV Transmission: Which of these can protect you from HIV?</td>
<td>36%</td>
<td>59%</td>
<td>44%</td>
<td>0.035</td>
</tr>
<tr>
<td>HIV Transmission: Which of these cannot spread HIV?</td>
<td>41%</td>
<td>49%</td>
<td>18%</td>
<td>0.494</td>
</tr>
<tr>
<td>Malaria: Which of these can spread malaria?</td>
<td>79%</td>
<td>90%</td>
<td>14%</td>
<td>0.683</td>
</tr>
<tr>
<td>Malaria: Which of these must you avoid to prevent malaria?</td>
<td>65%</td>
<td>87%</td>
<td>22%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Malaria: Which of the following cannot protect you from malaria?</td>
<td>70%</td>
<td>93%</td>
<td>23%</td>
<td>0.079</td>
</tr>
</tbody>
</table>

Identifying Abuse: Would you tell someone if you were touched in a way you did not like? | 57% | 76% | 35% | 0.001 |

*P<0.05, (1) recent = past 3 months; (2) Alcohol use disorder measure using WHO Alcohol, Smoking and Substance Involvement Screening Test (ASSIST); (3) Psychological distress measured using Kessler Psychological Distress Scale (K10)

Table 1: SKILLZ for Life Special Olympics Nigeria Pre/Post Outcome Analysis. *Assessed via Wilcoxon signed rank test (n=92)

Conclusion: Based on this study, the evaluators deem SfL scalable. The program has been very effective at changing knowledge and behaviours around HIV and malaria, reducing community stigma around ID and is considered a success story for how to engage youth with intellectual disabilities in behaviour change communication and stigma reduction programs.

THPEE752
Increasing HIV screening, diagnosis, and treatment in a large Zambian correctional facility: Interim results from a prison-focused universal test and treat program
THPEE753
Partnering with correctional authorities to improve access to HIV prevention and linkage to antiretroviral therapy for prisoners in Zambia

T. Malebe, M. Phiri, A. Malumo, K. Stratton
IntraHealth International, Lusaka, Zambia. IntraHealth International, Chapel Hill, United States

Background: Estimated global HIV prevalence among prisoners is 3%. In some settings, HIV prevalence in prisons is 15 times higher than in the general adult population according to the World Health Organization. This situation increases the risk of HIV transmission between inmates and to sexual partners after inmates are released from prison. However, access to HIV prevention, treatment, and care programs is often lacking in correctional facilities due to limited resources. In Zambia, with CDC funding, IntraHealth International implements a comprehensive HIV prevention and treatment program in partnership with correctional service authorities in three selected correctional facilities in Southern and Western provinces.

Description: In partnership with prison authorities and District Medical Offices, IntraHealth has trained correctional officers and selected inmates as lay providers (LPs) to deliver HIV testing services (HTS) in correctional facilities. The training also equips them with knowledge and skills to provide HIV information, education and screening for sexually transmitted infections (STIs) and tuberculosis (TB). Positive health, dignity and prevention packages and supportive care services are provided by LPs to inmates who test positive. Trained LPs provide escorted referrals for same-day ART initiation in the prison clinics.

Lessons learned: The district coordinators engaged with prison authorities to facilitate the implementation of HIV interventions at correctional services, which has increased access to testing, care and treatment services for inmates and prison workers. From October 2014–November 2017, a total of 11,011 inmates were tested: 1,508 (14%) were HIV-positive and 1,356 (90%) of those were initiated on ART. LPs also screened HIV-positive clients for TB resulting in 1,187 (78%) presumptive cases out of which 623 (52%) were confirmed for TB and commenced treatment. The LP/peer approach has increased access to HIV testing and TB screening services to all inmates, who are now motivated to test for HIV and start treatment if found positive within the prison.

Conclusions/Next steps: These interventions will be expanded to more correctional services in Zambia and offer a model for replication in other settings.

11011
1508 (14%) HIV POS
1356 (90%) initiated on ART

[2014-2017 Inmate HTS and Linkage to Treatment]
**THPEE755**

Adaptation, implementation and evaluation of a tele-mentoring program for the Namibian HIV health workforce

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**Background:** Namibia experiences critical shortages of health workers caring for the 14% of the adult population living with HIV. In 2015, the Namibia Ministry of Health and Social Services (MoHSS) adapted, piloted and evaluated a tele-mentoring platform for case-based learning in virtual communities of practice called Project ECHO® (Extension for Community Health Outcomes) to address challenges in HIV care. Goals of this first ECHO adaptation in Africa included assessing feasibility and acceptability, strengthening workforce capacity, improving provider satisfaction, and reducing isolation.

**Description:** Best practices for adapting an evidence-based HIV ECHO program were applied, a 9-month curriculum was developed, and Continuing Professional Development (CPD) accreditation obtained. A virtual community of practice using weekly video-conference sessions with didactic training and patient case presentations was established; participants included national experts, regional clinical mentors, doctors, nurses, pharmacists, laboratorians, and health assistants. Between 50 and 120 individuals participated per session, learning from didactics and de-identified patient case discussions. A mixed-methods assessment of the first 34 sessions included process evaluation, pre/post questionnaires (knowledge, satisfaction, self-efficacy, CPD credits), qualitative interviews, and focus group discussions.

**Lessons learned:** To optimize ECHO in Namibia, MoHSS adapted a model that included leveraging of centralized and decentralized Ministry leadership and expertise, rotating session facilitation, disseminating new guidelines (e.g., PEP, community adherence clubs, etc.), and empowering lower-level cadres to differentiate aspects of HIV care that could be task-shifted. Over 50% of participants are nurses. During the pilot, knowledge of clinical HIV improved 128% overall and 22.3% for nurses (p < 0.01). Self-reported clinical professional satisfaction increased 30%. Most participants (66%) reported reduced professional isolation, and 57% reported improved access to CPD credits. Following the pilot, increased demand and popularity of ECHO led to expansion from 10 to 23 spoke sites.

**Conclusions/Next steps:** Namibia’s HIV ECHO improved knowledge and provider satisfaction and has demonstrated the ability to adapt to evolving needs in an African context. MoHSS will increase ECHO to 36 sites and expand focus areas beyond HIV in 2018. This first successful ECHO implementation in Africa encountered minimal barriers and has catalyzed development of several additional ECHO programs across Africa and Central Asia.

**THPEE756**

Health system strengthening in rural Nigeria: Focus on HIV programmes

O.B. Onokala1, G. Abiazziem2, F. Okuwasina3

**Background:** Some rural populations are often excluded in interventions against HIV/AIDS. In order to effectively reduce the global HIV burden, underserved rural communities need to be prioritized. Health System Strengthening (HSS) is pivotal for sustaining HIV programmes dedicated to reaching underserved communities. The study describes interventions made to strengthen health systems for HIV programmes in underserved rural communities in Nigeria.

**Methods:** The longitudinal cohort study was done at HIV treatment facilities in 24 randomly selected underserved communities in rural Nigeria. HIV programme interventions were designed to bridge specific gaps identified in health systems according to the World Health Organization-accepted core HSS functions. Human resources interventions incorporated trained local indigenes into community health systems. Health information was optimized by efficient monitoring and evaluation of health system data. Health governance interventions included engagement of community gate-keepers. Service delivery interventions included rural decentralization of Anti-Retroviral Therapy (ART), differentiated HIV care, standardization and integration of HIV services. Interventions for health finance and availability of medicines involved private-public partnerships. The pre- and post-intervention assessment of HSS functions were done in October 2012 and October 2017 respectively. Chi-square was applied as inferential statistics. P < 0.05 indicated statistical significance.

**Results:** Interventions increased HIV services from 10% pre-intervention to 80% post-intervention. The interventions increased HIV treatment facilities from 7 (pre-intervention) to 63 post-intervention. Subsequently, the cumulative number of adult ART patients increased from 2,393 pre-intervention to 16,069 post-intervention, while the cumulative number of pediatric ART patients increased from 104 pre-intervention to 857 post-intervention. Optimization of human resources for health improved the quality of patient care from 30% pre-intervention to 90% post-intervention. Health information system strengthening enabled efficient monitoring and evaluation of HIV services and outcomes. Interventions in health governance ensured sustenance of HIV services to displaced persons at 3 facilities affected by rural conflict within the period. The private-public partnership enabled pooling of resources to eliminate user fees at the facilities.

**Conclusions:** The interventions significantly improved core HSS functions in human resources for health; health finance; health governance; health information; medicines; and service delivery. The interventions are recommended for strengthening health systems for HIV programmes in underserved rural communities in Nigeria.

**THPEE757**

Reaching underserved populations living with HCV: Pairing treatment with intensive navigation to improve adherence and completion of HCV treatment during and after incarceration in San Francisco Jails

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1San Francisco Department of Public Health, Jail Health Services, San Francisco, United States. 2San Francisco, United States. 3University of California, Epidemiology & Biostatistics, San Francisco, United States. 4University of California, Medicine, San Francisco, United States.

**Background:** The availability of all oral HCV regimens creates an important opportunity to cure HCV in the most vulnerable populations, including incarcerated patients who are highly impacted by this disease; yet have substantial barriers to initiating treatment both during and after incarceration. San Francisco Jail Health Services assessed the feasibility of initiating HCV treatment during incarceration, coupled with intensive short-term case management to promote adherence, treatment completion, and linkage to care post-discharge.
Methods: Between 3/2017 and 12/2017, HIV-positive patients incarcerated in the San Francisco County Jail were enrolled and given 12 weeks of 100 mg velpatasvir/400 mg sofosbuvir (Epclusa®), plus intensive navigation if discharged before treatment completion. The primary objective was to achieve ≥70% sustained virologic response after completing treatment (SVR12) among inmates initiating HCV treatment.

Results: 100 participants enrolled; median age, 39 (range, 23-67); male, 84%; Hispanic ethnicity, 10%; race: White 50%, African-American 26%, and multiracial/other 14%. Prior incarceration ≥55%, HCV treatment-naïve 96%, APRI of ≥1 suggesting fibrosis 13%, HIV co-infected 6%, and self-reported history of IDU 86%. HCV genotypes: GT1 81%, GT2 6%, GT3 10%, and 3 without GT available.

As of January 2018, 70 completed treatment (27 completed following release); 10 remain on treatment (7 on treatment following release), 15 prematurely discontinued treatment following release. 3 discontinued due to reported side effects, 1 participant spontaneously cleared prior to starting study therapy. 50 participants were still on HCV treatment at time of release, with a median treatment remaining of 4.6 weeks (range, 0.43-11.14 weeks). Among 70 who completed treatment, 35 attained SVR12 to date. Of those who reached the SVR12 time point, 37/51 (72.5%) attained SVR12, including 2 who prematurely discontinued treatment.

Conclusions: Initiation of HCV treatment in jail is an effective approach to reach this high-risk population, with 78.7% (70/89) able to complete a full 12 weeks of therapy thus far. Despite half being released during treatment, and over 70% with SVR12 to date. Jail-based HCV treatment initiation should be paired with short-term intensive case management services post-release given the high risk for premature treatment discontinuation.

THPee759

Barriers to delivering HIV treatment services to internally displaced persons in Nigeria

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National Agency for the Control of Aids Nigeria, Abuja, Nigeria

Background: There are over 2.1 million internally displaced persons (IDPs), representing more than 300,000 households in various parts of northern Nigeria. It is necessary to ensure that most of the IDPs, having stayed in temporary shelters under pressure, and may have been exposed to risky behaviour, have access to medical services. This will assist many IDPs to know their general health status including HIV.

Identifying the barriers to delivering HIV services to internally displaced persons will improve efficiency and effectiveness of interventions.

Methods: A review of secondary data sources of HIV interventions and IDP management in parts of Nigeria between 2015 and 2017 was reviewed. Using qualitative deductive approach and quantitative statistical analysis, relevant information on the population, demographic structure, health status, and available services, and challenges were clearly summarized and presented.

Results: The IDPs were identified in Adamawa, Bauchi, Benue, Borno, Gombe, Taraba, Yobe, Nasarawa, Plateau, Kaduna, Kano, Zamfara states. The total number of IDPs identified was 2,065,783 (344,654 households). A total of 1,777,434 (86%) IDPs are in host communities with relation and friends while 14% (283,350) are located in camp sites around these states. A total of 1,136,731 (55%) of the IDPs are Children and 53% of all IDPs are females. A total of 24,216 IDPs in camps lack access to Health services, and over 70% of IDPs outside camps lack access to health services such as HIV testing, treatment services, and PMTCT. Barriers included included inadequate health commodities, weak management structure for temporary shelters, corrupt practices by some camp officials, the dwindling economy of states, weak central coordination, local human resource gaps, continued insurgent attacks along supply routes, inadequate information of interventions by local authorities, poor community sensitization.

Conclusions: Nigeria has witnessed a sustained number of IDPs mainly due to conflicts. Barriers to HIV services for non-camp IDPs can be bridged by community consultation, building capacity and incentivising community health workers for door-to-door sensitisation, and leveraging on polio vaccination volunteers. Distribution of commodities can be safer using established routes and security escort, helicopter drop-offs, and the proximity hub and spoke model to reduce travel over long distances.
Methods: Newly diagnosed patient data was obtained through a retrospective chart review of Electronic Medical Records (EMR) at two outpatient HIV care sites in New York City within a 1-year period. In this analysis, risk factors, socio-demographics, linkage to care, prescribing of antiretrovirals (ARVs) were analyzed. During this period an expedited linkage to care model was implemented to ensure an initial medical assessment to newly diagnosed individuals within 72 hours. This model included the designation of a linkage to care specialist within the clinical team, and a rapid course through wraparound and medical services.

Results: From April of 2015 to April of 2016, the study team identified a total of 21 patients who were referred to care with a new HIV diagnosis. All 21 patients were connected to HIV services within the clinical setting. The median age was 32 (range) years, 90% were male, and 71% were Hispanic/Black. The main risk factor for HIV acquisition was MSM (90%) while 42% of all patients were co-infected with other sexually transmitted infections at the time of HIV diagnosis. 52% of the sample reported prior or current use of recreational drugs, the most common being cannabinoids and amphetamines.

Of the sample, 90% presented to care with no health coverage. There was a median of 9 days (range) between the HIV diagnosis and initial visit to the HIV clinic. While the majority of patients had multiple visits over a 12 months period, 33% were lost to follow-up.

Conclusions: This expedited model was successful in a real-world clinical setting in demonstrating high rates of linkage to care and ARV initiation among key populations despite preexisting limitations in health coverage, and high rates of underlying substance use.

THPEE761
Cascade model of mentorship for mixed cadre HIV prevention outreach teams to enhance health services among female sex workers in East Central Uganda, process, achievements, lessons and conclusions

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Background: To achieve the fast track initiatives to end HIV/AIDS by 2030, World Health Organization and international community recommends accelerated technical and programmatic innovations. However, in sub-Saharan Africa, particularly in Uganda, despite many governmental and non-governmental HIV Prevention interventions designed to increase health service uptake among key populations (Female sex workers (FSWs), Men having sex with men, people living with HIV etc), outcome results remain sub-optimal.

USAID's RHITES-EC project under University Research Co. LLC (URC) implemented HIV prevention interventions targeting FSWs through a cascade model of mentor-ship for mixed local cadre staff using outreach. Though it was successful, little is known about the process and what characteristics of HIV Prevention outreach teams are essential for effective delivery of services among FSWs.

Description: HIV Prevalence in East central Uganda reduced from 5.8% in 2011 to 4.7% in 2017. However, the AIDs Assessment report 2017, indicated that high HIV positivity rates still existed among key populations with FSWs most affected. The project scaled-up HIV prevention interventions targeting FSW between June to September 2017 prioritizing on-job mentor-ship of mixed cadre staff at all levels on the HIV Prevention minimum package followed by mentorships for HIV prevention outreach teams composed of FSW peers, Bio-medical staff, and community social workers. Contrary, previous HIV prevention programs relied only on medical staff from health facilities and Community Health workers (CHW) to mobilize FSWs.

Lessons learned: The number of female sex workers reached increased from 5.0% (n=311) in June to 72.4% (n=3828) in September 2017 with an HIV positivity rate of 8.0%. Linkage to care for new HIV positives increased from 5.2% in June to 78.7% in September 2017 among other services. The increase in services uptake was due to change in working with acceptable demand creation agents coupled with well supported mixed professionals at the supply end.

Conclusions/Next steps: The cascade model of mentorship for mixed cadres proved to be successful in improving health services uptake among FSWs: specific issues related to demand creation approaches. Human resources diversification and on-job support were highlighted for scale up and inform future HIV Prevention framework strategies.
Conclusions: Safe, stable housing support, substance abuse treatment, human connection, restoration of dignity and love were central to women's wellness. This emphasizes the need for more comprehensive and gender-responsive services to support this underserved, socially-marginalized population. We propose an original conceptual model (Fig. 1), with key steps to establish continuous linkage to services for previously incarcerated women—to address unmet needs and support women's long-term post-release adjustment.

Evidence on making task shifting work

THPEE763
Task shifting for point-of-care early infant diagnosis testing: Comparison of error rates between nurses and specialized laboratory trained personnel

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Background: Point-of-care (POC) early infant diagnosis (EID) of HIV allows for sample analysis at peripheral health facility. Unlike conventional testing that requires specialized laboratory personnel, POC EID is near-fully automated and may be operated by non-specialized laboratory personnel. POC EID technologies include internal error controls that detect user errors. High rates of error may suggest inadequate user capacity. To decentralize POC EID, task-shifting to cadres such as nurses is important. We used data from a POC EID project in Zimbabwe to compare the error rates and result return to caregivers for samples run on a POC EID technology (Alere HIV 1/2 Detect) between nurses and lab personnel (MLSc/Techs) to assess user capability.

Methods: All ten sites in Zimbabwe providing POC EID for routine clinical use were enrolled. Two sites are operated by MLSc/Techs, six by nurses, and two by both cadres. Data from December 2016 to June 2017 were reviewed. Error rates were downloaded from each POC EID machine and exported to excel to analyze errors by type of operator. Turnaround time (TAT) from sample collection to issuing of results to caregiver was extracted from the EID test request form and uploaded into an Excel-based database for analysis.

<table>
<thead>
<tr>
<th>Error Category</th>
<th>Testing Cadre</th>
<th>Error Rate</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Errors</td>
<td>MLSc/Techs</td>
<td>7.69%</td>
<td>0.36</td>
</tr>
<tr>
<td>General Errors</td>
<td>Nurse</td>
<td>9.24%</td>
<td></td>
</tr>
<tr>
<td>End User Errors</td>
<td>MLSc/Techs</td>
<td>5.22%</td>
<td>0.38</td>
</tr>
<tr>
<td>End User Errors</td>
<td>Nurse</td>
<td>6.41%</td>
<td></td>
</tr>
</tbody>
</table>

(Table 1: Comparison of error rates in the use Alere Q platform for POC EID by type of operator in Zimbabwe, 2017)

Results: A total of 1,847 tests were conducted by 45 testers (12 MLSc/Techs and 33 nurses), including 165 errors. Overall error rate was 8.93% (95% CI: 7.92-10.0) for MLSc/Techs and nurses, respectively. p=0.36. User error rate was 6.17% (5.22% vs. 6.41% for MLSc/Techs and nurses, respectively. p=0.38). There was no statistical difference between error rates for MLSc/Techs and for nurses. Over time, both cadres’ error rates decreased. 98.75% of results were issued to clients versus 98.92% for MLSc/Techs and nurses, respectively. Over median TAT was same day (Q1=0.05, Q3=0.2) Tests processed by MLSc/Techs had a TAT of one day (Q1=0.05, Q3=0.5) versus same day (Q1=0.05, Q3=0.2) for nurses.

Conclusions: Similar error rates and TAT between nurses and lab-tech operators suggest that non-specialized laboratory trained personnel can perform POC EID equally well as specialized laboratory personnel. Nurse-operated POC EID testing will ensure decentralization and timely return of test results without compromising the quality of testing.

THPEE764
Expert clients are associated with improved client tracing among HIV-positive adults who struggle to engage in ART under Test and Treat in Malawi

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Background: Tracing is an important strategy for promoting ART retention and re-engaging clients into HIV care. However, tracing activities are difficult and time-consuming. The most efficient models for tracing are still unclear. As part of a larger study to examine the impact of the new universal treatment policy (Test and Treat) in Malawi, we examined the effectiveness of client tracing using two cadres: expert clients (ECs: HIV-positive client volunteers) and Health Surveillance Assistants (HSAs: community health workers in Malawi).

Methods: Study staff reviewed medical records at 4 rural sites to identify clients who failed to take-up ART (did not return for their 4-week appointment or non-initiates), and clients who initiated ART but poorly engaged in care (>14 days late for an ART appointment). From November 2016 - May 2017, HSAs traced identified clients to encourage re-engagement in care. HSAs are community health workers primarily responsible for child immunization, disease surveillance, and tracing activities. Expert clients were introduced to sites in May 2017. Expert clients are HIV-positive community volunteers who successfully engage in care and are responsible for assisting with ART appointments, promoting demand-creation for HIV-testing, and client tracing. From June 2017 onward, ECs became the primary cadre responsible for HIV-related tracing. We collected anonymized medical records between November 2016-September 2017 to determine the proportion of clients successfully traced over time. Wilcoxon ranksum tests were conducted to determine if a greater proportion of clients were traced after the introduction of ECs.

Results: A total of 205 and 127 clients were given to HSAs and ECs, respectively. HSAs successfully traced 41% of clients versus 62% by ECs, resulting in a 51% increase with the introduction of ECs (p<0.01).

Facility characteristics and successful tracing outcomes using Health Surveillance Assistants versus Expert Clients in four facilities in Malawi

<table>
<thead>
<tr>
<th>Facility</th>
<th>Type of facility</th>
<th>ART cohort size</th>
<th>Number of HSAs</th>
<th>Number of ECs</th>
<th>Number of clients given to HSAs for tracing</th>
<th>% (N) of clients successfully traced by HSAs</th>
<th>Number of clients given to ECs for tracing</th>
<th>% (N) of clients successfully traced by ECs</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility 1</td>
<td>Rural</td>
<td>1430</td>
<td>50</td>
<td>4</td>
<td>41</td>
<td>21 (51%)</td>
<td>32 (71%)</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Facility 2</td>
<td>Rural</td>
<td>1431</td>
<td>56</td>
<td>8</td>
<td>89</td>
<td>27 (30%)</td>
<td>47 (51%)</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Facility 3</td>
<td>Rural</td>
<td>603</td>
<td>37</td>
<td>4</td>
<td>49</td>
<td>25 (51%)</td>
<td>13 (54%)</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Facility 4</td>
<td>Rural</td>
<td>177</td>
<td>32</td>
<td>4</td>
<td>26</td>
<td>11 (42%)</td>
<td>35 (71%)</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

(Figure 1: Error rates by type of operator over the data collection period)
Similar improvements were seen across gender: HSAs traced 46% of males and 37% of females compared to 64% of males and 60% of females by ECs.

Conclusions: The introduction of expert clients is an effective way to improve successful tracing of HIV-positive clients. Future cost-benefit analyses are needed to guide decision making about integrating a new cadre of ECs across the HIV service delivery system.

THPEE765
Acceptability and effectiveness of lay provider HIV testing among key populations in Vietnam: Results from an intervention evaluation

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Background: Achieving the first go of the 90-90-90 HIV target depends upon successfully reaching undiagnosed people. To meet this goal, Vietnam implemented lay provider HIV testing services (HTS) using the ‘test for triage’ approach through community-based organizations and village health workers. However, local acceptability and effectiveness of this new approach are unknown.

Methods: We conducted operations research involving a cross-sectional survey and analysis of routine program data in two cities of Hanoi and Ho Chi Minh City and two rural mountainous provinces of Nghe An and Dien Bien from October 2015 - September 2017. Acceptability of lay provider HTS was defined as proportion of first-time HIV testers, and effectiveness was measured by HIV positivity and antiretroviral therapy (ART) initiation rates. Univariate and multivariate analyses were used to determine lay provider HTS preference and factors associated with that preference.

Results: Among 1,230 lay provider HTS clients recruited for a face-to-face interview in the survey, 74% belonged to key populations, including people who inject drugs, men who have sex with men, and female sex workers. Most clients (67%) reported being first-time testers, and the majority (87.5%) preferred lay provider HTS over facility-based HTS. Multivariate analysis found that clients who were from urban areas, i.e. Hanoi (OR - 2.89, 95% CI 1.01-8.29) or Ho Chi Minh City (OR - 2.96, 95% CI 1.28-6.89) had a higher probability of being first-time testers. Lay provider HTS yielded a higher HIV positivity rate (4.1%) compared to facility-based HTS (1.6%) and had a high ART initiation rate (91%).

Conclusions: Our findings suggest that lay provider HTS is a highly acceptable approach to reach first-time testers and can be effective at reaching undiagnosed people in Vietnam. This will be a critical addition to accelerating achievement of the 90-90-90 target.

THPEE766
Task shifting and mobile technology for HIV drug-drug interaction screening in Uganda

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Background: Drug-drug interactions (DDIs) in patients taking antiretrovirals (ARVs) are prevalent globally (41-47%), though types of interaction and ability to manage DDIs differ between settings. Data from Uganda show a prevalence of clinically significant DDIs (CSDDDs) of 18.6%. However, assessing DDIs through prescription review alone may underestimate burden. We report on both the prevalence of DDIs in Ugandan outpatients taking ARVs using screening of complete medication history, and on prescriber acceptability and clinical utility of a novel medication safety feedback loop.

Methods: As part of an ongoing longitudinal study (SAPU), trained pharmacy technicians at two diverse clinics obtained detailed medication histories using patient report, clinical notes and prescriptions. Prescribed and purchased medicines from any source were included. Information was transferred via secure mobile upload with tablet devices to an ARV information resource (AIDS Treatment Information Centre), who screened for DDIs using www.hiv-druginteractions.org, and generated medication safety feedback for prescribers. Prescribers documented at baseline whether they were aware of DDIs for each patient. At the next patient clinic visit, prescribers assessed acceptability and clinical utility of the medication safety feedback via an anonymous questionnaire.

Results: Of 300 patients, 259(86.7%) had 12 potential DDIs, with 6% potential DDIs detected. Of these, 191(75%) were CSDDDs, affecting 831(27%), 95%(CI 22.7-33.3) of all patients. At the baseline visit prior to DDI screening, prescribers reported being aware of only 6(2%) CSDDDs. For 249(83%) of the 300 patients, prescribers gave feedback on the medication safety report. Prescribers reported that DDI checks provided new information in 152(61%) cases. Prescribers changed their clinical management for 199(66.1%) DDIs, as a result of the medication safety report. DDI screening saved prescribers time in 164(58.9%) cases and added benefit in 179(71.9), 95%CI 65.9-77.4) cases. A full-time pharmacy technician and pharmacist could screen >3000 Ugandan patients in 12 months, at a cost of 750 USD.

Conclusions: The novel DDI screening and feedback loop was feasible, acceptable to prescribers and added benefit in >70% of cases. DDI screening using patient interview showed CSDDD prevalence ~10% higher than observed with prescription review alone. Longitudinal follow up will inform whether the DDI feedback loop can improve patient outcomes and demonstrate cost-benefit.

THPEE767
Can oral fluid based rapid HIV test facilitated by Frontline health workers provide a feasible option for screening among pregnant women in rural India?

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Background: The importance of knowing HIV status is a key strategy for HIV response and development of effective treatment services. Evidence suggest that introduction of rapid oral based non-invasive HIV testing in community settings is a feasible approach for reaching the vulnerable populations. Shifting the task of HIV testing services aided by FLWs have potential for increased coverage and uptake of HIV screening among pregnant women. Hence, the current study explored the feasibility and acceptability of rapid oral fluid-based HIV testing using the OraQuick® kits conducted by frontline workers (FLWs) among pregnant women living in rural districts of India.

Methods: A feasibility study, using cross sectional design was conducted among 900 pregnant women from two rural districts of India, who consented to be screened for HIV using OraQuick® HIV test. The screening was assisted by trained FLWs and subsequently, participants were sent to the existing government system for confirmatory test results. Qualitative data provided further insights into the FLWs to understand their views regarding the current situation on HIV testing as well as the services available to the pregnant women.

Results: Of 947 pregnant women who were offered to get screened for HIV using OraQuick® HIV test, 95% (n=900) accepted to undergo the test. Of the total 479 pregnant women interviewed, 91.2% liked the OraQuick® kit for HIV screening. The key motivators of accepting the test are easy procedure (43.3%), non-invasiveness (29.3%) and quick access to results (18%). Of the total, 900 pregnant women screened by rapid HIV test- OraQuick®, nine women were found to be HIV positive, which later corresponded with confirmatory test results. Qualitative data provided further insights into the FLWs to understand their views regarding the current situation on HIV testing as well as the services available to the pregnant women.

Results: Of 947 pregnant women who were offered to get screened for HIV using OraQuick® saliva based test, 95% (n=900) accepted to undergo the test. Of the total 479 pregnant women interviewed, 91.2% liked the OraQuick® kit for HIV screening. The key motivators of accepting the test are easy procedure (43.3%), non-invasiveness (29.3%) and quick access to results (18%). Of the total, 900 pregnant women screened by rapid HIV test- OraQuick®, nine women were found to be HIV positive, which later corresponded with confirmatory test results. Qualitative data provided further insights into the FLWs to understand their views regarding the current situation on HIV testing as well as the services available to the pregnant women.
Background: South Africa is undergoing an epidemiological transition with a dual burden of chronic communicable and non-communicable diseases. A pilot Integrated Chronic Disease Management (ICDM) model was initiated in 2011 by South Africa’s National Department of Health in selected primary health care (PHC) facilities. The aim of the ICDM model is to leverage an established HIV treatment programme for non-communicable diseases (NCDs) for better health outcomes of patients with chronic diseases.

This study determined predictors of controlled CD4 count and blood pressure (BP) in hypertension and HIV patients receiving antihypertension medication and antiretroviral drugs, respectively in PHC facilities in the Bushbuckridge sub-district of Mpumalanga province, South Africa.

Methods: This was a panel study to assess the effectiveness of the ICDM model in controlling patients’ CD4 count and BP. Patients ≥18 years were recruited through a three-step sampling process into the ICDM model facilities (n=435) and comparison facilities (n=443) in the Bushbuckridge sub-district. Health outcome data (BP and CD4 counts) for each patient were retrieved from health facility records over 30 months (January 2011 to June 2013). Control of BP and CD4 counts were defined as BP <140/90 mmHg and CD4 counts >350 cells/mm³, respectively. Multilevel logistic regression analyses were conducted to determine predictors of controlled CD4 count and controlled hypertension. Data were analysed using Stata 14 statistical software.

Results: The odds of controlling CD4 count were increased by reception of care at the ICDM model facilities (OR=2.05, 95% CI: 2.77-5.92), but decreased by male gender (OR=0.52, 95% CI: 0.34-0.80). The odds of controlling hypertension were higher with increasing age: 40-49 years (OR=2.07-17.57), 50-59 years (OR=23.17 95% CI: 7.46-72.16), ≥ 60 years (OR=77.48, 95% CI: 25.03-82.26), but decreased by male gender (OR=0.38, 95% CI: 0.21-0.69).

Conclusions: Application of the ICDM model appeared effective in controlling patients’ CD4 counts, but not their BP, hence, the HIV programme should be more extensively leveraged for hypertension treatment in health facilities in the study setting. Health education programmes should target younger males in the study setting.

**THPEE768**

Predictors of controlled CD4 count and blood pressure in an integrated chronic disease management model in a rural South African setting

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**THPEE769**

Substantial hypertension care-seeking costs for patients on ART in Malawi: A survey of patients receiving treatment for HIV at an integrated care site

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1EQUIP Innovation for Health 2University of California, Fielding School of Public Health, Los Angeles, United States 3University of California, David Geffen School of Medicine, Los Angeles, United States, 4Partners in Hope, Lilongwe, Malawi

Background: There is mounting evidence about the clinical and epidemiological connections between HIV and non-communicable diseases like hypertension — yet little is known about the health care experiences of patients with both conditions, particularly in high dual-burden settings where health systems may be ill-equipped to effectively and efficiently provide ongoing care for multiple conditions. This study aimed to quantify the costs of care-seeking for people receiving treatment for both HIV and hypertension in Malawi.

Methods: Data were collected at an urban, PEPFAR-USAID supported HIV treatment site in Malawi that also provides hypertension care, but charges for antihypertensive medicines (ART) is provided for free. Adult patients on ART who were taking at least one antihypertensive were invited to participate in a survey. Data were collected between June and December 2017. Questions included experiences with hypertension care including locations and frequencies of visits, and costs of refills (direct medicine and transport costs, as well as indirect costs such as lost wages).

**Results:** There were 199 survey respondents, of whom 65% were female. The median age was 53, and median duration on hypertension treatment was 4 years. On average, patients reported taking 2 antihypertensive medicines, and making 8-9 refill visits each year. Half of respondents (50.3%) received integrated hypertension-ART care (i.e., medications were refilled simultaneously) at the study site. Among non-integrated patients,
Evaluating the impact of community-based adherence clubs on the clinical outcomes amongst ART patients in the Cape Winelands district of Western Cape Province of South Africa

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1Stellenbosch University, Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Cape Town, South Africa. 2Western Cape Government, Department of Health, Cape Town, South Africa. 3ANOVAGovernment Health Institute. Cape Winelands Health District, South Africa. 4Western Cape Government, Department of Health, Cape Winelands District and Drakenstein sub-District, South Africa

Background: South Africa has 7.1 million individuals living with HIV. Implementing WHO recommendation for lifelong ART regardless of CD4 count for all HIV positive individuals, has resulted in increasing numbers of individuals on ART and increased client burden at health facilities. One consequence has been worse clinical outcomes. Referring stable HIV positive individuals to community-based adherence clubs is one strategy to manage increased numbers of HIV-positive individuals. This study aimed to evaluate the impact of adherence clubs on the clinical outcomes amongst ART patients.

Methods: This retrospective cohort study was conducted in one high HIV burdened health facility in the Cape Winelands district. South Africa. It included individuals aged ≥18 years, who started ART between January 2014 and December 2015. Routine data was extracted from electronic datasets for analysis. Participants were followed up until December 2016. Descriptive statistics and multivariate analysis was used to determine viral load suppression, factors associated with referral to a club and loss to follow up (LTFU).

Results: 695 individuals were included in the study. At baseline, the majority (64.31%) were women, median age was 32 years and median baseline CD4 count was 375 cells/μL. Overall, 184 (39.6%) of participants had a viral load reported, of which 162 (88%) were virally suppressed. Median time to referral to the adherence club was 141 months (IQR 9-39.1 months). The majority of participants reported that ‘clubs’ are empowering (motivated to stay adherent) are effective at decongesting health facilities reduce the burden of work for facility staff require more research to understand patient preferences regarding viral load testing the majority of participants (n=155) were referred to clubs to collect pre-packed medication, but returned to the health facility for a clinical visit every six months. This study enrolled 59 patients and 20 health workers from two ‘clubs’. An electronic self-administered questionnaire comprising closed- and open-ended questions was used to collect data. Descriptive statistics and thematic analysis was used to analyse data.

Lessons learned: The majority of participants reported that ‘clubs’ are best led by counselors, should have 20 patients and take place in a community hall or church. From the patient perspective, ‘clubs’ (Table 1): provide group identity (not alone in living with HIV); empower health workers to tailor their support to individual needs; are effective at decongesting health facilities; reduce the burden of work for facility staff; reduce the burden of work for facility staff; empower health workers to tailor their support to individual needs; Highlighted that ‘clubs’ are labour intensive and teamwork between stakeholders is critical. Good communication between NGO and facility personnel is vital when dealing with challenges e.g. individual patient non-compliance or non-collection of medication.

Conclusions/next steps: Community-based adherence clubs are a cost-effective care model. More research is needed to understand patient preferences regarding viral load testing and the most common refill locations were drug shops and public-sector health facilities (37% and 32%, respectively) - most often selected due to cost and convenience (Figure 1). Patients receiving non-integrated care reported paying approximately 4 times more each year for their antiretroviral refills (50% versus $21/year for patients with integrated care) (Table 1). No significant differences were found for refill patterns or costs in this study population.

Conclusions: We found substantial access barriers - including expensive medicines and high transaction costs - in this population of patients with hypertension who receive free ART care in Malawi. Despite the lower cost of integrated care, half of respondents opted to go elsewhere for antihypertensives. More research is needed to understand patient preferences for non-communicable disease care, and to study efficient and cost-effective care models.

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Conclusions/next steps: Community-based adherence clubs are a cost-effective care model. More research is needed to understand patient preferences regarding viral load testing and the most common refill locations were drug shops and public-sector health facilities (37% and 32%, respectively) - most often selected due to cost and convenience (Figure 1). Patients receiving non-integrated care reported paying approximately 4 times more each year for their antiretroviral refills (50% versus $21/year for patients with integrated care) (Table 1). No significant differences were found for refill patterns or costs in this study population.

Conclusions: We found substantial access barriers - including expensive medicines and high transaction costs - in this population of patients with hypertension who receive free ART care in Malawi. Despite the lower cost of integrated care, half of respondents opted to go elsewhere for antihypertensives. More research is needed to understand patient preferences for non-communicable disease care, and to study efficient and cost-effective care models.

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ant on strong co-ordination of a multidisciplinary team with clear roles and responsibilities with standardized strategies that are specific to the needs and resources of the community.

**THPEE772**

Decentralization of antiretroviral therapy to the family health strategy: Effectiveness of a new delivery strategy for HIV care in Rio de Janeiro, Brazil

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**Background:** In Brazil, antiretroviral therapy (ART) has been historically prescribed by infectious diseases (ID) specialists. In 2014, a new strategy was implemented in the city of Rio de Janeiro to decentralize HIV-care from specialized care to the family health strategy (FHS) in primary care units. HIV-specialists and activists do not fully agree with this decentralized approach. This study aimed to compare the effectiveness of the two ART delivery strategies (FHS versus ID-specialists-based) in primary care units of Rio de Janeiro.

**Methods:** All adult individuals initiating ART between 2014-2016 in any primary care unit of two administrative regions in Rio de Janeiro were included. Electronic medical records were retrospectively reviewed to: (1) check patient eligibility; (2) assess the implemented HIV-care strategy (FHS or ID-specialist-based); and, (3) collect patient data. Lymphocytes CD4+ T cell counts, HIV-1 viral loads (VL), and ART dispensation longitudinal information was retrieved from SISCEL and SICLOM (Brazilian Ministry of Health information systems developed to monitor laboratory and clinical information was retrieved from SISCEL and SICLOM (Brazilian Ministries of Health’s information systems developed to monitor laboratory and clinical information was retrieved from SISCEL and SICLOM). Kaplan-Meier survival curves and Cox Proportional-Hazard models were employed, considering the time until viral suppression as the outcome.

**Results:** Overall, 421 HIV-1-infected individuals were included, 211 (50.1%) had ART prescribed by the ID-specialist-based strategy and 210 (49.9%) by FHS. Mean age (SD) was 36.8 (13.1) and 35.3 (10.8), males were 135 (65.0%) and 152 (72.4%), black or mixed race/ethnicity individuals were 119 (56.4%) and 142 (67.2%), considering ID-specialist and FHS-based strategies, respectively. The log-fold-change of HIV-1 VL before and after ART was not different between strategies. Log-rank test of Kaplan-Meier estimated average time to viral-suppression between strategies was not significant. Viral suppression adjusted hazard-ratios (95% confidence intervals) (aHR) (95% CI) estimated after a multivariate Cox Proportional-Hazard model fitting were not significant between ART delivery strategies, aHR: 0.94 (0.64-1.38), but were significant between age > 50 and < 30 years, aHR: 1.87 (1.06-3.30), and baseline CD4 > 500 and < 200, aHR: 1.70 (1.04-2.78).

**Conclusions:** In real-world settings of primary care units in Rio de Janeiro, FHS and ID-specialist-based ART delivery strategies did not have different virological outcomes. This finding supports the ongoing process of decentralization of HIV-care.

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**THPEE773**

Certification of HIV-care to improve structural and process components in 25 HIV treatment centres in the Netherlands

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**Background:** In the Netherlands, anonymized patient data collected in a national monitoring system provide data on the cascade of care and health outcomes. The medical care for HIV-infected patients is concentrated in 26 HIV treatment centres (HIV-tc). In order to measure and improve the quality of care, the Dutch society of HIV treating physicians (NVHB) decided in 2015 to implement a mandatory nationwide certification programme for HIV-tc.

**Methods:** Up to now twenty five out of 26 Dutch HIV-tc have been audited by an independent external certification organisation (DNV) in a period of three years (2015-2017) to obtain a HKZ certificate. Quality indicators were described by the NVHB. The audit was performed by an independent external audit leader (DNV), together with an infectious diseases medical specialist and a HIV-nurse who had been trained as auditors. After one year, centres were re-audited to verify whether short-comings had been addressed.

**Results:** Thirteen indicators of procedural content and 5 of medical content were evaluated (table 1). Concerning the 5 medical quality indicators, all HIV-tc met the medical criteria. In contrast, procedural criteria were partially met. Especially describing and yearly evaluating goals for improvement of HIV care using a plan-do-check-act (PDCA) cycle was present in a minority of HIV-tc (6/25; 24%). Results did not differ between large, small, academic or non academic treatment centres. Recertification one year later showed a robust improvement in meeting certification criteria (88/90; 98%).

<table>
<thead>
<tr>
<th>Quality indicator</th>
<th>criteria met by % HIV-tc (N=25) at audit</th>
<th>criteria met by % HIV-tc (N=25) at re-audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>mission and vision HIV-tc described</td>
<td>88</td>
<td>100</td>
</tr>
<tr>
<td>concrete goals described</td>
<td>24</td>
<td>90</td>
</tr>
<tr>
<td>organisational structure HIV-tc described</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>job and tasks physicians and nurses HIV-tc described</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>regular multidisciplinary consultation present</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>≥90% HIV RNA &lt; 400 cp/ml after 6 mo of cART described</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>yearly evaluation all quality indicators by HIV-tc</td>
<td>28</td>
<td>86</td>
</tr>
<tr>
<td>improvements in response to evaluating yearly indicators using PDCA</td>
<td>24</td>
<td>90</td>
</tr>
<tr>
<td>symptomatic client seen within 5 working days as recorded</td>
<td>98</td>
<td>100</td>
</tr>
</tbody>
</table>

(Table 1. Percentage of Dutch HIV-tc that met 18 different quality criteria as evaluated at a certification audit and a re-audit one year later.)

---

**Kaplan-Meier viral suppression estimates by ART delivery strategy in Rio de Janeiro, Brazil**

<table>
<thead>
<tr>
<th>ART delivery strategy</th>
<th>aHR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID-specialist vs. FHS</td>
<td>0.94 (0.64-1.38)</td>
<td>0.75</td>
</tr>
<tr>
<td>age in years</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>baseline CD4+ T cell counts</td>
<td>&lt;0.05</td>
<td></td>
</tr>
<tr>
<td>viral RNA &gt; 500 vs. &lt;200</td>
<td>1.70 (1.04-2.78)</td>
<td></td>
</tr>
<tr>
<td>≥200 vs. &lt;200</td>
<td>1.32 (0.81-2.16)</td>
<td></td>
</tr>
<tr>
<td>≥30 vs. &lt;30</td>
<td>1.10 (0.72-1.66)</td>
<td></td>
</tr>
<tr>
<td>≥50 vs. &lt;30</td>
<td>1.87 (1.06-3.30)</td>
<td></td>
</tr>
</tbody>
</table>

(Table 1. Kaplan-Meier viral suppression estimates by ART delivery strategy.)
### THPEE774

**Community HIV care and treatment for female sex workers in Ethiopia: Successful service provision through drop in centers**

**S. Ejigu**, E. Workalemahu, I. Lemma, G. Mamo

1. Population Services International (PSI), MULLU/MARPs, Addis Ababa, Ethiopia; 2. PSI, MULLU/MARPs, Addis Ababa, Ethiopia; 3. PSI, Addis Ababa, Ethiopia

**Background:** Female sex workers in Ethiopia are disproportionately affected by HIV, with a prevalence of 23% (national MARPs survey, 2013, EPHI), compared to a national prevalence of 1.2% (EPHI-2017 national estimates). Linkage to treatment and early ART initiation remains a challenge: only 72% of HIV positive patients are put on treatment. These challenges are magnified among FSW, who face additional barriers to treatment such as stigma and discrimination, and have initiation rates as low as 26%.

**Description:** To improve uptake of ART among FSW living with HIV, the USAID-funded MULLU/MARPs project began offering ART in 25 FSW-friendly drop-in centers (DICs) in October, 2016. DICs are safe hubs for FSW located in hot-spots, and providing integrated behavioural and clinical services including peer support in a “one-stop-shop” format. Along with friendly staffs, these social and integrated clinical services make the DICs friendly, and were hypothesized to reduce the barriers to ART uptake among FSWs.

**Lessons learned:** In the 12 months prior to the roll-out of DIC-based ART delivery, 573 HIV positive female sex workers were identified, of which 510 (89%) were successfully linked to treatment at public health facilities but only 133 (26%) patients were initiated on ART. Between ART roll-out in October 2016 and December 2017, total of 1282 FSWs were identified and out of these 1232 (60%) were linked to treatment at DIC. Including those who are referred from other testing sites A total of 1,612 FSW were enrolled to care, of which 42 (2.6%) transferred out. From the remaining 1570 patients and 1,506 (96%) started treatment immediately at 25 DICs. Among the 305 patients with viral load test results available, 92% had VL < 1000 copies/ml. 12 month retention rate was 92%.

**Conclusions/Next steps:** Providing community ART service at DICs tailored to the needs of FSWs improves linkage, initiation to treatment and viral suppression compared to referral to public health facilities. These improvements contribute to progress in achieving the second and third 90s in Ethiopia. Convenient, confidential, and FSW-friendly services such as those offered in the DICs are a successful strategy for implementing community ART service provision.

### Integrating mental health and wellness in HIV programming

**THPEE775**

**Barriers and facilitators to implementation of trauma-informed care services at a large, urban HIV treatment center in the Southern United States**


1. Emory University, Rollins School of Public Health, Global Health, Atlanta, United States; 2. Emory University, Rollins School of Public Health, Behavioral Sciences and Health Education, Atlanta, United States.

**Background:** The high prevalence of trauma and its negative impact on health and health-promoting behaviors in HIV-infected populations underscore the need for tailored, integrated trauma screening and management within HIV services “trauma-informed care” or TIC to improve retention, adherence to therapy, and overall physical and mental well-being. Little is known about provider and staff attitudes towards implementation of TIC in HIV services.

**Methods:** To gather information on the current level of TIC services and barriers and facilitators to enhancing TIC delivery, survey assessments (N=31) and in-depth interviews (N=19) were conducted with staff and providers, between March-August, 2017. Between large urban HIV treatment center that serves a largely uninsured, low-socioeconomic population in the southern US. The assessment included items on current TIC services. A 0-3 scale strongly disagree to strongly agree, mean item scores ≥ 2 indicated strong consensus about the availability of this service and mean item scores ≤ 2 indicated consensus on its absence. Interviews were coded using NVivo.

**Results:** Staff scored ≥ 2 for 8/8 survey items, indicating high perceived availability of TIC services, while providers scored < 2 for 5/8 survey items, indicating perceived gaps in current TIC services (see Table). Interviews highlighted the availability of several trauma-related services, including counseling, support groups, and educational courses, but also described the lack of an overarching TIC framework at the center. Providers and staff received little to no training on how to understand, recognize, and respond to patient-reported trauma. Further, providers and staff supported implementation of organization-wide TIC procedures and employee trainings to improve the delivery of services to patients with trauma histories, and believed the center had capacity to provide TIC, but were concerned time and resource constraints could hinder implementation. Other concerns voiced by providers included personal discomfort with discussing trauma, limited knowledge regarding support service offerings, and skill deficiencies in responding to trauma.

<table>
<thead>
<tr>
<th>Availability of TIC Services Survey Items</th>
<th>Provider (N=14) Mean</th>
<th>Staff (N=17) Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The center provides opportunities for care coordination for services not provided within that organization.</td>
<td>1.7</td>
<td>2.5</td>
</tr>
<tr>
<td>2. The center educates patients about traumatic stress and triggers</td>
<td>0.9</td>
<td>2.3</td>
</tr>
<tr>
<td>3. The center has access to a clinician with expertise in trauma and trauma-related interventions (on-staff or available for regular consultation).</td>
<td>1.7</td>
<td>2.5</td>
</tr>
<tr>
<td>4. The center provides opportunities for patients to receive a variety of services (e.g. housing, employment, legal and educational advocacy, and health, mental health and substance abuse services).</td>
<td>2.4</td>
<td>2.6</td>
</tr>
<tr>
<td>5. When mental health services are needed (i.e. individual therapy, group therapy and/or family therapy), the center refers patients to counseling.</td>
<td>2.4</td>
<td>2.6</td>
</tr>
<tr>
<td>6. The center provides opportunities for patients to express themselves in creative or nonverbal ways (i.e. art, theater, dance, movement, music).</td>
<td>2.1</td>
<td>2.3</td>
</tr>
<tr>
<td>7. Written safety plans (i.e. what a patient and staff members will do if the patient feels threatened by another person outside of the center) are incorporated into patients’ individual goals and plans.</td>
<td>0.9</td>
<td>2.3</td>
</tr>
<tr>
<td>8. Each patient has an individualized written crisis prevention plan (i.e. for how to help manage stress and feel supported) which includes a list of triggers, strategies and responses which are helpful and those that are not helpful and a list of persons the patient can go to for support.</td>
<td>0.8</td>
<td>2.1</td>
</tr>
</tbody>
</table>

(Table 1)
Conclusions: This comprehensive assessment revealed strong staff and provider support for strengthening TIC within HIV treatment services. Future implementation efforts should address service gaps, overcome identified barriers to TIC, and equip staff and providers with the knowledge and skills to better respond patients’ trauma needs.

THPee776
Empowerment is a key factor in wellness and healing for women living with HIV who have experienced lifetime trauma

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Background: Lifetime trauma (child abuse, gender based violence, poverty, racism, and other forms of structural violence) can drive women’s risk for acquiring HIV, and for poor health outcomes among women living with HIV (WLHIV), even in the setting of viral suppression. As part of a project to integrate a response to trauma and promote healing for WLHIV, we conducted an exploratory analysis to identify factors that may be amenable to interventions to improve the lives of WLHIV who have experienced trauma.

Methods: We enrolled 104 WLHIV in a prospective study and measured structural and demographic factors (Adverse Childhood Experiences, trauma history, housing, and food insecurity); factors that could change with intervention (PTSD, anxiety and depression symptoms, prescribed and illicit substance use, stigma, and empowerment), and biological outcomes-abstracted from medical record (viral load). Focusing on two main outcomes of interest (quality of life/wellness and undetectable viral load), we conducted hierarchical regression analyses in two blocks: structural/demographic factors and factors amenable to intervention.

Results: Almost all (97%) participants had experienced trauma. Women with higher empowerment scores had significantly better quality of life (coef 5.71, 95% CI 1.68, 9.76, p = 0.006), while those with higher depression scores had significantly worse quality of life (coef -0.70, 95% CI -0.89, -0.51, p = 0.001). White women (AOR 15.5; 95% CI 1.5, 156.6, p = 0.02) and women with stable housing (AOR 7.4; 95% CI 1.7, 31.5, p = 0.01) were significantly more likely to have an undetectable VL, while women with higher stigma (AOR 0.3; 95% CI 0.1, 0.8, p = 0.01) and with positive drug abuse screens (AOR 0.4; 95% CI 0.2, 0.8, p = 0.008) were significantly less likely to have an undetectable viral load.

Conclusions: These data suggest that integrating trauma-informed approaches that increase empowerment and reduce depression symptoms could improve quality of life and wellness for WLHIV. While having an undetectable viral load is significantly affected by structural factors such as race and stable housing, it may also be amenable to change through clinical interventions that address substance use and stigma. Implementing trauma-informed primary care may help HIV clinics better address factors such as stigma, substance use, depression, and empowerment for WLHIV.

THPee777
How does disclosure of parental HIV impact children in sub-Saharan Africa?

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Background: In Western countries, children who do not know their parent’s HIV positive status experienced increased problem behaviors and negative mood over time. However, the robustness of the finding between disclosure and family outcomes has not been established in sub-Saharan Africa where the largest number of families living with HIV resides. This study examines the mental health and risk outcomes for the children in these families.

Methods: A total of 332 families were recruited from 18 medical and ARV clinics in rural Zimbabwe. Families included one HIV positive primary guardian and one child 10 - 17 years of age who is unaware of the parent’s HIV status. Families were randomized to receive an intervention that encouraged disclosure or control group. Parent and child completed culturally appropriate surveys in their local language that included emotional distress, depression, anxiety, family relationships, and risk behaviors at baseline, 3-, 6-, 12- and 18-months. Using mixed effects regression models, we compared family outcomes for all families in which a parent disclosed their status by the 3-month follow-up to families where disclosure did not occur.

Results: Parents were mostly biological parent (76%, 18% were grand-parents), were a mean age of 43 ± 4 years (SD - 9.99), 80% female, mostly married (95%) or widowed (5%), with a mean of 2.83 children (SD - 1.32). Children were 54% boys and a mean age of 12.73 (SD = 1.89). At 3 months, 71% of intervention and 25% of control parents had disclosed their HIV status. Children who were disclosed to reported significantly fewer delinquent behaviors and more family openness. For parents who disclosed, they reported significantly higher social support, lower mental health symptoms, lower distress, lower anxiety, and lower depression.

Conclusions: Parental disclosure appears to be a healthy choice for families with adolescent children. Disclosure likely provides opportunity for children to support their parent’s health care needs and supports a climate of open discussions within the family. Unlike prior studies, children who are unaware of their parent’s HIV status do not report high levels of mental health problems, negative externalizing behaviors or risky sexual and substance use behaviors.

THPee778
Impact of male involvement beyond PMTCT: Male partner practical support improves maternal mental health in rural Zimbabwe

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Background: Zimbabwe has an HIV prevalence among women in antenatal care of 16.1% and HIV is the leading cause of maternal death. Male partner involvement during pregnancy is associated with improved PMTCT uptake and outcomes. While there is evidence that male involvement is associated with improved maternal mental health, this is rarely a focus of male involvement strategies. Our objective was to examine the influence of male partner practical support upon maternal mental health outcomes.

Methods: A cross-sectional baseline survey was conducted June-August 2016 for a community-based health program in rural Mutasa District, Zimbabwe. Trained non-clinical female enumerators administered the survey in eight health facility catchments with women who had given birth in the previous six months. The questionnaire included a Shona-language Edinburgh Postnatal Depression Scale (EPDS), previously validated in Zimbabwe, and questions about male partner practical support during pregnancy, birth and after birth. Survey data was analysed with Stata 13.0, adjusted for clustering effects.

Results: Among 459 women enumerated, mean age was 25.5 years and mean number of children 2.4. Using the validated EPDS cut-off of 11. 28.8% (95% CI 24.6-32.9) of women reported symptoms of clinically significant depression and anxiety, while 18.7% (95% CI 14.0-23.4) reported thoughts of self-harm. Mean EPDS score was 7.8 (95% CI 7.1-8.2) out of 30. Across the items of male partner practical support assessed, there was no difference in level of support provided to HIV positive and HIV negative women. However, multiple items of practical support from male partners including assistance with food preparation, household chores, and childcare were significantly associated with improved maternal mental health out-
comes related to postnatal depression and anxiety, and recent suicidal ideation among all women (Table 1).

Conclusions: Male involvement in maternal and child health is increasingly recognized as a component of PMTCT strategy in high prevalence settings, with a focus on increasing couples’ uptake of HIV testing during pregnancy. We demonstrate that, among vulnerable, rural women in a high prevalence setting, male involvement also improves mental health outcomes. Investment into programs that meaningfully engage men in maternal, newborn and child health, including PMTCT, can benefit maternal mental health as well as HIV outcomes.

<table>
<thead>
<tr>
<th>Male partner support item</th>
<th>Clinically significant symptoms of depression and anxiety, OR (95% CI)</th>
<th>Recent suicidal ideation, OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helped to obtain or prepare special foods in pregnancy</td>
<td>0.61 (0.45, 0.82)**</td>
<td>0.45 (0.27, 0.75)**</td>
</tr>
<tr>
<td>Encouraged woman to rest in pregnancy</td>
<td>0.45 (0.32, 0.66)**</td>
<td>0.30 (0.19, 0.48)**</td>
</tr>
<tr>
<td>Accompanied woman to ANC clinic</td>
<td>0.69 (0.45, 1.06)</td>
<td>0.75 (0.46, 1.23)</td>
</tr>
<tr>
<td>Accompanied woman to place of birth</td>
<td>0.56 (0.29, 1.06)</td>
<td>0.64 (0.39, 1.23)</td>
</tr>
<tr>
<td>Financial support for birth</td>
<td>0.34 (0.19, 0.59)**</td>
<td>0.21 (0.12, 0.34)**</td>
</tr>
<tr>
<td>Assists with bathing, dressing, holding or playing with the baby</td>
<td>0.67 (0.47, 0.95)**</td>
<td>0.54 (0.37, 0.78)**</td>
</tr>
<tr>
<td>Assists with household chores</td>
<td>0.61 (0.44, 0.85)**</td>
<td>0.45 (0.32, 0.66)**</td>
</tr>
<tr>
<td>Encourages breastfeeding</td>
<td>0.63 (0.44, 0.90)**</td>
<td>0.37 (0.21, 0.66)**</td>
</tr>
</tbody>
</table>

* Significant at p<0.05 ** Significant at p<0.01

Table 1: Association between male partner practical support and maternal mental health

**Partnerships involving donors, NGOs, and government**

**THPEE779**

Lahore first MSM organization get recognition with National AIDS control program of MSM issues in HIV epidemic

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Background: Homosexuality is breach of Law and Illegal in Pakistan. If some male is engaged in male to male sex can result up to 100 lashes, and imprisonment up to 10 years. MSM/Gay are hidden. Extremely stigmatized in Pakistan. Up till now there are very few HIV prevention programs for MSM in Pakistan and there is no recognition on National and Provincial levels of MSM people. As a result in recent IBBS report the HIV infection among MSM sex workers is 3.2%.

Description: Under Global funds R9 south Asia regional project developed Dostana in 2012. Dostana is the first community based organization in Lahore Pakistan providing Technical, institutional support for improving health and human rights of MSM in Lahore Punjab. And providing HIV testing services. Behavior change communication and STI diagnosis and treatment in Lahore for MSM community. Dostana provides a strong platform for MSM population in Lahore through advocacy with Government bodies like Punjab AIDS control program. National AIDS control program in their HIV response. Dostana Male Health Society registered more than 35,000 MSM since July-2012, and distributed more than 550,000 condoms & Lubricants and tested HIV MSM more than 4000 cases. Tested HIV MSM more than 800 cases and Diagnosed & Treated more than 6500 cases of sexually transmitted infections in community led Clinic. Organized training’s and trained more than 70 health care providers during 2016 & 2017 and been a part of with GOVT to propose community based testing and prevention of HIV programs in Pakistan in National concept note.

Lessons learned: Working with MSM population in Lahore Pakistan is a difficult & challenging task. Dostana staff in office and field work has been harassed, discriminated and beaten by the public by police and other people. Several times Dostana office is raided by police.

Conclusions/Next steps: Dostana provide services via personal network in MSM community and referrals. By advocating with National AIDS control program and Provincial AIDS control program & Civil society Dostana will be able to provide more suitable environment for MSM population to learn more about HIV, sexual health and human rights issues in Islamic republic of Pakistan by doing reduce the impact of HIV.

**THPEE780**

Innovative grant governance mechanism: Civil society ensuring transparency & accountability

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Background: In 2016 the Global Fund (GF) approved a Concept Note by Caribbean Civil Society (CSCO) partners led by Caribbean Vulnerable Communities (CVC). As a regional organization CVC was not required by the GF to establish a Regional Coordinating Mechanism (RCM) for grant oversight. However, CVC did set up a Technical Advisory Group (TAG), and empowered it to function as an RCM to ensure accountability. The TAG was designed to embody ‘the core principles of good governance’ of the GF and to ‘ensure participation of multiple stakeholders’. The TAG governance manual was developed to conform with GF guidelines for CCMs. Members include regional KP networks, CSO and academic partners. PANCAP representing the governments of the CARICOM, and UN Agencies.

Description: With its funding approved in the grant, the TAG became operational in February 2017, electing a Chair and Vice-Chair, developing and approving a Governance Manual and nominating members. CVC Board’s approved the manual, the selection of officers and confirmed the TAG’s legal status as a Sub-Committee of CVC’s Board. The TAG has organized itself into different working groups including a Transition Working Group overseeing a responsible transition of PR from UNDP to a regional CSCO entity. An Oversight and Monitoring Committee ensures accountability for all grant related activities from the PR and SRs. The CSCO and regional network TAG members have made significant input into meetings and have worked hard to ensure that GF principles are brought to bear on the delivery and oversight of the grant.

Lessons learned: The TAG’s role as primary accountability mechanism to which the Principal Recipient (PRR) would report faced initial resistance from the PR; the UNDP. With support from the GF FPM, the grant owners and TAG members insisted on recognition of its accountability role, and the TAG’s inclusion in decision making for the grant is now accepted by the PR.

Conclusions/Next steps: The TAG is currently overseeing the first proposed transition of a PR from an International Development Partner to an indigenous Caribbean CSO. We believe that the TAG could serve as an innovative, effective and sustainable model of grant governance, ensuring oversight and accountability for regional grants.

**THPEE781**

Towards resilient health systems through government centred partnerships using a culture change model: A paradigm shift in the Malawi southern region

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Background: The Malawi public healthcare landscape is characterised by a multiplicity of challenges, chief being the high burden of disease, high attrition of skilled healthcare professionals, ill-equipped leadership at district and zonal levels and increased pressure on limited resources. Focus of interventions has been mainly biomedical, with little emphasis placed on developing public sector managers’ leadership and management capabilities.
THPEE783

Providers in private practices are indispensable to achieving the targets for triple 90 in HIV epidemic control. Experiences from Private Health Sector Project in Ethiopia


Background: In Ethiopia, only 60% of people living with HIV (PLWH) know their HIV status and 62% of PLWH are receiving anti-retroviral treatment (ART). To address these gaps and achieve UNAIDS 90-90-90 targets, the government is implementing a catch-up initiative. To support this initiative, the USAID-funded Private Health Sector Project (PHSP) is engaging seven private health facilities to deliver quality affordable HIV services in seven regions throughout Ethiopia using Public-Private Mix (PPM) approaches.

Description: PHSP provides technical assistance, including training, mentoring, supportive supervision, quality assurance including monthly performance monitoring, and ensuring supply of commodities and tools to 242 private health facilities. 75/242 of the facilities provide ART and 167/242 of the facilities refer diagnosed HIV clients to facilities where ART is provided.

Lessons learned: From October 2016 to September 2017, the facilities provided HIV Testing Service (HTS) to 270,274 (59.1% female) people and identified 7,233 (56.1% female) new HIV clients. The HIV positivity was 2.7% (2.6% in female vs 2.9% in male, p < 0.0001). The contribution of PITC, VCT, PMTCT, and TB to HTS were 58%, 32%, 10% and 1%, respectively. The HIV positivity was 3% from PITC, 2.5% from VCT, 1.1% ANC/PMTCT, and 13.2% from TB. HIV positivity by age categories were 2% (< 15yr), 1% (15-24 yr), 3% (25-49 yr) and 4% (≥50 yr). Only 25.8% (1,864/7,233) HIV-infected clients were initiated on ART and the rest (74.2%) were referred to public health facilities.

PHSP introduced a linkage confirmation mechanism to help providers confirm linkage to ART through telephone calls to clients and health facility staff or by receiving written referral feedback. This strategy improved the linkage confirmation rate from 54% at the end of September 2016 to 83% by September 2017.

Conclusions/Next steps: Based on these findings, engaging private health facilities is essential to achieve 90-90-90 targets to reach HIV epidemic control. Furthermore, the high positivity rate indicates that high-risk populations may prefer private health services and requires further analysis to better understand preferences for accessing HIV care and treatment.

J. Mwangi, J. McCutcheon, C. Barbo, E. Easley, F. Harris

JSI Research & Training Institute, Inc. (JSI), Boston, United States

Background: When determining whether to bid on an HIV program, organizations consider factors such as feasibility and scope alignment with their mission. Organizations often overlook the appropriateness and sustainability of their approach, likelihood of buy-in, and resources necessary to coordinate effectively within existing national structures.

Description: Under the US Department of State/PEPFAR-funded DREAMS Innovation Challenge Funds Manager grant, JSI Research & Training Institute, Inc. (JSI) supports 46 implementing partners (IPs) across ten African countries to decrease vulnerability of adolescent girls and young women to HIV. JSI has learned several lessons about the importance of prioritizing local, national, and international stakeholder coordination as a key determinant of programmatic success. JSI’s practical experience in HIV programming, stakeholder management, and system strengthening has value for donors, implementers, and other stakeholders.

Lessons learned: JSI found several areas to be critical for success of IPs working in these countries. Key considerations will be identified related to: priorities of various sectors and levels of government; donor landscape and priorities; existing local IPs (public, private, NGO); and formal and informal referral systems. Our multi-country experience enables us to present comparisons and contrasts across and within countries. Specific lessons that should be considered include the need to share work plans and budgets with national, and often subnational governments; regularly participate and contribute to technical forums and annual country operating plans; and report into existing government and donor reporting systems, requiring IP indicators to be established to meet donor, government and IP specifications. For example, in Kenya, where the governance system is devolved, reporting and attendance at coordination meetings is required both at national level and in every county that DREAMS was operating; whereas the IPs in Uganda report into one platform which is accessible to national and regional governments.

THPEE782

Redefining partnership: The importance of coordination in HIV implementation programs

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JSI Research & Training Institute, Inc. (JSI), Boston, United States

Background: Strengthening the healthcare system to produce measurable and sustainable results requires:

- Human asset development that shifts emphasis from hard skills (technical) to the so-called soft skills (human)
- Shifting mind-sets from deficit to asset based thinking
- A culture of ‘home-grown’ innovations that are based on people’s experience in HIV programming, stakeholder management, and system strengthening has value for donors, implementers, and other stakeholders.

Conclusions/Next steps: This presentation will illustrate the ongoing evolution from donor- and IP-focused approaches, to ones centered on beneficiary needs and filling gaps in existing country systems. The information will be useful in rethinking what partnerships mean and building more sustainable and effective models.
vative HIV/AIDS care and treatment. Limited workforce capacity also hinders the country’s efforts to increase its number of accredited labs and their diagnostic capabilities.

Description: American International Health Alliance (AIHAI), the Kenya Ministry of Health’s (MOH) National Public Health Laboratory Services (NPHLS), and the University of Texas Medical Branch are implementing an in-service training program designed to upskill biomeds in equipment maintenance and repair targeting laboratory equipment supporting HIV diagnostics. With support from President’s Emergency Plan for AIDS Relief (PEPFAR) and U.S. Centers for Disease Control and Prevention in Kenya, the project focuses on NPHLS labs and 17 county/sub-county facilities in 10 high HIV burden counties. AIHAI trained 19 biomeds and 6 TOTs to step down training to new counties as the project expands to ensure sustainability and increased local capacity.

Lessons learned: In 2017, NPHLS conducted a rapid response intervention (RRI) to prepare 43 labs for accreditation. Biomeds trained in the initial project counties performed routine servicing and verification of 385 pieces of equipment in labs, a function formerly outsourced at high cost. At the beginning of the RRI, 24 labs scored ≥3 star rating using the WHO SLIPTA checklist; at the end of the RRI process, 18 advanced to ≥2 star rating, but at the end of the RRI 12 labs scored ≥3 star rating with a big component on equipment management.

Conclusions/Next steps: Biomeds play a vital role in Kenya’s sustainable approach toward attaining laboratory accreditation and reaching global 90-90-90 treatment targets. This comprehensive program has built Kenya’s lab capacity, decreased costs, increased quality of labs across the country, and can be readily replicated in other countries.

THPee785
Nutrition status of PLHIV in drought-affected regions of Kenya

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Background: With Kenya classified as a UNAIDS fast track country and with the fourth largest HIV burden globally, progress has been made in reversing the HIV trend in Kenya but new HIV infection still occurs among young people and key populations. HIV response in ASAL areas remains a concern due to the paucity of information on the impact of drought-related shocks on PLHIV. Gaps persist in the prevention of mother to child transmission, antiretroviral treatment coverage, coverage, distribution of health facilities and personnel. The study aimed to establish the effects of drought on nutrition and wellbeing of PLHIV.

Methods: A mixed methods research approach was used in data collection, including surveys and qualitative research. The survey comprised of children aged 2 to 14 years and adult men and women, the sample size was 424 for each county. The levels of malnutrition were assessed using BMI and Z scores. Data analysis was conducted using SPSS v24.

Results: Global and Severe Acute Malnutrition were 24.3% and 8.3% respectively. Underweight and stunting was 35.4% and 45.8% respectively. A significant change was observed in nutritional status of children from enrolment to the present. The mean (SD) stunting Z score increased from -1.34 (2.09) to -1.75 (2.12); underweight reduced from -1.73 (1.48) to -1.60 (1.40) while wasting mean Z score reduced from -1.37 (1.86) to -0.83 (1.81). Prevalence of underweight in children aged 2-14 years was 25%; BMI for age score was 0.4 (1.6). Prevalence of underweight in adults was 30.2%. More males (41.7%) were underweight compared to females (26.1%).

Conclusions: Acute Malnutrition is highly prevalent among PLHIV in drought-affected semi-arid and arid lands. Problematic gaps in nutrition and food support between humanitarian and HIV sectors exist. Family food support in PLHIV households should be planned for and costed as part of HIV programming during a drought in ASAL areas. The CCCs should mimic the humanitarian response during drought to achieve treatment goals for PLHIV.

THPee786
CheckME™: An integrative Smartphone app for HIV/STI prevention and sexual health promotion tailored for MSM in Portugal

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Background: Smartphone apps for HIV/STI prevention in MSM are promising yet scarce, hence the recommendation from ECDC to its development and use. CheckME™ is an app tailored for MSM in Portugal, including for PLHIV, and aims to increase their sexual health literacy and health-seeking behavior.

Description: CheckME™ integrate services such as sexual health info, HIV risk self-assessment tool, HIV/STI prevention and harm reduction services map, health-related checkups reminders, sexual partners record, partner notification and venues map. It was developed by GAT in partnership with AHI and Coalition Plus with the support of the Directorate-General of Health. Critical steps: MSM-led project, focus groups to assess acceptability and added value services, benchmarking of related apps, content development linking health professionals and peers, app for both iOS and Android Smartphone’s system, MSM app 8-testers group and marketing plan connecting community and institutional partnerships.

Lessons learned: From July to December 2017, CheckME™ counted 4303 downloads. It can promote health information-seeking behavior (310 did an HIV risk self-assessment) and health-seeking behavior (456 click in the prevention map to call testing/harm reduction sites) and it offer an acceptable venue to store sexual health self-management data (169 used the calendar for medical appointments and/or medication).

Conclusions/Next steps: CheckME™ followed existing recommendations and acceptability data, promoted community participation and partnerships. CheckME shows potential for high uptake in the MSM community, and the wide array of functionalities makes it an easily accessible prevention, personal health monitoring and health connection tool. Community involvement in the design of the app facilitates uptake by providing a mix of health related functions and community suggested functionalities, and should be considered when developing similar tools. Continuous feedback will allow the app to maintain its relevance and foster further adoption by the community.

THPee787
Building effective partnerships to achieve the 90-90-90 treatment targets: Lessons in advocacy from Uganda

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Background: Uganda was one of the first countries to register significant achievements against the HIV/AIDS epidemic—but there are still thousands of new infections each year. The 90-90-90 treatment targets provide a framework for realizing the Presidential Commitment to end HIV/AIDS by 2020, yet gaps in human resources for health (HRH) and inadequate funding threaten progress. USAID Advocacy for Better Health (ABH), implemented by PATH and Initiatives Inc., has built successful partnerships to advocate for increased domestic financing and retention of skilled workers—both essential in meeting 90-90-90 targets.

Description: In 2017, the Ministry of Finance proposed a 30% cut to the national health budget. ABH convened more than 20 civil society partners to highlight expected impacts on service delivery; develop a position paper, and host discussions with the Parliamentary Committee on Health. With the support of Parliament, cuts were averted. ABH has also forged partnerships to protect the health workforce. Advocates realized the HRH gap—estimated at 25,000—would be exacerbated if government failed to absorb 2,000 PEPFAR-contracted staff into public service. ABH and IntraHealth convened six government ministries, Parliamentarians, hospital directors, donors, and civil society organizations to form a
multi-sectoral task force, chaired by the Ministry of Health (MOH). The task force completed a detailed analysis of PEPFAR staff and developed a roadmap for absorption, to which the MOH committed.

**Lessons learned:** Through partnership, ABH has turned policymakers into champions. The project has spent significant time cultivating relationships with Parliamentary caucuses and committees and has become a trusted source on health issues. ABH also provides platforms for civil society and people living with HIV to engage in national-level policy conversations, whose voices can galvanize policymakers. Finally, complex policy problems often require action from a number of government ministries. ABH was able to accelerate HRH solutions by establishing a coordinating mechanism and facilitating joint planning.

**Conclusions/Next steps:** The partnerships advanced by ABH demonstrate the importance of demand-side interventions—namely advocacy and accountability efforts—in addition to service delivery. Both are required to realize the goal of an AIDS-free Uganda. ABH will continue to work with partners and champions to hold government accountable for meeting 90-90-90 treatment targets.

### THPEE788

**Effectiveness of synergy of HIV prevention and National Hepatitis C Elimination programs in Georgia**

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3. National Center for Disease Control and Public Health, Tbilisi, Georgia

**Background:** HIV and HCV remain significant public health challenges in Georgia. The most affected risk groups for both infections are PWIDs. Prevalence of HCV in PWIDs that varies between 50-92% illustrates high magnitude of the problem. HCV screening was accessible in harm reduction programs since 2006, but due to high cost the treatment was not affordable, especially for key populations. Accordingly no diagnostic and linkage to care services existed in harm reduction programs. Government with support of Gilead Pharma and CDC Atlanta started National HCV elimination program in 2015. Strict drug policy represented additional barrier for the program.

**Description:** In order to react proactively towards its new role for the hepatitis C elimination, GHRN has developed new targeted interventions which were aligned with HIV prevention interventions supported by the GFATM HIV program. The emphasis was placed on increased HIV/HCV tandem screening of PWID population through expanding outreach capacities of the program. For avoiding stigma and self-stigma factors HCV testing was offered to general population as well. Mobile ambulato ries expanded the program coverage to 55 cities allowing testing of additional 7536 PWIDs in 2017. Case managers that were mostly people living with viral hepatitis were ensuring linkage of screening positive PWIDs to HCV treatment sites.

**Lessons learned:** New model practices allowed 2 times increasing the number of PWIDs tested for HCV in 2016 (26,025) in comparison to 2014 (12,401). 42.6% of testing was conducted through outreach testing by mobile ambulato ries. 10.2% PWIDs were referred to HCV treatment sites. HCV education module was included to existing Peer Driven education program, flyers and brochures about HCV were delivered. At harm reduction sites more emphasis was done on increasing HCV disease awareness, delivering free RNA diagnostic and treatment adherence support.

**Conclusions/Next steps:** Capacities of the harm reduction programs can effectively be used for early detection, linkage to treatment services for HCV positive PWIDs. Strong Integration between HCV and HIV programs ensures cost-effectiveness of both interventions. Unified screening and treatment databases are critical for success of the elimination program. Besides, initiation of HCV national program enabled initiation dialogue with Police officials to smooth attitude to harm reduction programs.

### THPEE790

**Methadone maintenance therapy uptake, retention, and linkage for people who inject drugs transitioning from prison to the community in Kyrgyzstan:**


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5. AIDS Foundation East - West in the Kyrgyz Republic, Chairperson, Bishkek, Kyrgyzstan
6. Yale University School of Medicine, New Haven, United States

**Background:** In Eastern Europe and Central Asia (EECA), the HIV epidemic is accelerating, fueled by people who inject drugs (PWID) and concentrated in prisons. In Kyrgyzstan, 35% of prisoners are PWID, and 10% have HIV. Kyrgyzstan was the first country in EECA to provide metha done maintenance therapy (MMT) in prisons for HIV prevention. Official criteria for MMT prescription in prisons were being 28yo+, having an opioid dependence diagnosis (consistently having > 3 ICD10 symptoms like injection marks, opioids in urine during the previous year), and willing to participate. We assessed this program for: 1) MMT uptake and retention in prison; and 2) linkage to MMT upon release.

**Description:** Patients initiating MMT must be ≥18 years and opioid dependent. De-identified administrative data for PWID in Kyrgyzstan who had ever initiated MMT in prison from 2008-2014 were analyzed for MMT uptake and retention. Only participants (9.9%) of the estimated (by biobehavioral survey) 2,670 prisoners PWID (before/after prison) were receiving MMT. Most MMT clients were men (97%) in their late 30s (Mean=38 years). Mean daily maximum (72mg) and last (43mg) MMT dose was low with mean treatment duration-8 months. Almost half (46%) discontinued prison MMT voluntarily or because they violated the MMT contract in-prison. Over the six years of observation, 22% (n=198) of prison MMT participants were released from prison, of whom 26% (n=52) and an additional 30% (n=59) linked to community MMT within 7 days and 90 days, respectively. Pre-release MMT dose ≤80 mL/day was an independent correlate of linking to community MMT post-release (aOR=1.9; 95%CI=1.1-3.3).

**Lessons learned:** From 2008-2014, 916 prisoners initiated MMT. At end-of-year 2014 ≥15% of the estimated (by biobehavioral survey) 2,670 prisoners PWID (before/after prison) were receiving MMT. Most MMT clients were men (97%) in their late 30s (Mean=38 years). Mean daily maximum (72mg) and last (43mg) MMT dose was low with mean treatment duration-8 months. Almost half (46%) discontinued prison MMT voluntarily or because they violated the MMT contract in-prison. Over the six years of observation, 22% (n=198) of prison MMT participants were released from prison, of whom 26% (n=52) and an additional 30% (n=59) linked to community MMT within 7 days and 90 days, respectively. Pre-release MMT dose ≤80 mL/day was an independent correlate of linking to community MMT post-release (aOR=1.9; 95%CI=1.1-3.3).

**Conclusions/Next steps:** In the only evaluation of MMT within prison in EECA, the MMT coverage and retention on treatment should be increased for HIV prevention needs with considerable room for improvement. Interventions to increase coverage should include behavioral interventions like screening, brief intervention and immediate treatment (modified SBIRT) with MMT to improve uptake (i.e., acceptability) and quality prescribing of higher MMT doses to improve retention, especially to ensure better continuity of treatment and HIV prevention post-release.

### Public-private partnerships

**Role of partnership in the Accelerating Children’s HIV/AIDS Treatment Initiative (ACT) initiative**

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3. Avert, Brighton, United Kingdom

**Background:** Partnership between funders plays a vital role in tackling the AIDS epidemic. But how do partnerships form, how is value leveraged and maximized, and how can partnerships achieve policy change? These questions will be explored through the specific example of the Accelerating Children’s HIV/AIDS Treatment Initiative (ACT), an ambitious public private partnership which successfully scaled up access to pediatric treatment in nine African countries over two years.
**THPEE791**

**Dating app and HIV – making possible an international partnership within the Brazilian government**

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**Background:** The Ministry of Health of Brazil (MoH) was contacted by the international dating app Hornet, focused on gay, bisexual, and other men who have sex with men (MSM), and this initiative resulted in the Close Certo project - a no-costs partnership during Rio2016 (Olympics and Paralympics games), that included UNAIDS and UNESCO among others. Along with the reached goals, many lessons from this were left in terms of how to make an international partnership with dating apps possible.

**Description:** The project involved 18 young gay men volunteers. They labeled their online profiles on Hornet to chat on HIV prevention, diagnosis and treatment - some of them opened up their serostatus. MoH remotely coordinated all meetings with Hornet and volunteers through Skype, WhatsApp Messenger and chats that often occurred late night. It also provoked a discussion within the volunteers on news fields and medical approaches, usually developed in governments need to be updated to follow the new trends in tech partnerships.

**Conclusions/Next steps:** The project was criticized for being focused on gay, bisexual and MSM, under an approach that the government was not able to reach more pediatric patients in a quicker manner, better grounded in technical learnings across partners, and with greater chance of long-term systemic change.

**Lessons learned:** Both PEPFAR and CIFF entered the ACT partnership with the belief that they could achieve more by working together than by working alone. Part of the success of ACT achieving results over an expedited time frame was achievable precisely because of joint planning and collaboration between the partners. Not only did this partnership demonstrate programmatic results; it also justified that the value proposition of working in partnership superseded the transaction costs. As a result of working in partnership, PEPFAR and CIFF were able to reach more pediatric patients in a quicker manner, better grounded in technical learnings across partners, and with greater chance of long-term systemic change.

**Conclusions/Next steps:** Partnerships clearly bring a combination of challenges and opportunities. Wise funders will work together to clarify the type of partnership they want to engage in, and will undertake a robust cost-benefit analysis before collaborating. They must be prepared to invest additional time and funding to service the partnership itself. The ambition of the ACT initiative, and the commitment of both funders and all their partners, led to broader gains than might have been expected, with global improvements in pediatric ART coverage and policy changes.

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**Conclusions/Next steps:** Partnerships clearly bring a combination of challenges and opportunities. Wise funders will work together to clarify the type of partnership they want to engage in, and will undertake a robust cost-benefit analysis before collaborating. They must be prepared to invest additional time and funding to service the partnership itself. The ambition of the ACT initiative, and the commitment of both funders and all their partners, led to broader gains than might have been expected, with global improvements in pediatric ART coverage and policy changes.

**Lessons learned:** The volunteer’s autonomy was discussed in depth in the MoH, for example, whether the volunteers should meet the users in person, as global Hornet users do. Hornet supported a more flexible approach, with more autonomy.

Similar experiences with governments had not involved online chat and it was not necessary to sign a term of partnership, as the Brazilian policy demanded. Around 1,000 messages were exchanged and the most common subjects was PreP, PEP, testing and life after HIV diagnosis. This experience created an “e-health culture” within the MoH, and made possible to develop ongoing projects. A working group is currently discussing eHealth strategies to support PreP as a public policy.

**Conclusions/Next steps:** eHealth strategies can be part of international partnerships with governments, international organizations and civil society activists; however, the traditional way in which partnerships are usually developed in governments need to be updated to follow the new trends in tech partnerships.

UN organizations played a crucial role: they raised the voice against prejudice when the project was criticized for being focused on gay, bisexual and MSM, under an approach that the government was not able to.

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**THPEE792**

**Increasing the pool of health workers available for HIV care and treatment services in Kenya through sustainable financing—the Afya Elimu Fund**

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**Background:** Kenya has a health workforce-to-population ratio of 1:31000, far below the World Health Organization recommendation. Access to training fees is a challenge for qualified high school students interested in pursuing medical education. For many families in Kenya, the USD 4,280 required for a nursing diploma program is beyond reach.

**Description:** In 2013, USAID, through IntraHealth International, and in partnership with the Ministry of Health (MoH), Higher Education Loans Board, and the private sector, established the Afya Elimu Fund (AEF). AEF is a revolving fund that offers tuition fee loans (4% interest rate, compared to 14% for commercial loans) to health professional students, including critical cadres for HIV services. Loan eligibility criteria consider student’s family income, orphaned status, gender, disability status, and county of origin (e.g., hardship, high HIV disease burden). A technical working group spearheaded AEF implementation and an oversight committee chaired by MoH enhance operational efficiency and prudent governance. Resource mobilization strategies and appropriate financial management systems are in place to raise funds as well as monitor fund performance.

**Lessons learned:** As of December 2017, 12,607 beneficiaries (51% female that include nurses, clinicians, medical laboratory technologists, pharmacists and health records officers, had accessed tuition fee loans from 47 counties. 10,359 (82%) of beneficiaries were from 27 high HIV-burden counties. 4,105 beneficiaries have graduated and were available for employment, of which 776 (18.9%) (F-52%; M-48%) are employed in public, private and faith-based health facilities that offer HIV services including testing and counseling, care and treatment, prevention of mother-to-child transmission and laboratory investigation.

**Lessons learned:** As of December 2017, 12,607 beneficiaries (51% female that include nurses, clinicians, medical laboratory technologists, pharmacists and health records officers, had accessed tuition fee loans from 47 counties. 10,359 (82%) of beneficiaries were from 27 high HIV-burden counties. 4,105 beneficiaries have graduated and were available for employment, of which 776 (18.9%) (F-52%; M-48%) are employed in public, private and faith-based health facilities that offer HIV services including testing and counseling, care and treatment, prevention of mother-to-child transmission and laboratory investigation.
USAID has provided USD 3.492 million, while resource mobilization efforts from private corporations, national and county governments have raised an additional USD 5,237M, for a total of USD 8.729M in the fund. AEF fundraising strategies targeting private sector and government ensure alignment with shared values and corporate social responsibility initiatives. Stakeholder buy-in was critical in setting up AEF as a vehicle for medical education financing.

Conclusions/Next steps: AEF is positioned to increase medical education access through sustainable public-private partnership financing, thereby increasing the number of graduating health workers for HIV services in Kenya.

**THPEE793**

Creating open public-private forums can ensure the success of private sector HIV/AIDS service delivery in Côte d’Ivoire

A. Kouakou, S. Hofner


**Background:** With a generalized HIV epidemic and total adult (15-49 years) prevalence rate of 2.3%, Côte d’Ivoire contends with one of the highest HIV prevalence rates in West Africa. Although the private health sector accounts for 40% of total health care service provision (EU 2008), there has been limited public-private collaboration in national HIV policy development and coordination of health activities. Strengthening the private sector’s ability to deliver quality HIV and ART services could be a powerful way to accelerate the national HIV response.

**Description:** From 2013 to present

the Strengthening Health Outcomes through the Private Sector (SHOPS) and then the Private Sector Health Project (PSHP) worked with a broad range of public and private partners to advance multi-sectoral collaboration in Côte d’Ivoire’s HIV response.

**Nationally:** SHOPS worked with government and private sector umbrella bodies to agree upon and formalize the legal and regulatory permissions required for the private sector to offer HIV care and treatment in accordance with national policy.

**At the district level:** the projects established 12 public-private HIV and AIDS fora involving 150 private clinics in 18 health districts.

**Lessons learned:** By creating an open forum for stakeholders, the projects established a strong legal, regulatory, and operational platform for private health sector provision of HIV and AIDS services. In 2013 the Ministry of Health released a memo allowing private health clinics to offer government-provided ARVs for free to their clients, for a truly multi-sectoral approach. In 2015, the private sector was able to provide HIV and AIDS care, with support from the government.

There was an increased 53% private health facilities accredited by the MOH to carry out TB services.

**Conclusions/Next steps:** In TB service provision it is imperative to collaborate with all health care providers including private sector providers. There is however need to advocate for policy reviews to support delivery of TB services through the private sector especially around cost of services will be important for continued sustainable provider involvement.

**THPEE795**

How to make men test early for HIV?

S.M. Afarai, S. Olney

ILO, Geneva, Switzerland

**Background:** According to the UNAIDS report 2017 - Blind Spot - health systems are failing to reach men. There is limited HIV testing/treatment coverage amongst men even in developed countries. There is a need to look into the low health-seeking behaviour for men and create synergies between health and labour sector.

**Description:** Out of 4 million workers who took the HIV test from July 2012 to December 2016 under the ILO’s global voluntary counselling and testing for workers (VCT@WORK) initiative, nearly 70% were men. Carefully crafted strategies addressed the reasons that stop men from visiting the health facilities. The main reasons stopping workers to go for HIV testing were: stigma and discrimination (fear of losing the job in case they were found HIV positive); low risk perception/ lack of information about testing facilities; and the opportunity costs of accessing the services (a daily wage worker may end up losing at least half a day’s wage due to travel and waiting time even if the testing is free).

VCT@WORK was implemented within the framework of human rights - in workplaces which had a HIV workplace policy in place. Emphasis was given on dissemination of the policy and reassuring messages by the management as well as union leaders. Communication was built around “the benefits of testing early” and HIV testing services were taken to workers in order to reduce the opportunity cost for workers. The Initiative focussed on selected economic sector such as mining, transport, construction, and tourism which engage a high number of mobile and migrant workers.

**Lessons learned:**

- Workplaces have a huge potential of enhancing access to health information and HIV-TB services to men. This calls for building synergies between the health and labour sector.
- VCT@WORK facilitated results-based public-private partnerships and resulted in covering hard-to-reach groups such as mobile and migrant workers.
THPee796
Utilizing helpline toll free to support KVP on HIV prevention, testing and treatment - Tanzania case

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Background: Tanzania data shows that the proportion of female and male population groups with comprehensive knowledge about HIV transmission and prevention is 42% for female and 50% for male. Social or cultural norms, stigma and lack of appropriate information remain the challenge that prevents the uptake of treatment and prevention services posing a challenge in reaching 90-90-90 goal. The growing use of mobile phones and text messaging in Tanzania encouraged TAYOA to develop helpline toll free to increase HIV/AIDS knowledge and service uptake. Currently helpline supports core components of HIV/AIDS including counseling and testing, prevention and treatment. The main target are Key and Vulnerable population especially young people and key population.

Description: Helpline is a toll free service providing HIV related information including referral to services. The services can be accessed country wide with the support of all mobile companies in Tanzania. Airtime cost is covered by mobile companies to make it free for callers. The free helpline operates from noon to midnight, with 16 lines with trained counselors. It also has an interactive voice response (IVR) that operates 24/7, a referral database with facilities per ward, a cheat sheet to support counselors with guidelines updates. Counselors are trained as per national guidelines and all information in the helpline is approved by the ministry of health. Helpline receive an average of 2000 calls per day, with an average of 300 people speaking directly to the counselors and other listening to IVR.

Lessons learned: 93% of all callers concerted for their information to be recorded, among those 71% of all callers were male. Common subjects includes ART including adherence (29%), Sexual reproductive health information for people living with HIV (28%) Care and support for people who are living with HIV (9%), Counseling and testing (9%), myths and misconceptions (6%) and PMTCT (4%). 47% are repeated callers, 37% callers reported to seek services after talking to a counselor.

Conclusions/Next steps: Helpline is useful source of HIV related information among key and vulnerable population with limited access to health services. NGOs and profit companies can work together to fight HIV.
THPEE798
Integrating public-private partnerships in development of youth friendly service in Thailand

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Background: Given escalating sexual health threats and a lack of youth friendly service, we initiated a model of the voucher scheme. Community based youth friendly sexual health service in Bangkok since 2007. In addition to a service provider network composed of city community health centers, private clinics, mobile clinic, and private pharmacies in Bangkok metropolitan area, demand promotion strategies including “online clinic” were also introduced. The program aimed to identify features which are able to promote the uptake of sexual health service by youth and to evaluate the utilization of our program.

Description: Focus group discussions were conducted on general youth in 10 schools and 10 Young Key Affected Population (YKAP) groups e.g. MSM, TG, and CSW. Analysis of the service registry during July 2008 - December 2010 was performed. Approval from Society for AntiAIDS danger and Life Quality Development for the evaluation was obtained. The confidentiality of all study participants was strictly protected. Thematic content analysis and descriptive statistics were used to analyze qualitative and quantitative findings, respectively.

Lessons learned: Findings from the focus group discussions suggested that youth friendly service must be confidential, stigma free, respectful, comprehensive, convenient, free of charge, and with tailor-made promotional strategies. At program inception, 9 city health centers, 13 private clinics, 1 mobile clinic, and 100 private pharmacies joined our program. A total of 17,299 clients (46.1% were younger than 24 years) used the clinics (23,450 visits) during the study period. Of 7,978 youths, 49.2% were male, and 26.50 were still in school. The ratio of a number of youths who utilized private clinics vs city health centers were approximately 46:6. Some challenges encountered during the program implementation were shared.

Conclusions/Next steps: Youth friendly service carefully designed based on inputs from selected youth groups and services provided by a network of public-private providers was well utilized.

THPEE799
Private sector opportunities to deliver oral PrEP to women

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Background: Introduction of oral PrEP in Africa has primarily focused on public sector delivery channels. However, a significant number of women and girls at risk for HIV access health services through the private sector. Rapid market assessments can help governments, donors and implementers quickly understand opportunities and considerations for private sector oral PrEP delivery.

Description: We analyzed existing publications, HIV incidence and health services utilization data, and conducted 30 interviews with implementers, donors and policy experts in Kenya, South Africa and Zimbabwe. We developed a framework to prioritize delivery channels based on accessibility and capacity factors.

Lessons learned: Private sector healthcare is widely used by women and girls at risk for HIV driven by convenience, quality, confidentiality and the ability to consistently see a single provider. Utilization is highest in urban areas where HIV incidence is high. Using contraceptive price as a benchmark, private sector healthcare clients may be able to afford an oral PrEP price of ~$5.50/month.

Four private delivery channels were identified for potential delivery of oral PrEP:
- Private doctors due to affordability, reach and capacity to deliver confidential, quality care consistently over time with the same individual.
- Social franchises/NGOs due to their ability to reach lower-income women with high-quality, subsidized care.
- Faith Based Organizations due to their ability to reach rural populations in some countries.
- University clinics due to extensive HIV testing and family planning services for difficult-to-reach populations.

Cost, prescription and testing requirements for oral PrEP likely limit near-term efforts in pharmacies to dissemination of a mix of private and public channels could reach populations that would otherwise be missed and provide greater confidentiality and privacy. Potential challenges to private sector delivery include limited ability to track patients, affordability and lack of provider HIV specialization.

Conclusions/Next steps: Market assessments of Kenya, South Africa and Zimbabwe found that many women access, prefer and can afford private services. Private sector delivery could help channel public sector resources to those who cannot pay. Governments, donors and implementers should consider a portfolio of private sector channels to expand oral PrEP access and should explore cost-sharing public-private partnerships.

THPEE800
Increased HIV testing and case finding in diverse clinical settings targeting young men who have sex with men in Bali

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Background: Indonesia is one of the few regions in the Asia Pacific region where HIV infections continue to rise. Among MSM in Indonesia, the rates of HIV have increased from 5.3% in 2007 to 25.8% in 2015, with HIV prevalence reaching 36% among MSM in Bali. HIV testing and care services in Indonesia have barriers such as cost, inconvenient clinic hours, stigma, confidentiality, discriminatory from health care workers, unsupportive cultural and religious values.

Description: Integrated clinical services for predominantly young MSM Bali were developed in a physician’s private practice and in a government health facility. Services provided are free included HIV rapid tests with confirmation, syphilis testing, simple lab for rectal and urethral samples, hemoglobin, blood chemistry, CD4 testing, viral load and PCR for chlamydia/gonorrhoea (Xpert). HIV+ clients initiated ART on the same week (Rapid ART). An SMS reminder system supported adherence and follow-up testing for negatives. Staff were trained to provide non-judgmental services regardless of sexual orientation/practices. Clients were encouraged to refer friends to the clinic and services were marketed through websites and social media.

Lessons learned: Clinic attendance remains high with over 200 new predominantly young MSM clients testing monthly. From September 2011 to December 2017, 11,115 patients enrolled with 33,895 visits (include follow up visits) documented. 12,333 clients were tested HIV of which 1,140 were diagnosed HIV.9,241, 8% patients were started on ARV. Total 9,665 Syphilis serological screening test were performed. 679 (70.2%) were early syphilis and 221 (22.8%) were latent syphilis. 2,827 cases of other STIs were diagnosed and treated. Most clients reported attending via peer and friend referrals, not through a paid peer outreach worker.

Conclusions/Next steps: Free, friendly, efficient, one-stop services can create demand and attract high numbers of young MSM, even in settings where social and religious norms are not conducive to overt community mobilization. Demand-generating characteristics were shown to be successful in a variety of clinical settings such as a private doctor’s clinic and a government health facility. Such settings can provide youth-friendly MSM services by following a recipe of stigma-free and convenient services coupled with cost-efficient peer referral and use of social media.
Partnerships across HIV and other vertical programmes, e.g., tuberculosis, sexually transmitted infections, drug treatment, family planning

**THPEE801**

Corrections to community care: An innovative partnership to ensure HIV linkage to care and viral suppression for incarcerated individuals in New York state prisons

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**Background:** The NYS Department of Health (DOH) and NYS Department of Corrections and Community Supervision (DOCCS) Corrections to Community Care model offers a public health opportunity to proactively engage incarcerated individuals and provide education, facilitate HIV testing and disclosure of HIV status, and support continuous care for individuals living with HIV both during incarceration and following community reentry.

Moreover, it serves as a pathway to assist incarcerated individuals living with HIV as they prepare to transition into the community and support positive health outcomes and self-sufficiency. They gain the knowledge and skills necessary to effectively self-manage and navigate the full continuum of HIV care and support that is available in the correctional facility and, once released/discharged, in the community.

**Description:** Incarcerated individuals and individuals being released from correctional settings who are living with HIV are offered increased access to care to improve the overall coordination of health and support services including behavioral health services, health care coverage, social and support services such as housing, substance use treatment, education, mentoring, and employment assistance programs, with services and interventions being provided using comprehensive systems navigation in a client-centered manner. Individuals are screened for eligibility, given a readiness and comprehensive behavioral risk and needs intake assessment and then enrolled into an individual-level, multi-session service. A Linkage Action Plan is developed with every enrolled individual that includes appointments to medical care, entitlements, housing arrangements, an HIV/STD/HCV risk reduction plan, and goal setting worksheets to build self-sufficiency.

**Lessons learned:** Incarcerated individuals and reentrants who are living with HIV experienced improved continuity of care when additional support, coaching and resources are provided that empowers them to disclose their HIV status, engage in medical care and treatment, and achieve and maintain viral suppression for each client. Next steps include annual reviews of the reports to guide future service delivery, track viral suppression and retention in care successes, and improve referral and linkage processes for incarcerated and formerly incarcerated persons living with HIV.

**THPEE802**

An integrated chemsex care and HIV prevention service in Taiwan: The HERO healing, empowerment, recovery of ChemSex model

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**Background:** The rising trend of combining use of recreational drugs during sex (ChemSex) in Taiwan has become a critical contributor in the HIV epidemic. The existing health care model that tackles substance abuse, sexual health and HIV prevention independently is no longer desirable. A model of integrated health services that simultaneously addresses these health issues and provides a safe environment for people under the influence of ChemSex may effectively improve HIV prevention and quality of life.

**Description:** We established HERO integrated service (Healing, Empowerment, Recovery of ChemSex) in Southern Taiwan in 2017 to cope with ChemSex epidemic and sexual health problems for at risk populations, inspired by the 56 Dean Street model in London. The main services offered include HIV/STI testing and rapid link to treatment, consultation and prescription for pre-exposure prophylaxis (PrEP), and ChemSex support group. To evaluate the effectiveness of the integrated service, we developed an evaluation plan based on the logic model of change at both individual and health service levels. Clients visited the service were asked to fill out an online survey after providing consent. Administrative data were collected to measure changes toward the expected program goals.

**Lessons learned:** Since HERO opened in November 25 in 2017, there has been 65 clients visited, while 33.8% self-identified as homosexual or bisexual, 19.1% received PrEP consultation and 10.8% joined ChemSex support group. The average age was 29.0 years and the majority were males (87.8%) and self-identified as homosexual or bisexual (83.3%). Among all, 38.5% reported having ChemSex in the past month, 23.1% scored moderate anxiety or higher and 6.2% scored moderate depression or higher. Out of five people receiving PrEP consultation, 60% started using PrEP. For the ChemSex support group, 28.6% set their goal to be abstinent, 28.6% would like to stop using substance temporarily and 42.9% not sure what their goals were.

**Conclusions/Next steps:** HERO as the first integrated service for sexual health in Asia, our experiences and evaluation will provide insight on the development and implementation of integrated health care model for HIV and ChemSex prevention for people under the influence of drugs that engaged in HIV/STI transmission risk behavior.

(Evaluation plan for HERO based on the logic model of change)
THPEE803
Increasing HIV case identification and linkage to antiretroviral therapy through nutrition screening: Lessons learned from the Cote d’Ivoire nutrition and community-facility linkages activity

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Background: Increasing HIV case identification and linkage to antiretroviral therapy through nutrition screening. Lessons learned from the Cote d’Ivoire Nutrition and Community-Facility Linkages Activity.

Description: FANTA led the establishment of partnerships between service providers at 11 health facilities, and 8 social centers and 14 community-based organizations (CBOs), which provide services to orphans and vulnerable children and their caregivers in 8 districts around Abidjan. Health workers screened clients seeking psychosocial support at social centers and CBOs for nutritional status using mid-upper arm circumference. Individuals identified with moderate- or severe-acute malnutrition were referred to a health facility. Nutrition focal points were assigned at each location, registries and forms were developed to facilitate and document referrals between locations. HIV seropositive clients were managed through a case management system, followed for malnutrition treatment, and enrolled in HIV treatment and other support services. A client list, HIV patient appointment schedules and care plans were shared among service providers who communicated to ensure clients received services. Clients lost to follow up were contacted by phone or home visit and counseled to re-engage in care.

Lessons learned: Malnutrition can signal the presence of an HIV infection. Between January 2015 and December 2017, 25,000 clients received psychosocial support at the social centers and community-based organizations, 42% of whom (10,493) were screened for malnutrition. Among those screened, 11% (1,144) had moderate- or severe- acute malnutrition and referred to the health facility. Of those referred, 45% (663) were tested for HIV. 63% (354) of those tested were HIV-positive. 98% of the HIV-positive individuals were initiated on antiretroviral therapy. 116 HIV seropositive individuals lost to follow up were re-engaged in care. The integration of NACS and HIV care delivery and the facility and community partnerships developed through the NCFLA increased HIV case identification and facilitated enrollment into the HIV services, including ART initiation, adherence and retention counseling.

Conclusions/Next steps: NACS services and partnerships developed through the NCFLA in Cote d’Ivoire provided a new gateway to HIV case identification and enrollment into the HIV treatment cascade. Integrated service delivery and context-appropriate community-facility linkages are recommended as part of the response to end the HIV epidemic by 2030.

THPEE805
Early retention in a newly established Medically-Assisted Therapy Clinic in Kenya

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Background: It is estimated there are 18,347 people who inject drugs (PWID) in Kenya, of whom approximately 1,000 live in the Nyanza region. The HIV prevalence amongst PWID is estimated to be 18%, which is three times that of the general population. This epidemic is driven by unsafe drug injecting practices and risky sexual behaviour. Medically-Assisted Therapy (MAT) is the supervised use of methadone replacement therapy for PWID to treat drug addiction, and is an important risk reduction strategy for HIV.

Methods: In March 2017, a MAT clinic was established at the Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) in the Nyanza region, Kenya. The clinic adopted a one stop shop model offering integrated HIV, TB and methadone treatment services. Clients are referred from a community drop-in center and screened for suitability for MAT. The MAT clinic offers HIV testing and counseling, Hepatitis B and C screening, STI screening, psychosocial support. ART for those who are HIV-positive, and TB screening and treatment. Staff were trained on national guidelines and clinic standard operating procedures.

Results: During a 10-month period from March to December 2017, 83 adults were screened for eligibility and 70 eligible patients were identified and initiated on MAT. Among the 70 who initiated MAT, 7 (10%) were female and 63 (90%) were male. Ten (14%) tested HIV-positive of which 100% were initiated on ART, and 7 (10%) were Hepatitis B surface antigen positive. One client had MDR-Tuberculosis and was started on directly observed therapy. Amongst the 53 clients who were receiving MAT services for 6 months or more, the 6-month retention rate for methadone treatment was 79% (42/53).

Conclusions: ICAP successfully established the first MAT clinic with integrated HIV services at JOOTRH in western Kenya. The majority of clients served were men, and initial retention rates in methadone treatment have been good. Going forward strategies to further increase clinic referrals and uptake of MAT services should be explored.
FRIDAY 27 JULY

Oral Abstract Sessions

FRAD0101 Bound and gagged: Exposing the impact of the expanded Mexico City policy

**The Mexico City Policy and PEPFAR: Estimating the impact on NGOs and funding**

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**Background:** In January 2017, President Trump reinstated and expanded the Mexico City Policy. In the past, it had required foreign non-governmental organizations (NGOs) to certify that they would not "perform or actively promote abortion as a method of family planning" using funds from any source as a condition for receiving U.S. family planning assistance. In a significant expansion, it now applies to almost all U.S. global health bilateral assistance, including PEPFAR. Among the many questions about the policy's impact is its effect on HIV programs and services. This session sought to estimate the number of NGO recipients of PEPFAR funding who could be subject to the policy as well as the amount of funding they receive.

**Methods:** We analyzed data from ForeignAssistance.gov over the most recent three-year period for which such data were available (FY 2013 - FY 2015) to identify NGO recipients of bilateral HIV assistance as a proxy for the current number of recipients. We also calculated the amount of funding they receive and number of countries they work in. We further stratified these countries by the legality of abortion.

**Results:** We identified 470 foreign NGO prime recipients of PEPFAR bilateral HIV funding, who received $873 million. In addition, we identified 274 U.S. NGO prime recipients, accounting for $5.5 billion, who would be required to ensure that any foreign NGO sub-recipients were in compliance. Overall, this funding supported programs in 61 countries. Of these, 36 allow for legal abortion in at least one case not permitted by the policy and 24 do not. One country was not classifiable. These estimates should be considered minimums since we were unable to identify NGO sub-recipients of HIV support, who represent a much greater number and are also affected by the policy.

**Conclusions:** The expansion of the Mexico City Policy to encompass almost all U.S. bilateral global health assistance, including PEPFAR, greatly extends its reach. While it is still too early to know its ultimate impact on the ground, our analysis indicates that the expanded policy will likely affect hundreds of NGO recipients of PEPFAR support.

FRAD0102 Understanding the global gag rule: How to sustain global health progress amidst the new U.S. policy environment

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**Background:** The global gag rule (also known as the Mexico City Policy) is affecting the global fight against HIV/AIDS on an unprecedented scale by directly applying to PEPFAR-funded programs for the first time ever. This session will provide conference participants a comprehensive review of the global gag rule. It will examine the experiences of the policy, expert guidance for implementers, and advocacy opportunities. The presenters will offer a variety of perspectives from both policy experts and implementing organizations and will specifically focus on the expansion to U.S.-funded HIV/AIDS programs and the disproportionate impact the policy will have on women and girls and integrated service provision. Session co-sponsors include amfAR, AVAC, Center for Health and Gender Equity (CHANGE), Marie Stopes International (MSI), PAI, Planned Parenthood Federation of America, Rutgers, and Stop AIDS Alliance.

**Lessons learned:** Under previous iterations of the global gag rule from 2001-2009, the policy resulted in a number of harmful impacts, including:
- USAID had to end condom shipments to Lesotho at a time when one in four women in the country was infected with HIV because the Lesotho Planned Parenthood Association, the primary conduit for condoms in the country, could no longer receive U.S. funding under the global gag rule. and
- Between 2002-2006 in Kenya, the global gag rule led to the termination of critical activities run by the Family Planning Association of Kenya and Marie Stopes International (MSI) Kenya—the leading providers of health care to people living in poor and rural communities in the country.

This session will highlight these and other examples of the global gag rule’s impact, with a focus on both historical and emerging evidence where HIV/AIDS programs and providers are seeing the impact of the policy.

**Conclusions:** This comprehensive review of the global gag rule will provide new insights into the harmful impact of the policy on HIV/AIDS programs and engage participants in a dynamic discussion with policy and program experts on the impact of the policy and implications for future HIV/AIDS policy and programs.

FRAD0103 A model of dis-integration: Unpacking the impact of the global gag rule on HIV-SRHR linkages

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**Background:** The HIV community has expressed grave concern for what the expanded Global Gag Rule (GGR) could mean for the health and rights of people most affected by HIV. While the impact of the GGR on the provision of reproductive health services is beginning to be understood, little has been done to document the impact of the rule on communities most impacted by HIV, especially on HIV prevention. The International HIV/AIDS Alliance, with support from Sida, has undertaken research in Ethiopia and Zimbabwe to project the potential impact of the GGR on HIV and key population services, and on HIV-SRHR integration.

**Methods:** This is a mixed methods study combining desk research, statistical forecasting and community engagement (focus groups, stakeholder meetings and semi-structured interviews). It has involved the participation of civil society organizations - including those representing key populations - working on HIV, including through delivering a comprehensive, integrated SRHR agenda.

**Results:** Preliminary findings forecast that loss of funding to civil society partners implementing integrated HIV/SRHR programmes in all study sites will result in:
- Reduction in access to HIV prevention, testing and treatment services caused by the disintegration of HIV/SRHR services
- Denial of life-saving treatment and essential services to people living with HIV
- The health of people from key and vulnerable populations being jeopardised by restrictions to the package of services they can receive
- Fear that advocacy efforts to maintain or liberalise laws which allow access to safe abortion will be stifled due to confusion, uncertainty, and fragmentation of civil society; however, there is also evidence of civil society seeking creative opportunities for new advocacy collaborations.

**Conclusions:** Non-GGR compliant HIV organizations implementing comprehensive integrated SRHR programming have lost tens of millions of dollars in funding. These translate into: cuts to prevention programming for key populations; denial of treatment to people living with HIV; the un-doing of decades of progress to integrate SRHR and HIV programs, including for adolescents and young people; and a silencing of civil society on issues of individual choice, rights and agency. Despite additional barriers to accessing HIV and SRHR services, examples of community resilience, partnership, and solidarity were identified.
Caught by ideology: HIV providers in the era of the protecting life in global health assistance policy (AKA Mexico City Policy)

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Background: On 15 May, 2017, the US government formally announced the introduction of the Protecting Life in Global Health Assistance Policy (The Policy) - formerly known as the Mexico City Policy (MCP) or the Global Gag Rule (GGGR). The Policy prohibits any foreign-NGO receiving Global Health Assistance funding to certify that it will not "perform or actively promote abortion as a method of family planning ..." or provide financial support to any foreign-NGO that conducts such activities. This includes what an organization is able to do with non-USG funding. Distinct from the MCP, however, was a new affirmative defense against the Policy that states: "[T]he event of a conflict between [the Policy] and an affirmative duty of a healthcare provider required under local law to provide counseling about and referrals for abortion [...]. compliance with such law shall not trigger a violation of the Policy!"

Description: The expansion of the Policy has significant implications for organizations delivering HIV services globally. For organizations funded for prevention of mother-to-child transmission services, community health worker engagement, and those with integrated family planning and HIV services - most of whom have no prior experience with the MCP - incorporating the Policy is legally complex and ethically dubious. We conducted a legal assessment of the applicability of the affirmative defense in several African countries.

Conclusions/Next steps: The legal and ethical obligations of HIV providers requires assessing the legal landscape in which they are operating and standing up for women’s reproductive health choices. South Africa in particular has provided a template that advocates should utilize in pressing for legislation that enables healthcare providers to mitigate some of the substantial harms created by the Policy.

The impact of the USG Policy Protecting Lives in Global Health Assistance (PLGHA) on Sida’s SRHR-HIV partnerships

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Background: In January 2017, the USG reinstated the Mexico City Policy (MCP) expanding its scope beyond Family Planning Assistance to include US Global Health Assistance (US GHA). In short, MCP/PLGHA prohibits foreign NGOs receiving US GHA to perform or promote abortion, regardless of funding source. Subsequently, Sida adopted a position and guidance on MCP/PLGHA to assist staff to identify potential risks to Sida-supported SRHR programmes should partners decide to comply with MCP/PLGHA.

Description: Between August-September 2017, Sida undertook a portfolio assessment to understand the implications of MCP/PLGHA on 30 of Sida’s NGO-partners receiving funding for SRHR incl. HIV. Data was analyzed using descriptive statistics and qualitative thematic analysis.

Lessons learned: One third of Sida’s SRHR partners had ongoing US GHA agreements. Of those, two US based NGOs indicated intent to comply with MCP/PLGHA. Six Foreign NGOs choose not to comply with MCP/PLGHA; for these, US GHA contributed between 5 to 60 percent of their total budget. At least ten of Sida’s partners had sub-grantees that received US GHA and were considering complying with MCP/PLGHA. In one case a national member association took over program implementation, and will not be required to comply with MCP/PLGHA. HIV organizations providing integrated SRH-HIV services including some level of counseling and referrals for safe abortion care but that do not provide abortion services or advocacy, were for the first time affected by the expanded scope of the policy. The potential impact and loss of funding led to uncertainties and confusion for the sector which Sida has had to mitigate choosing various strategies including re-programming of agreements.

Conclusions/Next steps: The assessment found that the MCP/PLGHA may potentially cause disintegration of SRH-HIV services and systems, jeopardizing gains made in recent decades for comprehensive SRHR-HIV services for adolescent girls and young women who are disproportionately at risk of HIV. MCP/PLGHA may also have a ‘silencing effect’ on broader SRHR policy reform linked to gender equality and the SDGs. Discontinuation of services compounds the vulnerability of those who are already left behind such as the poorest and marginalised people, people in rural areas, LGBT-communities and people living with HIV, adolescent girls and young women.

[PLGHA Affirmative Defense and HCW Obligations]

Lessons learned: South Africa has particularly strong Constitutional protections for reproductive rights (sections 12(1)(a) and 27(1)(a), strong informed consent requirements in the National Health Act and ethical guidelines, and robust case law that compel healthcare providers - including PEPFAR partners - to continue counseling about and referring for abortion services that cannot be circumvented by the Policy. Evaluations in Mozambique, Zambia, and Zimbabwe have found differing levels of protections.

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FRAE01 Differentiated treatment models

FRAE0101 Implementation of appointment spacing model of differentiated care in Ethiopia—successes and challenges

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Background: There are over 420,645 people living with HIV on antiretroviral therapy (ART) in Ethiopia. This number is expected to increase by 30% with the adoption of Test and Treat by the Federal Ministry of Health (FMoH) in 2016. This poses a challenge to the Ethiopian health system, where shortage of clinical staff is a recurring problem.

Description: To address this issue, ICAP, in collaboration with the FMoH and the Centers for Disease Control and Prevention conducted a pilot of a differentiated service delivery (DSD) six-month appointment spacing model (ASM). ICAP established a technical working group on DSD and developed supplemental guidelines, monitoring framework, provider support tools, and training curriculum for regional and facility service providers. Six high-volume health facilities were included in an ASM pilot, which began in April 2017. Eligible non-pregnant adult patients (stable per World Health Organization criteria) were enrolled in the pilot, which included six-month medication supply; biannual clinical visit, annual viral load testing, psychosocial support, counseling, and encouragement to participate in peer support groups.

Lessons learned: Of the 24,657 clients that were currently on ART at the 6 pilot facilities, 12,649 clients (51%) were eligible for ASM, of whom 49% were enrolled by the 6th month of the pilot. Among the 51% who declined participation, the major reasons cited for refusal to participate in the ASM were fear of inadvertent disclosure due to having a large volume of medication and concerns regarding safety and storage of medication for prolonged periods at home. ASM has been scaled-up to 765 facilities, with 57,000 clients enrolled as of November 2017.

Conclusions/Next steps: Implementation of the ASM in the Ethiopian context demonstrated rapid enrollment of a large number of clients for prolonged periods at home. ASM were developed supplemental guidelines, monitoring framework, provider support tools, and training curriculum for regional and facility service providers. Six high-volume health facilities were included in an ASM pilot, which began in April 2017. Eligible non-pregnant adult patients (stable per World Health Organization criteria) were enrolled in the pilot, which included six-month medication supply; biannual clinical visit, annual viral load testing, psychosocial support, counseling, and encouragement to participate in peer support groups.

FRAE0102 Quick & cheaper: A comparison of patient costs and distance to access care through differentiated models of antiretroviral treatment delivery in Zimbabwe

P. Chipungu1, N. Ngomgoma-Mlahena2, O. Mugungun3, I. Mlingo1, T. Makuve1, B. Ndlovu1, E. Tarowera1, G. Fatti1, A. Grimwood3, S. Rosen4
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Background: Patient transport costs are a significant barrier to accessing antiretroviral treatment (ART), particularly for those living in rural areas of sub-Saharan Africa. As part of a pragmatic cluster-randomized trial to assess the effectiveness of differentiated models of ART delivery for stable ART patients, we compared patient-level costs and travel distance for participants accessing ART at health facilities vs. participants expected to access ART in community ART refill groups (CARGs) in Zimbabwe.

Methods: Patient-level cost data of trial participants were collected at 26 health facilities in both urban and rural areas of five districts between July 2017 and December 2017, using a standardized questionnaire administered by study nurses. At 10 facilities, participants accessed ART directly from the facility, while for the remainder participants were patients in newly formed CARGs, which are groups of 6-12 participants who meet in the community for drug pick-up, patients in CARGs were asked their expectations in joining groups. The average cost of accessing care, mean travel distance and time spent per visit were compared. Costs included both direct costs and the opportunity cost of attending the appointment, both to the patient and an accompanying person.

Results: Amongst 473 respondents, 280 (59%) received ART at the health facility and 213 (45%) received ART in CARGs. CARG participants had a 81% shorter travel distance to the selected meeting place for a drug pick-up (0.9 km, 95% CI: 0.8-1.0 km) compared to facility-based participants (8.4 km, 95% CI: 6.8-9.9 km); p<0.00. The average visit cost for CARG participants is 69.5% lower than facility-based patients (US$1.24 vs. US$4.06, two-way respectively. Travel time to the drug pick up point is lower for CARG participants: 179 (91%) reported travel time for <30 minutes, while 100% of facility-based patients travelled >30 minutes.

Conclusions: Collecting ART from CARGs has lower visit costs, and patients travel substantially shorter distances with reduced travel times to access care, compared to participants collecting ART from facilities. CARGs are a differentiated model of care offering important benefits to stable ART patients.

FRAE0103 Decentralizing and differentiating HIV care for men who have sex with men living with HIV in Guatemala City: Acceptability and retention in care

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Background: Centralized HIV care causes social, time, and cost burdens, which can threaten achieving optimal HIV clinical outcomes and well-being. We conducted the first decentralization pilot in Central America among men who have sex with men (MSM) living with HIV and assessed acceptability, retention in care, and satisfaction.

Methods: This is a longitudinal, intervention study with mixed-methods assessments at baseline, 6 months, and 12 months. We recruited participants consecutively from January to May 2017. Eligibility criteria included gay or bisexual men, age 18 or older, self-reported sex with men, diagnosed with HIV, enrolled in care for >1 year without interruption, viral load <100 copies/mL, and on first-line treatment. Eligible participants were offered the option to decentralize to one of 3 clinics with tailored services for
key populations (2 NGO and one governmental). Retention in care was defined as attending at least 3 quarterly appointments during 9 months of follow-up. Evaluation methods included socio-behavioral surveys, in-depth interviews, and clinical chart review. Thematic qualitative analysis and descriptive statistics were used to assess indicators and processes related to acceptability and retention in care.

Results: Nearly half (47%) of the 276 participants voluntarily decentralized while 53% opted to stay, with no significant differences between the two groups. Among those who decentralized, 51% (n=66) chose a gay health NGO, 41% (n=53) chose an NGO with a history of HIV prevention and care with key populations, and 8% (n=11) chose a governmental STI clinic. Motivators for decentralization included schedule, location, and type of organization. Only 1 participant opted to re-centralize due to schedule issues, and 98% of decentralized participants were retained in care at the third clinic visit during study follow-up. Median duration of the decentralized consult was 30 minutes, compared to 4-5 hours at the centralized clinic. Over 90% of participants across the 3 clinics considered the care they received to be “excellent.”

Conclusions: Decentralization to key population-friendly clinics with flexible schedules is acceptable and feasible for MSM. Retention was not negatively affected and participants were highly satisfied with the services provided at the decentralized clinics. These findings are informing policy and practice throughout Central America to differentiate care and improve quality.

FRAE0104 Urban adherence clubs in Zambia: Findings from model implementation

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1University of California San Francisco, San Francisco, United States, 2Centre for Infectious Disease Research in Zambia, Lusaka, Zambia

Background: The urban adherence club (UAC) model is a differentiated service delivery (DSD) model designed to improve on-time drug pickup and retention in HIV care through off-hours facility access and group drug distribution. Successes during scale-up in South Africa have been tempered by a recent report of high loss to follow-up and transfers back to facility-based care. We sought to characterize retention among patients enrolled in UACs at five urban health facilities in Zambia to evaluate model implementation outside of South Africa.

Methods: As part of a cluster randomized trial, a systematic sample of eligible patients (HIV+ on ART > 6 months, not acutely ill; CD4 >200/µl) were enrolled in UACs between May 19 & July 29, 2016. Patients were scheduled for bimonthly group drug-pick up meetings in the first six months and every 3-month meetings thereafter. Clinical and pharmacy visit data were obtained through the existing electronic medical record.

Results: Among 592 intervention patients, median age was 41 yrs (IQR: 35-48), 37% (363/97) were female, median CD4 count was 411 µl (IQR: 273 - 599), and median time on ART was 4.0 yrs (IQR: 2.0 - 7.2). Out of 3,756 scheduled UAC visits, 685 (18%) were not attended. In 204 (56%) of the unattended visits, participants obtained medication on the same day: either via a buddy (151/323) or same day drug-pick up at the facility outside of the UAC meeting (53/26%). Among the 481 (78%) unattended visits where patients did not receive same-day medication, cumulative incidence of drug-pick up after a missed UAC visit was 27% at 14 days and 32% at 28 days (Figure 1). At 12 months, cumulative incidence of treatment interruption (> 14 days late for drug pick-up) was 9.8%, transfer out of UAC was 6.8%, and death was 0.3%.

Conclusions: Group meetings were generally well-attended and in nearly one third of missed meetings patients accessed timely drug pick-up via other means. These findings suggest that group-based care is a viable model of care, although adaptation and patient-centeredness should be prioritized in DSD model implementation.
Late Breaker Oral Abstracts

**TUAB01 Antiretroviral strategies**

**TUAB0106LB**

Non-inferior efficacy of dolutegravir (DTG) plus lamivudine (3TC) versus DTG plus tenofovir/emtricitabine (TDF/FTC) fixed-dose combination in antiretroviral treatment-naïve adults with HIV-1 infection - 48-week results from the GEMINI studies


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**Background:** The requirement for long-term antiretroviral therapy has highlighted interest in 2-drug regimens (2DRs) to minimise cumulative drug exposure. DTG’s potency, safety and resistance barrier make it an optimal core agent for 2DRs while 3TC’s safety, tolerability and efficacy make it an attractive partner for initial HIV-1 treatment.

**Methods:** GEMINI-1 and GEMINI-2 are two identical global double-blind, multicentre Phase III studies evaluating efficacy and safety of DTG+3TC once daily in treatment-naive HIV-1-infected adults with Screening HIV-1 RNA < 1500 copies/mL. The primary endpoint is the proportion of participants with plasma HIV-1 RNA <50 copies/mL at Week 48 (Snapshot algorithm).

**Results:** 714 and 715 adults were randomised and treated in GEMINI-1 and 2, respectively. Participants were well matched for demographic/baseline characteristics. Overall, 20% of participants had baseline HIV-1 RNA >100,000 copies/mL, median CD4+ was 432 cells/mm3. Based on a 10% non-inferiority margin, DTG+3TC was non-inferior to DTG+TDF/FTC at Week 48 (ITT) as confirmed in the pooled analysis, with 96.7% and 95.4% of participants achieving HIV RNA < 50 copies/mL, respectively. DTG+3TC demonstrated non-inferior efficacy versus DTG+TDF/FTC in the primary efficacy analysis (96% versus 95%), within the -4% FDA non-inferiority margin for switch analysis. The approved dose of DRV/r is 800/100 mg once daily (QD) for patients with no PI resistance. In the POWER studies, patients treated with a lower dose - 400/100mg QD - showed similar reductions in HIV RNA to the standard dose, with consistent results shown in other pilot studies (DAVULIGHT, DRV600). Reductions in the dose of DRV/r could improve safety and lower costs of mass treatment in low- and middle-income countries. Low cost generic DRV/r is becoming available in many countries as patents expire. Method: In this study in Johannesburg, South Africa, 300 patients previously stable on 2NRTI+LPV/r with HIV RNA <50 copies/mL were randomised to 2NRTI+DRV/r 400 mg once daily (QD) or continued 2NRTI+LPV/r (n=152). Treatment success was defined as HIV RNA <50 copies/mL at Week 48 (FDA snapshot). Treatment arms were compared using the new FDA non-inferiority (NI) margin of ±2% for switch studies, using the Intent to Treat (ITT) population. Results: Patients were 68% female and 99.7% Black, with mean age 42 years. CD4 count 621 cells/µL, body weight 72 kg. In the primary efficacy analysis, HIV RNA < 50 copies/mL by Week 48 was 143/148 (96.7%) in the DRV/r arm versus 145/152 (95.4%) in the LPV/r arm (Difference = 1.2%, 95% CI -3.7% to +6.2%). Of the 12 patients with failure, 7 had low-level viraemia (50-199 copies/mL). 2 had transient high-level viraemia at Week 48 which resolved after adherence counselling; 3 had missing data. Summary safety data is shown in the table below.

**Conclusions:** In this study for patients with HIV RNA <50 copies/mL at baseline, switching to 2NRTI+DRV/r 400 mg once daily showed non-inferior efficacy versus 2NRTI+LPV/r in the primary efficacy analysis (96% versus 95%), within the ±2% FDA non-inferiority margin for switch studies. For stable patients, switching from LPV/r to DRV/r 400/100 QD would improve convenience and could lower long-term costs. New clinical trials are required to evaluate DRV/r 400 mg once daily after first-line treatment failure. Where this PI is most widely used.

<table>
<thead>
<tr>
<th>Treatment arm</th>
<th>2NRTI + DRV/r</th>
<th>2NRTI + LPV/r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size</td>
<td>148</td>
<td>152</td>
</tr>
<tr>
<td>HIV RNA &lt;50 copies/mL</td>
<td>143 (96.7%)</td>
<td>145 (95.4%)</td>
</tr>
<tr>
<td>Grade 1-4 adverse events</td>
<td>101 (68.2%)</td>
<td>108 (71.1%)</td>
</tr>
<tr>
<td>Grade 3-4 adverse events</td>
<td>7 (4.7%)</td>
<td>5 (3.3%)</td>
</tr>
<tr>
<td>Serious adverse events</td>
<td>3 (2.0%)</td>
<td>4 (2.6%)</td>
</tr>
<tr>
<td>Discontinuation for adverse events</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

{WRHI 052 trial - 48 week results in-journal}
TUAD03 Lost in transition: Challenges in domestic financing for HIV and human rights

TUAD0308LB
To give birth and die: The needs of HIV-positive mothers for retention in longer-term HIV care and treatment in Russia

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Background: The feminization of the HIV epidemic continues in Russia. PMTCT offers the opportunity to engage women in treatment but Option B+ is not commonly accepted. Little is known about HIV care and treatment retention among women after pregnancy. Our research objective was to identify factors influencing postpartum retention in treatment in Russia.

Methods: We conducted mixed-methods, community-based participatory research in 7 regions across Russia. In phase one, we conducted in-depth interviews with WLHIV and service providers in order to explore and identify factors related to HIV care and treatment among HIV-positive mothers. In phase two, we administered a survey to 200 HIV-positive mothers in order to identify the most salient factors and measure the strength of their association with postpartum treatment. We triangulated study results across sites and sources to draw conclusions. WLHIV played an active role in study design, data collection and interpretation of findings.

Results: 1. The majority of women don’t connect ARV with their own health but rather with the goal of PMTCT. Health care providers frequently hold the idea that ARV use is solely to protect the future child and don’t encourage women’s longer-term use.
2. Psychosocial support is devastatingly low. Lack of counseling has adverse effects on HIV treatment retention. Only 27% received post-test counseling. 80% of women not receiving pre-test counseling during pregnancy reported skipping doses or stopping ARVs postpartum. 3. Every third woman experienced a change in dosage or treatment plan. 4. Single mothers, mothers afraid to disclose their serostatus, and mothers married to AIDS denialists are especially vulnerable to stopping treatment. 5. The majority of women expressed grave financial need -lacking money for food or housing. Financial hardship was associated with poor ARV adherence.

Conclusions: Programs to support HIV-positive mothers are needed across Russia that incorporate education on the benefits of ARV, emphasize valuing one’s own health, promote skills (nutrition, lifestyle, sobriety), strengthen social support, and focus on families. Structural issues need to be addressed including, economic opportunities and availability of quality ARVs.

TUAA02 Strategies for cure: Pitfalls, possibilities and promise

TUAA0202LB
A randomised controlled trial comparing the impact of antiretroviral therapy (ART) with a ‘Kick-and-Kill’ approach to ART alone on HIV reservoirs in individuals with primary HIV infection (PHI): RIVER trial

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Background: ART alone is unable to cure HIV because of an inaccessible pool of latently infected cells, the HIV reservoir. In the first randomised controlled trial (RCT) of a ‘kick-and-kill’ strategy, amongst participants with PHI on ART, we investigated the impact of HIV-specific T-cell vaccines and a latency reversing agent (vorinostat) on the HIV reservoir.

Methods: Individuals who started ART within 4 weeks of confirmed PHI on ART, we investigated the impact of HIV-specific T-cell vaccines and a latency reversing agent (vorinostat) on the HIV reservoir.

Results: The two arms were compared for the primary outcome log10 total HIV-DNA copies/mlion from CD4+ T-cells at weeks PR-6 and B using analysis of covariance adjusted for baseline level. Secondary endpoints included quantitative viral outgrowth measuring replication-competent HIV-1 reservoir at week PR-16, HIV-specific CD4+ and CD8+ T-cell responses by intracellular cytokine staining at weeks PR-9 and 12, histone acetylation at post vorinostat and adverse events.

(Figure of total HIV DNA by arm)
Results: 60 male participants were randomised at 6 UK sites (30 intervention, 30 control), with median age 38 years, 26 weeks since ART start and CD4+ count 708 cells/mm³. All participants completed follow-up. There was no difference between the arms in the primary outcome (intervention versus control): 0.4% (95% CI -0.03, 1.03) log10 HIV-DNA copies/million CD4+ T-cells p=0.268. In the proportion with undetectable viral outgrowth (42% (95% CI 0.13, 1.37) p=0.151) Participants with undetectable viral outgrowth had significantly lower total HIV-DNA. Participants in the intervention arm showed significantly higher specific CD4+ (IFNg/IL2/TNFa/CD14) and CD8+ (IFNg/TNFa) T-cell responses post vaccination than control. Histone acetylation increased 3.2-fold two hours post-vorinostat (p<0.001). There was no virological failure or intervention-related SAE. More clinical adverse events were reported in the intervention arm than in the control arm.

Conclusions: In the first ‘kick-and-kill’ RCT in PHI, despite evidence of robust vaccine-induced HIV-specific T-cell immunity and vorinostat activity, there was no impact on measures of HIV reservoir compared to ART alone. Vaccination and vorinostat did not raise any safety concerns. Further analyses are ongoing to explore mechanisms to explain these findings.

TUAA0206LB
Evaluation of an antibody to Alpha4Beta7 in the control of SIV infection

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Background: It was recently reported that treatment with an antibody to the alpha4beta7 integrin in rhesus macaques infected with SIVmac 239 having a stop codon in nef (SIVmac239nefstop) was associated with prolonged post-treatment suppression of viremia. The present study was undertaken to try to confirm and extend those observations.

Methods: Twenty-two Mamu-A001, Mamu-B008 and Mamu-B017 negative juvenile to adult Indian rhesus macaques b4 kg or 3 yrs; mixed sex) were infected intravenously with 200 TCID50 SIVmac239nefstop (courtesy F. Villinger). At 5 weeks post-infection (wpi), combination anti-retroviral therapy (cART) was started with tenofovir, emtricitabine and L-870812. After 4 weeks of cART, animals received a total of 8 infusions of neutralizing antibody, every 3 weeks of primatized anti-a4b7 antibody (n=12) or control antibody L-870812. After 4 weeks of cART, animals received a total of 8 infusions of neutralizing antibody, every 3 weeks of primatized anti-a4b7 antibody (n=12) or control antibody L-870812. After 4 weeks of cART, animals received a total of 8 infusions of neutralizing antibody, every 3 weeks of primatized anti-a4b7 antibody (n=12) or control antibody L-870812. After 4 weeks of cART, animals received a total of 8 infusions of neutralizing antibody, every 3 weeks of primatized anti-a4b7 antibody (n=12) or control antibody L-870812. After 4 weeks of cART, animals received a total of 8 infusions of neutralizing antibody, every 3 weeks of primatized anti-a4b7 antibody (n=12) or control antibody L-870812.

Results: Peak plasma SIV RNA levels averaged ~10^6 copies/ml in both arms. Sequence confirmed the presence of the expected stop codon in nef in the challenge virus, with restoration to nef open by 5 wpi in all animals. Four weeks after cART initiation plasma SIV RNA levels were <100 copies/ml in 10/12 experimental group animals and 10/10 controls. Three weeks following discontinuation of cART, plasma SIV RNA levels rose to above 100 copies/ml in 10/12 a4b7-treated animals and 8/10 controls. Fifteen weeks following discontinuation of cART, plasma SIV RNA levels were ~10^4 copies/ml in both groups and not significantly different.

Conclusions: In the present study, administration of an antibody to the a4b7 integrin in conjunction with short term cART was not associated with control of SIV replication following treatment cessation. Follow up studies to explore potential reasons for differences between the present findings and published results will focus on potential antidrug antibody responses and other possibilities.

TUAC0207LB
Integrated biological and behavioural surveillance (IBBS) survey among men who have sex with men in South Sudan

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Background: South Sudan has a 2.6% HIV prevalence rate and is regarded as low and generalized with pockets of high concentration among key populations (KPs). Female sex workers (FSW), their clients and men who have sex with men (MSM) account for 63% of new adult HIV infections. No research has been done to date on MSM risk behaviours, limiting development of evidence-based interventions. This first ever IBBS survey among MSM aimed at establishing HIV and syphilis prevalence and risk behaviours to better inform policy and programming.

Methods: The IBBS study was conducted in six sites in South Sudan. MSM is a criminalised behaviour in South Sudan, thus the study utilized non-probability sampling techniques including purposive and snowball sampling. Data collection methods used included electronic structured questionnaires, key informant interviews and focus group discussions. Respondents were tested for HIV and syphilis, using national testing algorithms. Results: A total of 165 MSM participated in this survey. About 92% (n=152) were South Sudanese, and 87% (n=143) were under 28 years old. The HIV prevalence among MSM was 3.3% (N=152), higher than the 2.6% national average. The syphilis prevalence was also 3.3% (N=152). About 36% (n=59) of the MSM had a relationship with a female, which shows that sexual partners of MSM are not only same-sex but also heterosexual. About 26% (n=43) used condoms with non-regular partners every time and 12% (n=20) had a sexually transmitted infection (STI) during the past 12 months preceding the survey. Only 5% (n=8) had ever disclosed that they are MSM to health care workers, 22% (n=36) had avoided health services due to stigma and discrimination, while 26% (n=43) had access to HIV and AIDS programmes.

Conclusions: The preliminary results provide the first ever baseline data on the sexual behaviours, HIV and syphilis prevalence for MSM in South Sudan. Results show higher HIV prevalence than the national average, presence of high-risk sexual behaviours, limited access to tailored HIV and AIDS programmes and high levels of stigma and discrimination towards MSM. These findings illustrate the need to strengthen the country’s policies and KP-focused interventions.
Diversities in delivery: PrEP from home to clinic

Integrating oral HIV pre-exposure prophylaxis (PrEP) in a public family planning facility and youth center to inform national roll out in Zimbabwe

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1Clinton Health Access Initiative, Demand Driven Evaluations for Decisions, Harare, Zimbabwe, 2Clinton Health Access Initiative, Horare, Zimbabwe, 3Ministry of Health and Child Care, HIV prevention, Harare, Zimbabwe, 4Zimbabwe National Family Planning Council, Horare, Zimbabwe, 5Clinton Health Access Initiative, Boston, United States

Background: There is limited information on the process of offering oral PrEP to the general at-risk population in resource-limited public sector settings globally. Programming has been limited to private sector demonstration projects targeting key populations. This study aims to provide operational guidance to the Zimbabwe Ministry of Health on national public sector integration of oral PrEP as part of combination HIV prevention.

Description: PrEP was piloted in an urban family planning clinic and a rural youth center, integrating it into existing HIV prevention and reproductive health services and activities. 150 HIV negative clients screened as being at high risk of HIV infection were offered PrEP between January and April 2018, primarily through provider initiative. Demand generation included group client education and in-facility posters and pamphlets; community leader sensitization was also conducted at the rural center. Semi-structured interviews on PrEP experiences were conducted with five healthcare workers (HCWs) and 37 clients who agreed to be followed up (7 decliners and 30 accepters).

Lessons learned: PrEP risk assessment can be integrated into existing routine family planning and HIV testing and counselling services. Differences in facility enrolment data and interviews with study participants indicate that HCW knowledge and attitudes, and client awareness, affect whether PrEP is offered and/or accepted. PrEP uptake is driven by partner’s risky behaviour or positive HIV status; this did not vary by gender.

Conclusions: Risk assessment can be integrated into existing family planning and HIV prevention services. National clinical training tools for HCWs should emphasize client education and counselling on PrEP as part of combination HIV prevention. The national HIV Communication Strategy should focus on increasing general awareness of how PrEP works in order to increase uptake and reduce stigma associated with use. Adjustments to national PrEP target-setting will be informed by study findings on PrEP uptake among those testing HIV negative.

AIDS 2018 Co-chairs’ choice

Engagement in methadone maintenance therapy associated with less time with plasma HIV-1 RNA viral load above 1500 copies/mL among a cohort of HIV-positive people who use drugs in Vancouver, Canada

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Background: It is well established that elevated plasma HIV-1 RNA viral load (VL) drives the risk of onward viral transmission. Despite being a key population living with HIV, people who inject drugs continue to experience individual, social and structural barriers in accessing and being retained in HIV treatment and care. In the present study, we sought to longitudinally examine the relationship between engagement in a low-threshold methadone maintenance therapy (MMT) program and amount of person-time with heightened HIV transmission risk (i.e. VL >1500 copies/mL plasma) among HIV-positive people who use drugs (PWUD).

Methods: Data were derived from the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS), a community-recruited prospective cohort of HIV-positive PWUD in Vancouver, Canada. Longitudinal cohort data was confidentially linked to comprehensive HIV clinical monitoring records in a setting of universal no-cost HIV treatment and care. We used generalized estimating equation analyses to assess the impact of engagement in low-barrier MMT on the number of days with an HIV-1 RNA VL above 1500 c/mL in the previous 180 days.

Results: Between 5 December 2005 and 29 November 2017, 867 HIV-seropositive antiretroviral therapy-exposed PWUD were recruited and contributed 4531 person-years of observation time. Among these, 522 (60.2%) were engaged in MMT at least once since follow-up. In a multivariable model, periods of MMT were independently associated with fewer days with a VL above 1500 c/mL (Adjusted Rate Ratio=0.70, 95% Confidence Interval 0.60-0.81) after controlling for demographics, drug use patterns, and CD4 count.

Conclusions: We observed that engagement in MMT was associated with significantly less person-time with a VL above 1500 copies/mL among a large and long running cohort of PWUD. These findings suggest that low-threshold MMT is an effective intervention in lowering the risk of onward viral transmission among this key population. Further, these findings demonstrate the important role of evidence-based addiction treatment in optimizing individual and community-level impacts of antiretroviral therapy among HIV positive patients with comorbid opioid dependence. Efforts to address barriers to the use and availability of MMT will likely improve HIV outcomes and reduce new infections among this population and should therefore be prioritized.
WEAX0102LB
Universal test and treat (UTT) versus standard of care for access to antiretroviral therapy in HIV clients: The MaxART stepped-wedge randomized controlled health systems trial in Swaziland

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Background: The World Health Organization recommends offering antiretroviral treatment (ART) to all HIV-positive individuals regardless of CD4 count or disease stage, known as “universal test and treat” (UTT). However, the health systems effects of UTT implementation are unknown. We investigated the effect of UTT on retention and viral suppression in the world’s first UTT implementation trial in a government-managed health system.

Methods: In this stepped-wedge randomized controlled trial, fourteen public sector health facilities in Swaziland were paired and randomly assigned to transition in four-month steps from implementing the current national standard of care (SoC) to providing ART under UTT. ART-naïve clients ≥ 18 years who were not pregnant or breastfeeding were eligible for enrollment. We used Cox proportional hazard models with censoring of follow-up at clinic transition to measure the effects of UTT on our two primary endpoints: retention and viral suppression after ART initiation.

Results: Between September 2014 and August 2017, 3405 clients (62% women, median age 33 years [IQR: 28-42]) were enrolled. Under SoC, the combined endpoint of retention and viral suppression was also sub-

WEAX0103LB
Men’s HIV risk profiles in South African DREAMS sites: Using latent class analysis for more strategic, context-specific programming and evaluation

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Background: There is a critical need to reach high-risk men with HIV prevention, care, and treatment services. Latent class analysis (LCA) can generate context-specific profiles based on demographic, attitudinal, and behavioral indicators—which can then be used to refine program targets and assess service uptake.

Methods: From May to September 2017, we conducted surveys with 652 men ages 20-40 in informal settlements in Durban, South Africa where the DREAMS Partnership is being implemented. Using LCA, we identified classes based on sociodemographics, normative gender attitudes, and HIV risk behaviors. We then assessed associations between class membership and HIV service use.

Results: We identified four latent classes (Table 1), with good model fit statistics. The younger moderate-risk class (36% of the sample; mean age 23) were largely unmarried, recent technical college/university graduates, unemployed, and moderately gender-inequitable. They had high numbers of same-age partners, low-end transactional relationships, and some hazardous drinking. The younger high-risk class (25%; mean age 27) were unmarried, employed secondary graduates with the highest number of partners and the most inequitable gender views, and some hazardous drinking. The younger high-risk class (25%; mean age 27) were unmarried, employed secondary graduates with the highest number of partners and the most inequitable gender views,

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<tr>
<th>INDICATORS</th>
<th>Younger moderate-risk (36.8% of sample)</th>
<th>Younger high-risk (24.7% of sample)</th>
<th>Older low risk (7.8% of sample)</th>
<th>Older high risk (18.1% of sample)</th>
<th>Full sample</th>
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<tr>
<td>Age (mean)</td>
<td>22.5 years (95% CI: 21.7-23.3)</td>
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hazardous drinking, and low-end transactional relationships. The older low-risk class (20%; mean age 30) were largely married/cohabiting, employed secondary graduates and were the most gender-equitable, with few partners, limited transactional sex and relatively low hazardous drinking. Finally, the older high-risk class (20%; mean age 36) were largely married/cohabiting, employed secondary graduates, and moderately gender-inequitable. They had highly age-disparate partners and substantial high-end transactional relationships and hazardous drinking. High-risk men tended to be taxi drivers, factory/construction workers, or small business owners/entrepreneurs. Uptake of voluntary medical male circumcision was much higher among the younger moderate-risk class than the others (π < 0.001). The older low-risk class had higher HIV treatment literacy than the younger high-risk class (π < 0.01). HIV testing and current use of antiretroviral therapy did not differ across the classes.

Conclusions: We identified distinct HIV risk profiles among men in Dur- ban. Interventions should focus on reaching the highest-risk profiles who, despite their elevated risk, were less likely or no more likely than the lower-risk to use HIV services. LCA has the potential to enable more strategic, data-driven programming and evaluation.

WEAX0104LB
Risk of HIV transmission through condomless sex in MSM couples with suppressive ART: The PARTNER2 Study
Extended results in gay men

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Background: Although zero cases of HIV transmission in gay men have been reported in observational studies (PARTNER1 and Opposites Attract) of serodifferent couples where the positive partner was on suppressive ART, the level of evidence for gay men remained less than for hetero- sexual couples. The aim of PARTNER2 was to provide more precise estimates of transmission risk through condomless sex in serodifferent gay male couples where the HIV-positive partner was on suppressive ART.

Methods: The PARTNER Study was a prospective observational study in 14 European countries. Phase 1 (Sep 2010–May 2014) recruited both heterosexual and gay male couples, and Phase 2 (to April 2018) recruited and followed gay couples only. Study data, collected at baseline and every 6–12 months, included sexual behaviour questionnaires with HIV testing (HIV-1 viral load) and HIV-1 diagnostic tests. Eligibility criteria for CYFU inclusion were condomless sex, no reported ART failure or treatment interruption, and couples reported condomless-sex for a median of 1.0 years (IQR 0.4–2.0) and re-tested for HIV at >1 follow-up visit. 57 HIC participants in each arm re-tested for HIV at >1 follow-up visit. 57 HIC participants (15% of the 381 participants) were excluded from the analysis because they did not have a seroconversion event, or had no information on condomless sex during the 12-month follow-up period.

Results: Between Sep 2010 and July 2017, 972 gay couples were enrolled. Of these, 779 couples provided ≥61 eligible CYFU over a median of 1.5 years (IQR 0.8–2.8). At baseline, mean age was 40 years (IQR 33–46) and couples reported condomless-sex for a median of 1.5 years (IQR 0.4–2.9). During eligible CYFU, a total of 74,567 condomless-sex acts were reported, a median of 42 times per couple year (IQR 19–71). Condomless-sex with other than the main partner was reported by 285 HIV-negative men (37%). There were 17 new HIV infections, but none were phylogenetically linked transmissions, giving a precise rate of within-couple HIV transmission of zero, with a narrow upper 95% confidence limit of 0.24–100 CYFU. This upper-limit for condomless anal sex with ejaculation was 0.05/100 CYFU.

Conclusions: Despite almost 75,000 condomless-sex acts in gay serodifferent couples where the positive partner was on suppressive ART, we found zero cases of within couple HIV transmission. PARTNER2 provides a similar level of confidence for gay men as for heterosexual couples in PARTNER1.
Conclusions: We observed a 30% reduction in community HIV incidence with expanded HTC, linkage, ART, and MC campaigns. Importantly, our findings demonstrate that it is possible to reduce HIV incidence in high-HIV-prevalence settings that have already approached the ambitious UNAIDS 90-90-90 targets, by further increasing coverage.

**WEAX0106LB**

SEARCH community cluster randomized study of HIV “test and treat” using multi-disease approach and streamlined care in rural Uganda and Kenya


**Background:** SEARCH (NCT:01864683) is a community-cluster randomized study in rural Uganda and Kenya evaluating whether a multi-disease, streamlined-care approach to HIV “test and treat” reduces HIV incidence and improves community health, compared to a national guideline approach augmented with baseline HIV and NCD (hypertension and diabetes) testing.

**Methods:** We randomized (2013–2014) 32 pair-matched communities in 3 regions (Uganda-West, Uganda-East, Kenya) to an active control with baseline HIV/NCD testing and ART/NCD care by national guidelines or an intervention with additional annual population HIV/NCD testing, rapid-start ART for all HIV+, and patient-centered, streamlined ART/NCD care. In all communities, population-level testing was delivered through multi-disease health fairs; non-participants were tested at home/community. In the control arm, ART eligibility expanded during the study from CD4+< 350 to CD4+< 500 to all HIV+. Three-year HIV cumulative incidence, HIV viral suppression, mortality, HIV-TB, and hypertension control were compared between arms using targeted maximum likelihood estimation.

**Results:** At baseline, 335,005 persons (150,395 adults ≥15 years) were enrolled; 90.1% of adults were HIV-tested. HIV prevalence was 6.6%, 3.5%, and 19.3%, and HIV viral suppression was 47.5%, 43.0%, and 52.8% in Uganda-West, Uganda-East, and Kenya, respectively. Population-level viral suppression increased to 73.0% by year 1 in the intervention arm; at year 3, suppression was higher in intervention (79.7%) vs. control (68.4%) (RR:1.17; 95%CI:1.11,1.22; P< 0.001). At year 3, the intervention arm had 21% lower mortality among HIV+ (RR:0.79; 95%CI:0.65,0.96; P=0.02), 59% lower annual TB incidence among HIV+ (RR:0.41; 95%CI:0.19,0.86; P=0.02), and 16% less uncontrolled hypertension (RR:0.84; 95%CI:0.79,0.90; P< 0.001) compared to control. Annual HIV incidence in the intervention arm decreased from year 1 to year 3 by 30% (RR:0.70; 95%CI:0.57,0.86; P< 0.001), incidence decreased by 45% in Kenya (RR:0.55; 95%CI:0.40,0.76; P< 0.001). Three-year cumulative HIV incidence did not differ between intervention (0.77%) and control (0.81%) (RR:0.95; 95%CI:0.77,1.17; P=0.60).

**Conclusions:** A multi-disease approach using streamlined care rapidly achieved UNAIDS 90-90-90 targets, improving community health (HIV mortality, HIV-TB, hypertension control). Annual HIV incidence decreased by 30% during the study; however, three-year cumulative HIV incidence did not differ between arms. Continued investment and innovation in HIV treatment and prevention are needed for HIV elimination.
WEAA01 Poking, prodding and purging the final reservoir frontier

WEAA0108LB

The majority of the replication-competent virus in the latent reservoir originates from viruses circulating near the time of ART initiation.


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Background: HIV-1 persists during suppressive therapy in latently infected cells. These cells have been observed in all HIV-infected people even if treated very early, but little is known about when viruses enter the latent reservoir. Such knowledge would inform our understanding of the dynamics of this reservoir.

Methods: Plasma samples were collected longitudinally from 9 HIV-infected ART-naïve women enrolled in the CAPRISA 002 acute infection cohort who initiated therapy when CD4+ T cell count dropped below 500 cells/µl (mean = 4.5 yr p.i.). After prolonged ART (mean = 5.1 yr), resting CD4+ T cells were isolated from blood and cultured in a quantitative viral outgrowth assay (QVOA) to sample virus in the latent reservoir. vRNA from plasma collected longitudinally pre-ART was analyzed by MiSeq deep sequencing across the genome, and PacBio was used to analyze vRNA from p24+ QVOA outgrowth wells to generate near full-length sequences. Phylogenetic analyses were performed to compare these two types of sequences.

Results: Of the genetically unique outgrowth viruses sampled from each participant, 60 to 100% were related most closely to virus circulating in the year prior to ART initiation, and 0 to 22% to virus circulating during the first two years of infection. This suggests that the start of therapy is associated with the formation of the majority of the persistent reservoir. In sampling 6-44 outgrowth viruses per person, between 0 and 60% of these viruses were genetically identical indicating they were derived from clonally expanded cells, with half arising well before ART initiation and the other half proximal to the start of ART.

Conclusions: We used virus evolution off therapy as a molecular clock to date formation of the latent reservoir. Unexpectedly, the majority of the viruses that we detected entered the reservoir near the time of therapy. Our results support several models including ones in which ART-induced changes to the host immune environment promote latency in HIV-infected cells and/or increase the half-life of latently infected cells. These findings provide unique insights into the formation of the latent reservoir and suggest that interventions at the time of ART initiation may significantly reduce the size of the latent reservoir.

WEAE04 PrEP: Work in progress

WEAE0406LB

Incidence of HIV-infection in the ANRS Prevenir study in Paris region with daily or on-demand PrEP with TDF/FTC.

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1University of Paris Diderot, Sorbonne Paris Cite, Saint-Louis Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, 2Paris Descartes University, Sorbonne-Paris Cite, Hotel-Dieu Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, 3INSERM, Sorbonne Université, Institut Pierre Louis d’Épidemiologie et de Santé Publique (IPELPS), Paris, France, 4Coalition PLUS, Pantrin, France, 5Sorbonne Université, Tenon Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, 6INSERM, University of Paris Diderot, Sorbonne Paris Cite, IAME (Infection, Antimicrobials, Modelling, Evolution), Bichat Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, 7INSERM, Sorbonne Université, Institut Pierre Louis d’Épidemiologie et de Santé Publique (IPELPS), Pitié-Salpêtrière Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, 8AIDES, Pantrin, France, 9Saint-Louis Hospital, Assistance Publique Hôpitaux de Paris, Paris, France, 10ANRS, France Recherche Nord & Sud Sida-hiv Hépatites, Agence autonome de l’INSERM, Paris, France, 11Aix Marseille Université, INSERM, IML, SESTIM, Sciences Economiques et Sociales de la Santé et Traitement de l’Information Médicale, ORS PACA, Observatoire Régional de la Santé Provence-Alpes-Côte d’Azur, Marseille, France

Background: On-demand PrEP with TDF/FTC has been recommended as an alternative to Daily PrEP for MSM by the European AIDS Clinical Society following the results of clinical studies but data are limited on real-world experience.

Methods: The ANRS Prevenir study is an ongoing prospective cohort study in the Paris region enrolling high risk individuals willing to/or using PrEP. Both daily and On-demand PrEP were offered to eligible individuals. At baseline, month 1 and every 3 months thereafter subjects were tested for HIV using a 4th generation combined ELISA test and other STIs and creatinine plasma levels were monitored. At each visit participants provided information regarding sexual behaviour and adherence using computer assisted self-interviews. Analysis of HIV incidence was assessed to provide additional data on the efficacy and safety of the two PrEP dosing regimens.

Results: From May 3rd 2017 to May 1st 2018, 1435 subjects were enrolled across 22 sites, 59% being PrEP experienced for a median of 10 months. Median age was 37 years (IQR: 30-42), 98.7% were MSM. At enrolment, PrEP was used Daily in 44% and On-demand in 53% of participants. Median number of partners in the 3 months before enrolment was 15 (IQR: 7-25) in the Daily group and 10 (5-15) in the On-demand group (P< 0.001). Median number of condomless sex in the prior 4 weeks was 3 (3-8) and 2 (0-4), respectively. P< 0.001. The current follow-up lasted 302 and 361 person-years (PY) in the Daily and On-demand groups, respectively. The incidence of HIV-1 infection was 0 (95% CI: 0-1.2) per 100 PY and 0 (95% CI: 0-1.0) in the Daily and On-demand groups respectively (P=1.00) and the incidence of study discontinuation was 3.0 and 3.6 per 100 PY.
WEA02 Time for a youthquake in HIV prevention and treatment

WEA0208LB

The third generation of HIV: World first longitudinal study of pregnancy in adolescents living with HIV

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Background: Nearly 1.7 million HIV-positive adolescent girls in Southern Africa experience high rates of pregnancy, poor birth outcomes, and AIDS-related mortality. Option B+ has dramatically reduced the overall rates of paediatric HIV-infections, but the legacy of adolescents living with HIV persists. HIV-positive adolescent mothers have exceptionally high rates of mortality, morbidity, and onwards vertical HIV transmission. Their HIV-exposed children face increased risk of delayed HIV-testing and ART initiation, worse retention in care, poorer health and higher mortality. The study of the syndemic of adolescent pregnancy and HIV is urgently needed. This study presents the first data on rates of incident and repeated pregnancies among adolescent girls living with HIV and factors shaping early motherhood.

Methods: All HIV-positive adolescent from 52 clinics in a health district in South Africa were approached (90.1%), resulting in n=563 HIV-positive adolescent girls. Two interviews were conducted 18-months apart, following voluntary consent from adolescents and caregivers. Data collection tools were piloted with n=25 HIV-positive adolescents. Analyses investigated factors longitudinally associated with incident and repeated pregnancies: socio-demographic, family, mental health, mode of infection and HIV-related factors using STATA 25.

Results: N=98/563 (17%) reported lifetime pregnancy, with N=54 (9.6%) having two or more pregnancies. Only 46 (8.2%) girls were aware of the pregnancy, while 42 (8.2%) were aware of the birth. N=58 (10.3%) reported knowing their children’s HIV-status, with n=4 (3.5%) reporting having at least one HIV-positive child. HIV-positive adolescents who were pregnant were more likely to be older, from poor households, not enrolled in school, suicidal, and sexually infected (Fig 1).

Conclusions: The next generation of HIV infection dawns. Factors which result in HIV infection in young people may have long-term ramifications for HIV-positive young mothers and the next generation - their HIV-exposed/infected children. Adolescent pregnancy (and multiple pregnancies) is an issue, with cycles of disadvantage clustering in terms of poverty, school dropout and mental health. Breaking the cycle of onward transmission to their children is an urgent intervention gap.

WEAB02 ART in infants and children

WEAB0208LB

Impact of late versus early antiretroviral therapy on PBMC-associated HIV-1-DNA levels and the percentage of naive T lymphocytes in HIV-1 infected children and adolescents - The ANRS-EP59-CLEAC study

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Background: Early combined antiretroviral therapy (cART) initiation reduces progression to AIDS and death and decreases the cell-associated viral reservoir in children infected with HIV-1 during the perinatal period. Little data are available on the benefit of early cART initiation for children over five years of age and adolescents. The ANRS-EP59-CLEAC study aimed to assess the immunological and virological characteristics of HIV-1-infected children and adolescents who achieved initial virological suppression, according to age at cART initiation (< 6 months vs. ≥ 24 months of age).

Methods: Patient recruitment was conducted in the Paris area between 2016 and 2018. Total cell-associated HIV-1 DNA was quantified in the blood using ultrasensitive real-time PCR (adapted from Bioeneric, Bandol, France). CD4 and CD8 CD45RA+CCR7+ naive T lymphocytes were quantified in fresh blood by flow cytometry. The Kruskal-Wallis test was used to compare the parameters of early/late treated children (5-12 years) and adolescents (13-17 years).

Results: We prospectively enrolled 27 children (E-Ch) and nine adolescents (E-Ado) in the early-cART group and 21 adolescents (L-Ado) in the late-cART group. The patients were mainly girls (54%), born in mainland France (60%) to mothers originating from Sub-Saharan African countries (72%). At the time of the study, all patients were receiving ART. 76% had undetectable plasma HIV-1 RNA, and the median (interquartile range) CD4 T-cell count was 824 (660; 1167) cells/μL. HIV-1 DNA levels were lower in the early-cART than late-cART groups for both children and adolescents (medians were 2.2 (E-Ch), 2.9 (L-Ch), 2.3 (E-Ado), and 3.0 (L-Ado) log10 copies/106 PBMCs, P=0.001; Data on the percentage of naive CD4 and CD8 T lymphocytes were available for 58 subjects. We observed the highest percentages in E-Ch (medians in the E-Ch, L-Ch, E-Ado, and L-Ado groups were respectively 61, 54, 36, and 21% for CD8, 61, 58, 45, and 40% for CD4, 55.5 and 55.5 for CD4, P=0.02) and 50, 33, 29, and 29% for CD8, P=0.004).

Conclusions: Early cART initiation during infancy is associated with lower short- and long-term PBMC-associated HIV-DNA levels, as targeted in HIV-1 remission strategies. An immunological benefit of early cART initiation on naive T lymphocytes was suggested in children from this study.

Three factors were longitudinally associated with both incident and repeated pregnancy: age >15 years-old (OR1.7, CI1.6-3.1, p<0.001), not being enrolled in school at baseline (OR1.2, CI2.0-9.6, p<0.001), and being sexually/behaviourally infected (OR10.9, CI4.9-24.0, p<0.001).
WEAE05 I want you back: Improving retention on HIV programmes

WEAE0508LB
Taking biometric coding and the patient-linkage and retention system to scale: Game changers for improving patient tracking and reducing loss to follow-up (LTFU) among PLHIV in Haiti

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2United States Agency for International Development, Port-au-Prince, Haiti.
3Centers for Disease Control and Prevention, Port-au-Prince, Haiti.

Background: In 2015, after identifying an alarming rate of LTFU (15% for FY14) among PLHIV enrolled on treatment, the PEPFAR Haiti program implemented a multi-faceted intervention to improve patient tracking, LTFU retrieval, adherence, and retention: fingerprint-based Biometric Coding (IBC) and the Patient Linkage and Retention (PLR) System.

Methods: PLR encompasses tracking of patients at the community level, including HIV+ patients never linked to care, LTFU, and active patients at risk of being LTFU. PLR is optimized with GPS and BC, allowing for a unique identifier for HIV+ patients. Improved estimates of the never-diagnosed PLHIV, and identification of silent transfers and medical shopping. Details of eligible patients are provided to community health workers (CHWs) who conduct home visits.

Results: To date, PLR and BC have been rolled-out in 90% of clinical facilities, covering 72% of PLHIV enrolled on ART. 55% of LTFU have been brought back to care with 57% of retention. The overall annual LTFU rate has decreased from 15% in FY15 to 3% in FY19. Barriers to retention, documented through the PLR tool, have been incorporated to address programmatic gaps in patient linkage and retention. Moreover, GPS and BC facilitate data quality assurance by identifying duplicate patients and medical shopping across Haiti. BC, PLR and the CHW network also facilitate data-driven partners.

Conclusions: While the validity of BC connected to patient tracking has been shown effective at improving HIV treatment outcomes in other geographically limited settings, PEPFAR-Haiti is demonstrating that BC taken to scale in a resource-constrained setting and applied at the national level, improves clinical outcomes, de-duplicating national figures of PLHIV on ART and tracking patterns of LTFU and re-entry across Haiti. BC and PLR are an important factor in decreasing LTFU. PEPFAR-Haiti will continue to take this innovation to scale to all supported facilities for improved program management to achieve epidemic control in Haiti.

THAB01 Non-communicable diseases: Continued challenges

THAB0108LB
Superiority of paclitaxel compared to either bleomycin/vinristine or etoposide as initial chemotherapy for advanced AIDS-KS in resource-limited settings: A multinational randomized trial of the ACTG and the AIDS Malignancy Consortium

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Background: Advanced Kaposi sarcoma (KS) is a potentially life-threatening complication of HIV infection where access to chemotherapy is limited and HIV and KS herpesvirus coinfection rates are high. No evidence-based standard of care (SOC) guideline for advanced KS exists in settings where resources for safe preparation and administration of intravenous (IV) chemotherapy are scarce.

Methods: Participants at 11 ACTG sites in 5 sub-Saharan African countries and Brazil with measurable, previously-untreated, biopsy-proven, advanced (T1 stage) AIDS-related KS, adequate organ function and performance status, and limited (≤42 days) or no ART exposure were prospectively randomized 1:1:1 to receive oral etoposide plus ART (ET+ART), IV bleomycin and vincristine+ART (BV+ART), or IV paclitaxel+ART (PTX+ART). Randomization was stratified by CD4 count (< 100 or ≥100 cells/mm3) and country. PTX+ART, a standard regimen in resource-rich settings, was considered the active control. The trial was designed to evaluate whether ET+ART (an oral regimen affording significant logistical advantages in resource-limited settings (RLS)) and/or BV+ART (a commonly-used regimen in RLS) were noninferior to PTX+ART. Noninferiority was defined as a week-48 progression-free survival (PFS) rate within 15% of the PFS rate of the PTX+ART arm, projected at 65% and based on Kaplan-Meier methods.

Results: Entry and on-study characteristics are shown in Table 1. An interim Data and Safety Monitoring Board (DSMB) review in 3/2016 found the ET+ART arm inferior to the PTX+ART arm. The ET arm was closed, accrual continued for the remaining 2 arms. A subsequent interim DSMB review in 3/2018 found the BV+ART arm inferior to the PTX+ART arm; further accrual was halted. PTX was offered to all remaining eligible study participants. Week-48 PFS rates (95% CI) at the time each study arm was closed were 19% (8-35), 43% (34-53) and 63% (54-72), respectively for the ET+ART, BV+ART and PTX+ART arms (Fig.1). There were no safety concerns about any of the treatment regimens; ~90% had HIV VL < 400 c/mL by week 12.

Conclusions: These findings establish PTX+ART as a SOC for initial treatment of advanced AIDS-KS, and underscore both the urgent need to improve the cancer therapeutic infrastructure and the accessibility of essential chemotherapeutic agents in RLS.
Results: A total of 4,808 HIV screening tests were taken by 3,766 Blued users, among whom 168 were HIV-reactive and received confirmed diagnoses of HIV infection, for a point prevalence of 4.5%. The remaining 3,599 were followed, among whom 673 (18.7%) accessed HIV screening again via Blued. Ten HIV seroconversions were observed during 827 person-years or an incidence rate of 1.2 per 100 PY.

Conclusions: Our study demonstrates that use of social networking apps such as Blued provide a promising new method for evaluating and monitoring HIV incidence. Although further study is required, this method may have great potential for nationwide scale-up to monitor HIV incidence in this important key population.

THAC01 New tools, old tricks: Innovative methods for understanding the epidemic

THAC0108LB

Using a social networking “app” to establish an open cohort for assessing HIV incidence among men who have sex with men in Beijing, China

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Blued, Beijing, China, 1Langfong CDC, Langfong, China, 2National Center for AIDS/STD Control and Prevention, Beijing, China

Background: HIV infection is spreading quickly among men who have sex with men (MSM) in China. Yet, MSM continue to be difficult to reach, and as a result, creating and maintaining a cohort by traditional methods is challenging. Blued is a gay social networking application “app” with over 40 million users worldwide and 480,000 monthly active users in China. We aimed to develop an innovative new method using Blued to estimate HIV incidence among MSM.

Methods: All Blued users in Beijing who obtained rapid HIV screening tests via Blued (ie, online appointment booking through Blued and attendance at one of four Blued-designated voluntary counseling and testing [VCT] clinics in Beijing) from 21 June, 2017 to 31 March, 2018 were eligible for the study. Before testing, users provided informed consent electronically and completed an online survey, which collected demographic and sexual health and behavior information, through Blued. After testing, results (negative or reactive) were recorded. Users who tested more than once had their testing records linked automatically by Blued UID and the time intervals between tests were captured. Attendances with reactive results were referred to local CDC for confirmatory testing by Western blot, and all confirmed diagnoses were counted as seroconversions. All those recruited into the cohort and followed were censored at seroconversion or study end date, whichever came first, and observed time and HIV incidence rate were calculated.

<table>
<thead>
<tr>
<th>Table 1: Selected entry and on study characteristics</th>
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</thead>
<tbody>
<tr>
<td><strong>ET+ART</strong></td>
</tr>
<tr>
<td>N=59</td>
</tr>
<tr>
<td>Women</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Visceral KS at Entry</td>
</tr>
<tr>
<td>KS-associated Edema at Entry</td>
</tr>
<tr>
<td>CD4 count (cells/mm3) at entry</td>
</tr>
<tr>
<td>@ Week 24</td>
</tr>
<tr>
<td>@ Week 48</td>
</tr>
<tr>
<td>HIV VL&lt;400 copies/ml at entry</td>
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<tr>
<td>@ Week 12</td>
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</table>

| Background: | Overall, adult HIV prevalence in Papua New Guinea (PNG) is 0.6% (UNAIDS, 2016), higher (1.1%–1.68%) among key populations (KPs), including female sex workers (FSW) (1.4%), men who have sex with men (MSM)/transgender women (TGI) (0.5%) (INDOH, 2017). Two-thirds of women experienced gender-based violence (GBV) (Darko et al., 2015), and 41%–45% of FSW and MSM/TG reported sexual violence in the last 12 months (Kelly-Hanku et al., 2017). GBV increases HIV risk yet decreases service utilization. Sociocultural factors inhibit GBV disclosure and service uptake for all survivors’ laws criminalizing sex work and sodomy heighten this inhibition for KPs. In 2015, FHI 360 began integrating gender and GBV interventions into its USAID-funded Strengthening HIV/AIDS for KPs in PNG project (2012–2018) to prevent GBV and to increase post-GBV service uptake. Initial interventions prepared service providers to offer KP-friendly, comprehensive post-GBV clinical services and then moved to GBV prevention, awareness and referral among KP, communities and other service providers.

Description: Interventions implemented in five health facilities and the outcomes are listed below. Disaggregated descriptive and trends analyses were conducted using health facility program monitoring data (fiscal year [FY] 2015–2017) to understand results from routine GBV screening and post-GBV care uptake.

Lessons learned: The number of GBV-screened individuals among clients accessing HIV/STI services increased from 718 (2015) to 8,426 (2017). The percentage of individuals screened and identified as GBV-survivors remained low compared to survey results (Darko et al., 2015). The number of GBV cases expanded exponentially. The percentage of survivors seen (including walk-ins/referrals) receiving post-GBV care for both sexes increased sharply before a 2017 slight decline. The percentage of GBV survivors among KPs who received care increased sharply (2015–2017) (MSM/TG: 0% to 86.1%, FSW: 33.3% to 86.5%).

Conclusions/next steps: In this context, increasing the number of service points, providing integrated KP-friendly and comprehensive GBV services combined with community GBV awareness and referral had a dramatic impact on post-GBV care uptake. However, proactive screening did not increase the proportion of GBV survivors identified by much, suggesting other factors exist affecting GBV survivors’ disclosure.
Interventions implemented

<table>
<thead>
<tr>
<th>Services/providers</th>
<th>Outputs/outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>KP sensitization trainings for service providers (health care workers and GBV hotline counsellors).</td>
<td>Service providers: - Understand KPs’ vulnerability to violence, their rights to live free from violence and to access friendly and welcoming services should they experience GBV. - Become more receptive to KPs accessing GBV and other services.</td>
</tr>
<tr>
<td>Development of a GBV screening protocol; implementation of routine GBV screening among clients accessing HIV/STI services; introduction of a minimum package of post-GBV care at health facilities with onward referral for non-health services.</td>
<td>The 5 participating health facilities (1 in Madang Province and 4 in the National Capital District) have: - Simple one-page GBV screening protocol available to all HIV service providers - The ability to provide the minimum 5 essential post-GBV services (psychological first aid, emergency contraceptives, post-exposure prophylaxis, prophylaxis for STIs and vaccination against tetanus and HepB). First sites offering GBV services specifically for KP. Number of all-population GBV service sites in Port Moresby increased from 1 to 5, and from 1 to 2 in Madang Province, increasing access in a community where travel between and among neighborhoods can be dangerous.</td>
</tr>
<tr>
<td>Training of HIV/STI service providers on the GBV screening protocol and the post-GBV care minimum package.</td>
<td>Health care workers screen all clients accessing STI, HIV testing and ART services and provide the minimum post-GBV care package.</td>
</tr>
<tr>
<td>Sensitization of communities on GBV prevention/bystander interventions and post-GBV services. Strengthening post-GBV care referral linkages between communities and health facilities.</td>
<td>Community leaders aware of GBV and its relationship to HIV, and how to access post-GBV care. Telephone counsellors working with GBV hotline counselling service became conversant with the referral pathways for post-GBV services and make referrals. Increase in number of referrals (including self-referrals) from the community.</td>
</tr>
<tr>
<td>Revision of HIV data collection and reporting tools to capture relevant data on GBV screening and post-GBV care.</td>
<td>Program monitoring data on GBV screening and uptake of post-GBV care available (disaggregated by sex, KP type, KP/gender, type, KB) general population, year), including: - Number of individuals screened for GBV - Number and proportion of GBV survivors among those screened - Number of self-referred GBV survivors - Number and proportion of GBV survivors receiving post-GBV care.</td>
</tr>
</tbody>
</table>

(Comprehensive intervention implemented to integrate GBV into HIV/STI services and outcomes)
THAB03 Pregnancy: Pre, peri, and post

THAB0307LB
DolPHIN-1: Randomised controlled trial of dolutegravir (DTG)- versus efavirenz (EFV)-based therapy in mothers initiating antiretroviral treatment in late pregnancy

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DolPHIN-1 Study Group

Background: ART initiation in the 3rd trimester of pregnancy is associated with failure to achieve viral suppression (VS) by delivery and increased transmission of HIV. We randomised 60 treatment naive pregnant women at 28-36w gestation in Uganda and South Africa 1:1 to receive EFV or DTG+2NRTIs. The primary endpoint was pharmacokinetics (PK) of DTG in women and breastfed infants; secondary endpoints included VS.

Methods: With national guidelines, EFV+2NRTI was initiated on referral, with subjects randomized to DTG switched within 7 days. Viral load (VL) was collected at every visit; intensive maternal PK sampling (30.8w), weight, obstetric history, VL (log 4 copies) and CD4 count (n=29) and EFV (n=31) arms in maternal age, gestation at treatment initiation. There was no significant pre-ART differences between DTG (n=29) and EFV (n=31) arms in maternal age, gestation at treatment initiation (30.8w), weight, obstetric history, VL (log 4 copies) and CD4 count (334 cells/mm³). Third trimester DTG exposures were low with Cₘ₈₀₈₉₄ at or below target (32 ng/mL) in 2/28 (32%) mothers. DTG transfer across the placenta (122%) and in breast milk (3%) coupled with delayed elimination resulted in significant infant exposures potentially persisting during breast-feeding. Both regimens were well-tolerated. A total of 10 SAEs were reported in 5 mothers and 3 infants, with no significant differences between arms.

Superior VS was observed with DTG (Table 1) at the 2w post-partum visit (P=0.005). However, VL<100 copies/mL near delivery was still observed with both DTG (3%) and EFV (17%). No HIV transmissions were observed. HIV RNA suppression <50 copies/mL was more rapid with DTG (despite low DTG exposures when started in the third trimester) which may translate to improved PMTCT for ART initiation in late pregnancy. The impact of significant infant DTG exposures related to intrauterine transfer, continued breastfeeding and delayed elimination is being evaluated in the DolPHIN-2 study.

Table 1

<table>
<thead>
<tr>
<th>Screening (pre-ART)</th>
<th>400 copies/mL</th>
<th>2000 copies/mL</th>
<th>5000 copies/mL</th>
<th>10 000 copies/mL</th>
<th>Fibers exact P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTG N (%)</td>
<td>29 (32.4%)</td>
<td>28 (30.6%)</td>
<td>29 (30.5%)</td>
<td>31 (34.1%)</td>
<td>1.00</td>
</tr>
<tr>
<td>EFV N (%)</td>
<td>31 (34.1%)</td>
<td>29 (30.5%)</td>
<td>29 (30.5%)</td>
<td>31 (32.4%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 14</th>
<th>29 (37.9%)</th>
<th>28 (36.4%)</th>
<th>29 (30.5%)</th>
<th>31 (34.1%)</th>
<th>0.021</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTG N (%)</td>
<td>11 (37.9%)</td>
<td>10 (34.4%)</td>
<td>10 (33.3%)</td>
<td>11 (37.9%)</td>
<td>1.00</td>
</tr>
<tr>
<td>EFV N (%)</td>
<td>10 (34.4%)</td>
<td>9 (30.6%)</td>
<td>9 (30.6%)</td>
<td>10 (37.0%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 28</th>
<th>29 (35.5%)</th>
<th>28 (36.4%)</th>
<th>28 (30.5%)</th>
<th>31 (34.1%)</th>
<th>0.011</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTG N (%)</td>
<td>15 (55.5%)</td>
<td>14 (48.3%)</td>
<td>11 (37.1%)</td>
<td>27 (38.1%)</td>
<td>1.00</td>
</tr>
<tr>
<td>EFV N (%)</td>
<td>10 (34.4%)</td>
<td>9 (30.6%)</td>
<td>9 (30.6%)</td>
<td>20 (31.0%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post-partum</th>
<th>15 (41.1%)</th>
<th>14 (48.3%)</th>
<th>10 (31.0%)</th>
<th>27 (38.1%)</th>
<th>0.008</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTG N (%)</td>
<td>11 (30.5%)</td>
<td>11 (34.4%)</td>
<td>8 (26.7%)</td>
<td>12 (37.1%)</td>
<td>1.00</td>
</tr>
<tr>
<td>EFV N (%)</td>
<td>14 (48.3%)</td>
<td>10 (33.3%)</td>
<td>9 (30.6%)</td>
<td>19 (31.0%)</td>
<td></td>
</tr>
</tbody>
</table>

Note: At Day 14 and Day 28, (%) does not equal total as some mothers delivered prior to reaching timetable for evaluation. At post-partum, five individuals are still waiting for HIV RNA results with three prior to evaluation.

THAC04 Pedal to the metal: Accelerating the cascade

THAC0408LB
Progress toward HIV epidemic control: Results from the Namibia Population-Based HIV Impact Assessment (PHIA)

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Background: In 2015, Namibia implemented an Acceleration Plan rapidly scaling up HIV testing and treatment services with the goal of reaching the UNAIDS 90-90-90 targets by 2020. In 2017, Namibia conducted the Namibia Population-based HIV Impact Assessment (PHIA) to estimate HIV viral load suppression (VLS) and progress toward the 90-90-90 targets.

Methods: PHIA was a cross-sectional household-based survey conducted between June and December, 2017, analyses were weighted to account for complex survey design. Eligible adults aged 15-64 years who consented were interviewed and offered HIV rapid testing according to national guidelines. All HIV-seropositive (HIV+) samples were tested for viral load at a central laboratory. The 90-90-90 targets were surpassed at a national level the UNAIDS 2020 goal of having at least 73% of all people living with HIV be virally suppressed. PHIA data also show that once diagnosed, a high proportion (≥ 90%) of both male and female PLHIV initiated ART and achieved VLS. While this is a remarkable accomplishment, 21.2% of PLHIV are unaware of their HIV+ status, including almost 30% of men. Strategies to improve HIV testing, particularly for men, are urgently needed to ensure Namibia’s continued progress towards HIV epidemic control.

Table 1

<table>
<thead>
<tr>
<th>Target</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV prevalence among adults</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent of all PLHIV with HIV- adults; virologic suppression among those on ART at last visit</td>
<td>566 (49.3%)</td>
<td>598 (61.5%)</td>
<td>1164 (62.4%)</td>
</tr>
<tr>
<td>HIV adults who report knowing their HIV+ status (vs. 1st goal)</td>
<td>566 (49.3%)</td>
<td>598 (61.5%)</td>
<td>1164 (62.4%)</td>
</tr>
<tr>
<td>HIV adults who report knowing their HIV- status (vs. 2nd goal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLHIV adults aged 15-64 who report ART use and knowing their HIV+ status (vs. 3rd goal)</td>
<td>62 (4.1%)</td>
<td>69 (7.2%)</td>
<td>131 (6.8%)</td>
</tr>
</tbody>
</table>
FRAE0108LB

Empowerment clubs did not increase PrEP continuation among adolescent girls and young women in South Africa and Tanzania - Results from the EMPOWER randomised trial

S. Delany-Morettwe1, M. Chersich1, S. Harvey1, A. Stangl1, D. Baron1, M. Columbini2, F. Scorgie1, N. Naicker1, S. Kapiga2,4, EMPOWER study group

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2London School of Hygiene and Tropical Medicine, London, United Kingdom.
3ICRW, Washington DC, United States.
4Mwanza Intervention Trials Unit, Mwanza, Tanzania, United Republic of

Background: Adolescent girls and young women (AGYW) are likely to benefit from PrEP. Strategies to support PrEP uptake and address barriers to consistent use are urgently needed. We conducted a randomised controlled trial to evaluate whether empowerment clubs increase PrEP uptake and continuation among AGYW.

Methods: We enrolled sexually active, HIV-negative women into an open-label PrEP study. Participants were randomised to standard of care (SOC), which included comprehensive sexual and reproductive health care, with counselling and SMS reminders for PrEP users, or to empowerment clubs plus SOC. A standardised four-session curriculum developed to support safe introduction of PrEP within relationships was delivered at monthly facilitator-led, small group sessions. Clinic follow-up visits were scheduled at months 1, 3 and quarterly thereafter, for up to 15 months. We used pharmacy records to measure PrEP continuation. We assessed differences in PrEP continuation using Kaplan-Meier survival analysis, by log-rank test.

Results: From October 2016 to July 2017, 619 women were screened, 431 women enrolled (SA n=379, Tz n=52) and 213 randomised to clubs. Participants were mostly unmarried (90%), 27% had >1 partner in the past 6 months, 35% used a condom at last sex and 33% had a curable STI; most (84%) believed PrEP could prevent HIV. Of these, 408 initiated PrEP at, and 8 after, enrolment (97%) (SA n=364, Tz n=52). Participants completed a median of 3 follow up visits (range 0-6) and one club session (range 0-7); 48% did not attend any club sessions. In the ITT, PrEP continuation did not vary significantly by study arm (p-value =0.31); PrEP continuation was 73% at M1, 61% at M3 and 34% at M6 (Figure 1). There was also no difference in PrEP continuation when comparing those that attend ≥1 club session compared to none (p-value =0.12).

Conclusions: While PrEP uptake was high in this at-risk population, use diminished with time. Empowerment club participation was low and did not enhance PrEP continuation, contrary to experiences in the HIV treatment field. Ongoing analyses will elucidate barriers to club participation and reasons for PrEP discontinuation and inform the development of future tailored PrEP support packages for adolescents.
Late Breaker Poster Discussions

TUPDA01 Besieging the reservoir and kicking it where it hurts

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Background: The main barrier to HIV-1 cure is the latent reservoir that persists despite suppressive ART. Following reactivation from latency, HIV-infected cells generate protease and the HIV-specific cell death stimulus, Casp8p41, yet resist Casp8p41-mediated apoptosis through neutralization by Bcl2. Since proteins that have been inactivated are often degraded by the proteasome, we investigated whether the Casp8p41-Bcl2 complex was as well using in vitro and ex vivo models.

Methods: Polyubiquitination of Casp8p41 and the Casp8p41-Bcl2 complex was assessed by immunoprecipitation and immunoblot. Expression of Casp8p41 was assessed in the presence of ixazomib by flow cytometry. Apoptosis in HIV-1 infected cells in response to ixazomib was assessed in chronically infected J-Lat 10.6 cells, acutely infected primary CD4 T cells, and ex vivo CD4 T cells from HIV-1 infected patients. HIV reactivation was assessed in J-Lat 10.6 cells and HIV LTR activation assessed using HIV-LTR luciferase reporter. We have obtained an FDA IND for use of ixazomib in HIV infected patients and are enrolling a Phase 1b/2a clinical trial of ixazomib in ART-suppressed HIV-1 positive patients (NCT02946047).

Results: Casp8p41 bound to Bcl2 is polyubiquitinated and degraded by the proteasome. Ixazomib directly (a) induces HIV reactivation in an NFkB dependent manner; (b) increases Casp8p41 and induces apoptosis of infected but not uninfected cells; and (c) decreases viral replication. Ex vivo treatment of CD4 T cells from ART suppressed, HIV-1 positive patients with a single dose of ixazomib reduces total cell associated HIV DNA by a median of 10% [IQR 7%, 42%] (P<0.007) and integrated HIV DNA by a median of 69% [IQR 58%, 89%] (P<0.001). Preliminary clinical trial results indicate that ixazomib doses of 1-2mg weekly are safe and well tolerated.

Conclusions: The FDA-approved proteasome inhibitor ixazomib reacts HIV-1, blocks degradation of HIV specific death stimulus Casp8p41, and reduces HIV reservoir size ex vivo. Enrollment of a Phase 1b/2a clinical trial of ixazomib is ongoing to evaluate the primary outcome of safety and tolerability, and secondary outcomes of HIV reservoir size and immunologic status.

TUPDA0109LB Ixazomib reduces HIV-1 reservoir size in a Casp8p41-dependent manner

A. Kivite1, R. Kaupe1, I. Linina1, I. Upmace3, HERMETIC study group 1Riga Stradins University, Riga, Latvia; 2NGO ‘DIA+LOGS’, Riga, Latvia; 3NGO ‘Baltic HIV Association’, Riga, Latvia

Background: In Europe, Latvia has the highest rate of new HIV diagnoses and one of the lowest HIV testing rates. Half of the HIV cases are estimated to be undiagnosed and the proportion of late diagnoses is high (>50%). Thus, new strategies to promote HIV testing are of utmost priority.

Methods: For the first time oral fluid rapid tests (OraQuick®) were used to promote HIV testing outside clinical settings and stationary harm reduction sites. Between September 2017 and February 2018, 310 people who inject drugs (PWID) were tested via mobile van services and 205 men who have sex with men (MSM) via outreach work in night clubs. Participants were also tested with a capillary blood rapid test (ICHILI®) to compare the two methods. Diagnostic accuracy of OraQuick® was assessed against the HIV positive serostatus, which was defined by either having a positive capillary blood rapid test or participants’ self-reported positive HIV serostatus. Acceptability of the oral fluid tests was assessed through mixed methods, i.e. quantitative questionnaires (n=515), 3 focus groups and 7 in-depth interviews. Chi square or Fisher exact test were employed to analyze quantitative data. Qualitative data were analyzed inductively adopting thematic analyses.

Results: OraQuick® tests had 84.4% sensitivity, 99.1% specificity. 94.2% positive and 97.1% negative predictive value. No significant differences should clarify the existing target-group specific misconceptions.

Conclusions: Accuracy of the oral fluid test was high in Latvia. Oral fluid tests were more accepted by MSM than PWID. Educational interventions should clarify the existing target-group specific misconceptions.

THPDCo From online to door-2-door: Expanding access to HIV self-testing

THPDCo107LB Diagnostic accuracy, feasibility and acceptability of HIV oral fluid rapid tests among hard-to-reach key populations in Latvia, the country with highest infection rates in Europe

A. Kivite1, R. Kaupe2, I. Linina1, I. Upmace3, HERMETIC study group 1Riga Stradins University, Riga, Latvia; 2NGO ‘DIA+LOGS’, Riga, Latvia; 3NGO ‘Baltic HIV Association’, Riga, Latvia

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Conclusions: Accuracy of the oral fluid test was high in Latvia. Oral fluid tests were more accepted by MSM than PWID. Educational interventions should clarify the existing target-group specific misconceptions.

(Diagnostic accuracy and acceptability of oral fluid test vs capillary blood test)
Standing Results of a Whole-facility Approach in Ghana

Background: Achieving 90-90-90 targets requires addressing structural factors to reach people who are hidden due to stigma and discrimination (S&D) from HIV, key population or other marked status. S&D in health facilities are partially detrimental, yet their reduction is not a standard or scaled practice in most HIV interventions or health systems. Lack of evaluated S&D-reduction interventions is a contributing factor. The USAID-and-PEPFAR-funded Health-Policy-Plus project has partnered with the Ghana AIDS Commission and the Educational Assessment and Research Center, Accra, Ghana. 1Ghana AIDS Commission, Accra, Ghana; 2United States Agency for International Development, Accra, Ghana; 3Georgetown University, Washington, United States

Methods: Representative baseline (n=717 females/432 males; August 2017) and endline (n=778 females/371 males; April 2018) surveys capturing stigma-drivers and binomial error distributions. Standard errors and differences-in-differences by fitting generalized linear models with Still ongoing intervention. We estimated before-after trends in five regions of Ghana. Endline data was collected six months after starting the still-ongoing intervention. We evaluated the whole-facility approach to S&D-reduction.

Results: There were statistically significant before-after improvements in most outcome domains in intervention facilities (Table 1/Figure 1). and smaller improvements in comparison facilities. We observed statistically significant difference-in-differences in reductions in unnecessary fear (2.3%; p<0.001), stigmatizing avoidance behaviors (15.7%; p<0.001). preferences not to treat MSM (14.2%; p=0.019), as well as several facility policies. Intervention facilities' staff were 21.5% (p=0.019) more likely to engage in at least one of the avoidance behaviors (n=1,513). Non-stigmatizing avoidance behaviors with clients living with HIV (n=1,613) were statistically significant before-after improvements, ranging from 18.9% (p=0.001) to 31.8% (p=0.011). Non-stigmatizing avoidance behaviors with clients living with HIV (n=1,613) were statistically significant before-after improvements, ranging from 18.9% (p=0.001) to 31.8% (p=0.011).

Conclusions: S&D-reduction interventions targeting the whole facility are feasible, welcomed, and stimuli for change in a short time frame (6-months). Reducing S&D in health facilities is critical to improving quality of care to ensure equitable access to services for all.

<table>
<thead>
<tr>
<th>S&amp;D indicator</th>
<th>% difference in intervention and comparison facilities in non-stigmatizing direction</th>
<th>Significance (P-value)</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touching clothing of a client living with HIV (n=1,940)</td>
<td>11.25%</td>
<td>0.037</td>
<td>7.6, 21.8</td>
</tr>
<tr>
<td>Dressing wounds of a client living with HIV (n=1,513)</td>
<td>18.52%</td>
<td>0.001</td>
<td>7.48, 30.59</td>
</tr>
<tr>
<td>Drawing blood from a client living with HIV (n=1,385)</td>
<td>23.29%</td>
<td>&lt;0.001</td>
<td>14.53, 32.04</td>
</tr>
<tr>
<td>Taking the temperature of a client living with HIV (n=1,613)</td>
<td>6.7%</td>
<td>0.018</td>
<td>4.21, 18.67</td>
</tr>
<tr>
<td>Composite: at least one of the above (n=1,958)</td>
<td>23.86%</td>
<td>&lt;0.001</td>
<td>16.65, 31.88</td>
</tr>
</tbody>
</table>

Conclusions: S&D-reduction interventions targeting the whole facility are feasible, welcomed, and stimuli for change in a short time frame (6-months). Reducing S&D in health facilities is critical to improving quality of care to ensure equitable access to services for all.
TUPDX01 PrEP in the real world: What are we learning?

TUPDX0107LB Drug-drug interactions between the use of feminizing hormone therapy and pre-exposure prophylaxis among transgender women: The iFACT study

A. Hiransuthikul1, K. Himmad1, N. Thanmajaruk1, T. Pankam1, R. Janamnuaysook1, S. Mills4, R. Vannakit5, P. Phanuphak1, N. Phanuphak1, iFACT study team


Background: Concerns about potential drug-drug interactions (DDI) between feminizing hormone therapy (FHT) and pre-exposure prophylaxis (PrEP) have hampered uptake and adherence of PrEP among transgender women (TGW). To determine DDI between FHT and PrEP, we measured pharmacokinetic parameters of blood plasma tenofovir (TFV), estradiol (E2), and testosterone.

Methods: Twenty TGW who never underwent orchiectomy and had not received injectable FHT within 6 months were enrolled between January and March 2018. FHT (estradiol valerate 2 mg and cyproterone acetate 25 mg) were prescribed to participants at baseline until week 5, and week 8 until the end of study. PrEP (tenofovir disoproxil fumarate 300 mg/emtricitabine 200 mg) was initiated at week 3 and continued without interruption. Intensive E2 pharmacokinetic parameters and trough serum testosterone concentration (C_trough) were measured at weeks 3 and 5 (assessing DDI between PrEP and FHT), and intensive TFV pharmacokinetic parameters were measured at weeks 5 and 8 (assessing DDI between FHT and PrEP).

<table>
<thead>
<tr>
<th>E2 pharmacokinetic parameter</th>
<th>Week 3 (FHT only)</th>
<th>Week 5 (PrEP+FHT)</th>
<th>GMR (95%CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC0-24 (pg*h/mL)</td>
<td>775.13 (26.2)</td>
<td>782.84 (39.6)</td>
<td>1.01 (0.89 - 1.15)</td>
<td>0.88</td>
</tr>
<tr>
<td>Cmax (pg/mL)</td>
<td>51.47 (26.9)</td>
<td>55.76 (32.9)</td>
<td>1.08 (0.94 - 1.24)</td>
<td>0.25</td>
</tr>
<tr>
<td>C24 (pg/mL)</td>
<td>15.15 (42.0)</td>
<td>14.32 (67.4)</td>
<td>0.95 (0.75 - 1.19)</td>
<td>0.63</td>
</tr>
<tr>
<td>Half-life (h)</td>
<td>11.25 (32.6)</td>
<td>11.83 (50.9)</td>
<td>1.05 (0.87 - 1.27)</td>
<td>0.60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TFV pharmacokinetic parameter</th>
<th>Week 5 (PrEP+FHT)</th>
<th>Week 8 (PrEP only)</th>
<th>GMR (95%CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC0-24 (mg*h/L)</td>
<td>2.28 (26.2)</td>
<td>2.63 (26.9)</td>
<td>0.87 (0.78 - 0.96)</td>
<td>0.009</td>
</tr>
<tr>
<td>Cmax (mg/L)</td>
<td>0.36 (34.8)</td>
<td>0.32 (25.3)</td>
<td>1.10 (0.95 - 1.28)</td>
<td>0.2</td>
</tr>
<tr>
<td>C24 (mg/L)</td>
<td>0.04 (28.8)</td>
<td>0.05 (28.0)</td>
<td>0.83 (0.76 - 0.90)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Half-life (h)</td>
<td>15.19 (15.4)</td>
<td>15.69 (23.0)</td>
<td>0.97 (0.88 - 1.07)</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Results: Median (IQR) age, BMI, and CrCl were 21.5 (21-26) years, 20.6 (19.0-22.1) kg/m², and 0.86 (0.75-0.94) mL/min, respectively. The geometric mean (IQR) of bioavailable testosterone between week 3 and 5 was 13% (p=0.009) and 17% (p< 0.001), respectively. There were no significant changes in E2 pharmacokinetic parameters and median (IQR) C_trough of bioavailable testosterone between week 3 and 5.

Conclusions: Our study demonstrated lower plasma TFV exposure in the presence of FHT, suggesting that FHT may potentially affect PrEP efficacy among TGW; but E2 exposure was not affected by PrEP. Further studies are warranted to determine whether these reductions in TFV are clinically significant.
Late Breaker Poster Exhibition

FRAD01 Bound and gagged: Exposing the impact of the expanded Mexico City policy

Track A

LBPEA001
Surface signature of HIV latently-infected cells revealed using direct hybridization-based digital counting

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1Blood Systems Research Institute, San Francisco, United States, 2Free University of Berlin, Biochemistry, Berlin, Germany, 3University of California, San Francisco, United States

Background: The main obstacle to a cure for HIV infection is a population of long-lived HIV latently-infected cells that persist during antiretroviral therapy (ART). Upon cessation of ART, remaining latently-infected cells typically undergo reactivation and reinitiate spreading of viral infection. Identification of a reliable surface biomarker of HIV latently-infected cells will be critical to eradicating the latent reservoir. We implemented a direct hybridization-based digital counting approach to identify a cellular transcriptomic and proteomic signature of latent HIV infection.

Methods: We infected fresh primary CD4+ T cells collected from healthy donors with a specialized dual-reporter virus that enables isolation and characterization of HIV latently-infected, productively-infected, and uninfected cells. We then implemented the nanoString nCounter platform, a direct hybridization-based digital counting approach to identify a cellular transcriptomic and proteomic signature of latent HIV infection.

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Results: Virus-unexposed control cells exhibited a dramatically different expression pattern compared to virus-exposed, uninfected cells, indicating isolation and characterization of HIV latently-infected, productively-infected, and uninfected cells. We then implemented the nanoString nCounter platform, a direct hybridization-based digital counting approach to identify a cellular transcriptomic and proteomic signature of latent HIV infection.

Conclusions: The application of direct hybridization-based digital counting to primary cell-based models of HIV latency is a promising approach to simultaneously discover intracellular and extracellular biomarkers of latent infection. Surface expression of TNF receptor superfamily members associated with HIV transcriptional states; therefore, the TNF superfamily may include pharmacologic targets for eradication efforts. Our results warrant validation using clinical samples from ART-suppressed HIV-infected individuals.

LBPEA002
Characterization of the HIV-1 reservoir in CD32+ CD4+ T cells

G. Daicic1, N. Kootstra1, B. Hoolibrink1, T. van Montfort1, S. Jurriaans1, M. Bakker1, C. van Lint1, B. Berkhou1, A. Pasternak1
1Blood Systems Research Institute, San Francisco, United States, 2Free University of Berlin, Biochemistry, Berlin, Germany, 3University of California, San Francisco, United States

Background: CD32 was reported to mark the HIV-1 reservoir harboring replication-competent proviruses, but several recent reports challenged this finding. We aimed to confirm or deny the usefulness of CD32 as a marker of the latent reservoir and to further characterize the phenotype of these CD32+ CD4+ T cells, as well as the transcriptional activity of HIV-1 residing in this reservoir.

Methods: CD32 expression was measured by flow cytometry on PBMCS from ART-treated HIV-infected patients (n=18) and uninfected controls (n=3). Co-expression of HLA-DR, immune checkpoint receptors (PD-1, TIGIT, LAG-3) and CD2 was measured by flow cytometry. HIV-1 DNA and unspliced RNA were quantified in bulk PBMCS samples and in CD32+ and CD32- fractions sorted with magnetic beads.

Results: The median frequency of CD32+ CD4+ T-cells in HIV-infected individuals was 0.07% (range 0.07%-0.87%), which was significantly higher than in the controls (0.01%, p=0.0158). Overall, CD32+ CD4+ T-cells were not enriched for HIV-1 DNA or RNA compared with CD32- CD4+ cells (n=18). However, in a subgroup of patients with smaller CD32+ CD4+ T-cell fractions (n=9), we observed a significant enrichment for HIV-1 DNA in this fraction compared to the corresponding CD32- CD4+ fraction (average of 5.7-fold, p=0.012).

We also found a positive correlation between the percentage of CD32+ CD4+ T-cells and total HIV-1 DNA load in PBMCs (rho=0.58; p=0.012). CD32+ CD4+ T-cells demonstrated increased expression of LAG-3 (p=0.0156) and HLA-DR (p=0.0001) compared with CD32+ CD4+ T-cells in HIV-infected patients. We did not observe a statistically significant change in CD4- and CD2 expression between the CD32+ or CD32- CD4+ T-cell populations.

Conclusions: We confirmed that CD32+ CD4+ T-cells are enriched for HIV-1 DNA, although the level of enrichment was less pronounced than previously reported. Our results suggest that the CD32 expression level in the CD32+ CD4+ T-cell fraction correlates with the level of HIV-1 enrichment in this fraction, which underscores the importance of using highly CD32+ expressing cells for analysis and might explain the negative results obtained by others. Our data further indicate that these CD32+ CD4+ T-cells are active, rather than resting cells, and that they often co-express the immune checkpoint receptors TIGIT and LAG-3.

LBPEA003
ART does not inhibit antigen presenting cell-mediated HIV trans infection

G. Rappocciolo1, D. Delucia1, N. Sluis-Cremer1,2, C. Rinaldo1
1University of Pittsburgh, Infectious Diseases and Microbiology, Pittsburgh, United States, 2University of Pittsburgh, School of Medicine, Pittsburgh, United States

Background: Professional antigen presenting cells (APC; dendritic cells [DC], macrophages, B cells) mediate highly efficient HIV trans infection of CD4+ T cells, which could contribute to the persistent HIV reservoir during ART. We evaluated trans infection by APC from HIV-infected individuals on suppressive ART in the Multicenter AIDS Cohort Study (MACS) to define the role of APC-T cell virus spread in HIV persistence.

Methods: HIV Rs-tropic Bal-loaded APC from 10 chronic HIV-infected MACS participants (PR) before and after initiation of ART, and APC from 5 seronegative controls (SN) treated with ART in vitro (CCR5 agonist, NRTI, PI and NNRTI, alone or in combination), were mixed with autologous or heterologous CD4+ T lymphocytes to assess trans infection. To control...
for the effect of residual ART, APC trans infection was also tested with both autologous and heterologous SN CD4+ T cells. Virus replication was measured by p24 ELISA.

**Results:** APC from all 10 HIV-infected PR trans infected CD4+ T cells with equivalent efficiency either prior to or after initiation of ART in vivo. In sharp contrast, their CD4+ T cells were resistant to direct, cis infection, showing >90% inhibition compared to pre-ART susceptibility. APC from SN exposed in vitro to 4 different classes of ART alone or in combination at physiological concentrations, maintained their ability to trans infect CD4+ T cells, while cis infection of their CD4+ T cells was inhibited (0-50%). Trans infection was only inhibited when DC and/or CD4+ T cells from SN were exposed in vitro to the CCR5 antagonist maraviroc (25-75% inhibition through 22 days of culture) or the NRTI rilpivirine (90% inhibition by day 12). Strikingly, when B cells were used, none of the drugs tested in vitro inhibited trans infection.

**Conclusions:** We show for the first time that APC from PR on ART maintain their ability to trans infect CD4+ T cells, which was confirmed in vitro in APC from SN. This supports a central role for APC-mediated trans infection in maintaining the HIV reservoir despite virus-suppressive ART.

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**LBPEA005**

Single-cell RNA-seq reveals a distinct transcriptomic signature of CD32+ CD4+ T cells from HIV+ individuals on suppressive therapy

M. Abdel-Mohsen1, A. Kossenkov2, C. Tomescu4, S. Vadrevu1, L. Giron1, K. Lynn1, K. Mounzen3, P. Tebas1, M. Montaner2

1The Wistar Institute, Philadelphia, United States, 2University of Pennsylvania, Philadelphia, United States, 3Jonathan Lax Center, Philadelphia, United States

**Background:** CD32 was suggested as a marker of the replication-competent HIV reservoir. However, we recently reported that CD32 is expressed on cells with transcriptionally active HIV but does not enrich for HIV DNA in resting T cells (PMID 29669853; Sci Transl Med 2018). CD32 may represent a tool to better understand persistent HIV transcription during suppressive antiretroviral therapy (ART). We used single-cell RNA-sequencing to characterize the transcriptomic signature of CD32+ CD4+ T cells from HIV+ individuals on ART.

**Methods:** CD32+ and CD32- CD4+ T cells were sorted from HIV+ ART-suppressed individuals using fluorescence-activated cell sorting (FACS). The nanowell-based single-cell RNA-sequencing system, IICELL8, was used to characterize the single-cell transcriptomes of 151 CD32+ and 248 CD32- CD4+ T cells. Only cells with >100,000 reads were considered for subsequent analysis (131 CD32+ and 245 CD4+ T cells and 66 CD32- CD4+ T cells). False discovery rates (FDR) were calculated to account for multiple comparisons in statistical analyses. Ingenuity pathway analysis (IPA) was used to evaluate the functional significance of differentially expressed genes.

**Results:** All sorted cells expressed CD3 transcripts, suggesting a T cell lineage, as expected. 17.6% of CD32+ CD4+ T cells expressed CD3b transcripts compared to only 3% of CD32- CD4+ T cells. Out of the 17.6%, 9.2% also expressed transcripts of non-T cell markers (CD4, CD8, CD68, CD79a, or CD20). We compared the transcriptomic profile of CD4+ T cells express CD3b but not any of the non-T cell markers to CD4+ T cells express neither CD2b transcripts nor any non-T cell markers. 20 genes were differentially expressed between CD32+ CD4+ T cells and CD32- CD4+ T cells (FDR < 0.05), including genes associated with protein ubiquitination, IL-10, Toll-like receptor, PI3K/AKT, TNRIF, and IL-6 signaling pathways (FDR < 20%).

**Conclusions:** Our analysis identified several transcriptomic pathways that are differentially expressed in the CD32+ CD4+ T cells and may contribute to the higher HIV transcriptional activity we previously observed in this population. Our transcriptomic signatures highlight host factors and pathways that may be targeted to manipulate the levels of latent HIV transcription during suppressive ART.
tivation, increased cell-associated unspliced HIV-1 Gag RNA was measured by qPCR. To determine the frequency of individually HIV-1 reactivated cells, a novel single-cell-in-droplet (scd) PCR method was used. Viral production was measured by testing cell lysates and supernatant using the ultrasensitive Simoa p24 ELISA. Cells were also treated with Romodepin and Bortezomib for comparison. Uninfected CD4+ T cells treated with drugs of interest were then analyzed for expression of surface activation markers, NF-κB or NFAT target transcription and translation. The drug screen was then expanded to other compounds that target similar pathways.

**Results:** We identified several major cellular pathways whose inhibition leads to HIV reactivation. Bortezomib (26s proteosome), Sorafenib (VEGF/RAF-1/B-RAF), and Sunitinib (VEGFR) induced HIV-1 transcription from C/EBPα-suppressed patient derived CD4+ T cells. In addition, after 6 days of culture. Bortezomib treatment led to increased HIV p24 detection in supernatant whereas Sunitinib and Sorafenib treatment resulted in greater p24 production in cell lysates. None of these drugs induced global cell activation or production of the NFκB/NFAT targets tested. Single-cell dPCR testing showed that these drugs led to a higher frequency of individual HIV Gag RNA+ cells, even when compared to Romodepin (HDAC inhibitor) and Bortezomib (IP3K inhibitor). Of note, sunitinib-dependent HIV reactivation was muted by concurrent treatment with the mTOR inhibitor, PP242. To confirm that the inhibition of these pathways is involved in HIV reactivation, we identified four additional drugs that target these pathways (Axitinib, Cabozantinib, Regorafenib, Carfilzomib) and led to HIV-1 reactivation in primary CD4+ T cells.

**Conclusions:** We identified and characterized, for the first time, seven FDA approved chemotherapeutic drugs targeting VEGFR, BRAF/RAF-1 and the proteosome that induce HIV-1 reactivation from C/EBPα-suppressed patient CD4+ T cells with minimal CD4+ T cell activation or cytotoxicity.

**LBPEA008**

**Dendritic cells drive antigen-specific exposure and immune elimination of HIV latently infected CD4+ T cells**

J. Kristof1, N. Sluis-Cremer1, M. Palma1, T. Garcia-Babès1, P. Gupta2, C. Rinaldo2, R. Maillard2

1University of Pittsburgh, Infectious Diseases and Microbiology. Pittsburgh, United States. 2University of Pittsburgh, Microbiology and Medicine. Pittsburgh, United States.

**Background:** Exposing the latent reservoir of replication-competent HIV in ART-suppressed individuals is a major barrier to a cure. While dendritic cells (DC) have safely induced T cell responses in clinical trials of HTLV, their HIV latency reversal (LR) potential has been underexplored. Here we investigate the use of type-1 polarized DC (DC1s) to drive both antigen-specific HIV LR and CTL targeting of the exposed autologous HIV cellular reservoir.

**Methods:** Monocyte-derived DC1 were generated from chronic HIV-infected Multicenter AIDS Cohort Study participants on ART and tested for inducing HIV LR in naturally infected autologous CD4+ T cells, with or without HIV CMV, or Flu antigens. CD5+CD28 activation served as the positive LR control. LR was determined by quantifying HIV RNA and intracellular expression of p24. DC1-induced HIV-specific CTL were used as autologous effectors against the DC-activated CD4+ T cells in cytotoxicity and viral outgrowth assays.

**Results:** DC1 induced both antigen-specific HIV LR and CTL capable of effectively killing the exposed HIV-infected targets. Importantly, the DC1-mediated latency reversal was antigen dependent. With CMV and HIV antigen having notable LR activity, while Flu antigen did not. Moreover, DC1 LR activity was sharply diminished with CD40L/CD40 blockade (94.1% ± 6.1% and 85.3% ± 13.2% inhibition of RNA and p24 expression, respectively), supporting the required involvement of cognate antigen-driven bidirectional signaling events between the DC1 and the antigen-responsive CD4+ T cells. Importantly, the DC1 LR activity exposed those targets harboring replication-competent virus, which were efficiently controlled by broadly reactive, DC1-induced HIV-specific CTL in respective short- and long-term cytotoxicity (75.4% ± 14.3% killing) and viral outgrowth (85.4% ± 13.3% suppression of p24 expression).

**Conclusions:** DC1 are uniquely capable of both activating HIV in latently infected CD4+ T cells and promoting their immune targeting by HIV-specific CTL. Inclusion of common MHC class II viral epitopes in DC1-based HIV immunotherapies, such as those derived from CMV, could promote sufficient CD4+ T cell ‘help’ to support CTL induction, while serving as a safe and effective targeted means to unmask the latent HIV reservoir in antigen-specific CD4+ T cells.

**LBPEA009**

**ABX464, by binding the CBC 80/20 complex, enhances pre-mRNA splicing, resulting in the generation of novel HIV-derived RNA species and in increased expression of the anti-inflammatory miR-124**

J. Tag1, A. Vautrin1, L. Manchon1, A. Garcel2, N. Campos2, K. Chebli3, D. Scherrer4, J.-M. Steens4, H. Ehrlich4

1University of Montpellier, Montpellier, France. 2ABIVAX, Montpellier, France. 3University of Montpellier, CNRS, Montpellier, France. 4ABIVAX, Paris, France.

**Background:** ABX464 is a first-in-class, clinical stage small molecule with at least three biological effects when given to HIV patients: 1) an anti-tiviral effect, 2) a reduction in HIV-DNA in PBMCs, and 3) an anti-inflammatory effect through increased expression of miR-124 in rectal tissue.
In earlier studies, the antiviral effect was shown to be mediated through enhanced splicing of viral mRNA, while there was only a negligible effect on pre-mRNA splicing of cellular genes.

**Methods:** Using customized cDNA libraries targeting HIV sequences, cDNAs were prepared from infected PBMCs (+/- ABX464) of 6 donors. Given that the target of ABX464, the E2C complex, is also involved in the biogenesis of small non coding RNA including microRNAs, we also performed a microarray analysis of these RNAs from 6 healthy donors.

**Results:** In all samples treated with ABX464, 90% of assembled contigs corresponded to spliced RNA. In contrast, in untreated samples, >90% of the viral RNA is full length and unspliced. After filtering and analysis of splicing events in treated samples, 3 novel species of spliced RNA were identified. The capacity of these novel RNAs to generate immunogenic peptides is currently being tested. While infection leads to large variations in the expression of small non coding RNAs, ABX464 induced a reproducible upregulation of a single microRNA, i.e. miR124, in both infected and non infected cells. This up-regulation was only observed with locus miR124, which happens to have different long non coding transcripts that could be responsible for the biogenesis of miR124. ABX464 enhanced the splicing of a single long non coding RNA in this locus.

**Conclusions:** Our findings substantiate a mechanism of action of ABX464 that starts with CBC 80/20 binding, leading to a conformational change of this regulatory protein and enhanced splicing of a viral as well as a non coding RNA. HIV viral load reduction and, via upregulation of miR124, the generation of a therapeutic anti-inflammatory response are direct consequences of this mechanism. We are currently studying whether the observed reduction of HIV reservoir cells could be caused by the initiation of an immune response, e.g. through novel peptides/proteins generated by the modulation of splicing.

**LBPEA010**

Low CCR5 expression protects specific CD4+ T cells of HIV controllers from viral entry

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Paris Sud University, UMR1184, Le Kremlin-Bicêtre, France, INSERM U1018, Center for Research in Epidemiology and Population Health, Le Kremlin-Bicêtre, France, *Foch* Hospital, Unité Sueresnes, France, *AP-HP*, Raymond Poincaré Hospital, Infectious and Tropical Diseases Department, Garches, France. INSERM U1018, Center for Immunology of Viral Infections and Autoimmune Diseases, Le Kremlin-Bicêtre, France. *AP-HP*, University Hospital Paris Sud, Department of Internal Medicine and Clinical Immunology, Le Kremlin-Bicêtre, France. *Paris Sud University, UMR1184, Le Kremlin-Bicêtre, France, INSERM, U1018, Paris, France

**Background:** HIV controllers, who spontaneously contain HIV replication to very low levels, develop particularly efficient antiviral T cell responses. To gain insights into the contribution of the CD4 helper subset to HIV control, we characterized the differentiation status of HIV-specific CD4+ T cells at the single cell level.

**Methods:** CD4+ T cells reactive with MHC-II tetramers specific for the Gag293 region were analyzed by multicolor real-time qPCR (Biomark, Fluidigm) combined with multiparametric flow cytometry. HIV controllers from the ANRS CODEX-C021 cohort with a viral load < 50 copies/mL were compared to efficiently treated patients with an equivalently low viral load.

**Results:** Gag293-specific cells from HIV controllers proved to express lower levels of CCR5 and PD-1 than those of treated patients, while CCL5 and TRBV2 expression were increased. As low expression of the HIV coreceptor CCR5 may inhibit HIV entry, we tested the susceptibility of Gag293-specific CD4+ T cells to fusion with an HIV-1 JRFL-BlaM-Vpr reporter virus. HIV controller specific cells proved less susceptible to HIV fusion than those of treated patients (P<0.017). Moreover, CCR5 expression in specific cells correlated with HIV fusion (R=0.83, P<0.05). CCR5 expression in total CD4+ T cells did not reveal significant differences between groups. However, a negative correlation was observed between CCR5 expression in total CD4+ T cells and the frequency of Gag293-specific cells, indicating that the subset of controllers with low CCR5 expression maintained strong CD4 responses. Genetic analysis of one controller with particularly low fusion susceptibility uncovered biallelic mutations that impaired CCR5 expression.

**Conclusions:** Taken together, these findings reveal a lower susceptibility of HIV controller specific CD4+ T cells to HIV entry, and point to a role for low CCR5 expression in promoting spontaneous HIV control.

**LBPEA011**

Autophagy suppresses mucosal HIV-1 replication and improves clinical outcomes for HIV-1 infected individuals


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**Background:** Contemporary HIV-1 antiretroviral therapy is highly effective, however, treated HIV-1 patients suffer from severe comorbidities due to persistent viral replication and immune dysfunction. There is thus an urgent need to identify therapeutic targets to enhance antiviral immunity and restore immune function in treated HIV-1 patients. Autophagy functions as an antiviral defense mechanism by degrading viruses and instructing adaptive antiviral T-cell responses. We were the first to show that autophagy inhibits mucosal HIV-1 infection, and to identify the molecular mechanism. Human TRIM5 mediates assembly of an autophagy-activating scaffold to HIV-1 components, which targets HIV-1 for degradation and potently restricts infection of human mucosal dendritic cell (DC) subsets. In this study, we aimed to define the in vivo relevance of these autophagy mechanisms in the disease progression of HIV-1 infected individuals. Furthermore, we identified autophagy-enhancing drugs that boost HIV-1 degradation at mucosal sites.

**Methods:** To this end, we analysed the effect of autophagy polymorphisms on the clinical course of HIV-1 infection in participants of the Amsterdam Cohort studies on HIV-1/AIDS (ACS). Furthermore, we investigated the impact of autophagy-enhancing drugs in HIV-1 infection and transmission using human primary mucosal DCs and ex vivo mucosal explant tissue models.

**Results:** Here, we show a novel protective role for autophagy machinery in HIV-1 infected individuals. Recently, we identified a gene polymorphism in a regulator of TRIM5-mediated autophagy that is associated with decreased plasma viral load, delayed disease progression and improved survival in HIV-1 infected individuals from the ACS. We demonstrated that donors homozygous for this autophagy polymorphism display increased autophagy levels and heightened CD8+ T-cell effector responses in vitro, indicating a novel link between TRIM5-mediated autophagy and antiviral T-cell immunity. Notably, we have further shown that targeting autophagy with clinically approved drugs everolimus and carbamazepine decreased susceptibility to HIV-1 infection of emigrated DC subsets in ex vivo explant models.

**Conclusions:** Our data strongly suggest a pivotal role for TRIM5-mediated autophagy in limiting mucosal HIV-1 replication and boosting antiviral T-cell immunity. These recent findings underscore the in vivo relevance of autophagy mechanisms and the therapeutic potential of autophagy-targeting strategies to intervene in acute and chronic HIV-1 infections.
Background: Pre-existing resistance is a potential barrier to the efficacy of broadly neutralizing antibodies ( bnAbs) for treatment and cure of HIV infection. We tested a panel of clinical samples to determine the range of baseline susceptibilities to bnAbs in clinical development and to assess the PhenoSense HIV Neutralizing Antibody Assay’s (PISHIVnAb) predictive capacity.

Methods: Three samples (pre-ART plasma and PBMCs from 1 and 3 years of ART) from each of 65 chronically HIV-infected participants of the ART naive trial AgS27 were tested for neutralization sensitivity to seven bnAbs ( VRC01, VRC07.523L, J3BN117, N6, 10-1074, CAPI26.25, 10E8) using the PISHIVnAb platform, which generates pseudovirions representing plasma vRNA or PBMC proviral DNA envelope quasispecies (PMCID:PMC5903601). PBMCs from 9 patients at entry to trial Ag340, which evaluated VRC01 during ART interruption, were tested and compared with published plasma neutralization titers and time to rebound (PMCID:PMC5921934). Rank-based Spearman Correlation and Fisher’s exact tests were used for statistical analyses.

Results: The participants were 88% male, 63% white, with median age of 37 years. Baseline viral load was >100,000 copies/ml in 40% of individuals and median CD4 count was 353 cells/mm3. 50% inhibitory concentration (IC50) for the 3 samples are shown in Table 1. IC50s ranged between 1,000-10,000-fold for each bnAb, but pre-ART plasma, year 1 and 3 PBMC values were highly correlated (r ≥0.90 for all comparisons). Among the Ag340 samples, VRC01 IC50s from entry PBMCs correlated with published pre-ART plasma IC50s available for 5 participants (Spearman r=0.9, P<.001). In 9 patients with entry PBMCs, VRC01 IC50s did not significantly correlate with time to rebound (Spearman r=0.35, P=0.36), but IC50s <0.5 µg/mL was associated with delayed time to rebound (3 months) (P=0.0278).

Conclusions: We found a wide range in baseline neutralization susceptibilities to clinically relevant bnAbs with highly correlated values across plasma and PBMC-derived pseudovirions over 3 years of ART. PISHIVnAb susceptibilities were similar to published values, and IC50 <0.5 µg/mL was associated with delayed rebound. Results support the utility of screening for neutralization susceptibility prior to therapeutic bnAb use and suggest PISHIVnAb PBMC testing may be a valid approach.

<table>
<thead>
<tr>
<th>Broadly Neutralizing Antibody</th>
<th>Pre-ART Plasma</th>
<th>Year 1 PBMCs</th>
<th>Year 3 PBMCs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median IC50 (Min, Max)</td>
<td>Median IC50 (Min, Max)</td>
<td>Median IC50 (Min, Max)</td>
</tr>
<tr>
<td>VRC01</td>
<td>0.758 (0.053, &gt;50)</td>
<td>0.560 (0.063, &gt;50)</td>
<td>0.421 (0.035, &gt;50)</td>
</tr>
<tr>
<td>VRC07.523L</td>
<td>0.135 (0.029, &gt;50)</td>
<td>0.121 (0.017, &gt;50)</td>
<td>0.122 (0.036, &gt;50)</td>
</tr>
<tr>
<td>J3BN117</td>
<td>0.103 (0.018, &gt;50)</td>
<td>0.087 (0.019, &gt;50)</td>
<td>0.100 (0.018, &gt;50)</td>
</tr>
<tr>
<td>N6</td>
<td>0.243 (0.047, &gt;50)</td>
<td>0.203 (0.038, &gt;50)</td>
<td>0.210 (0.035, &gt;50)</td>
</tr>
<tr>
<td>10-1074</td>
<td>0.047 (0.008, &gt;50)</td>
<td>0.044 (0.005, &gt;50)</td>
<td>0.040 (0.003, &gt;50)</td>
</tr>
<tr>
<td>CAPI26.25</td>
<td>&gt;50 (0.003, &gt;50)</td>
<td>&gt;50 (0.003, &gt;50)</td>
<td>&gt;50 (0.003, &gt;50)</td>
</tr>
<tr>
<td>10E8</td>
<td>&gt;50 (0.103, &gt;50)</td>
<td>0.431 (0.022, &gt;50)</td>
<td>0.584 (0.101, &gt;50)</td>
</tr>
</tbody>
</table>

([Table 1. Time to achieving CD4 ≥500 cells/µl among adult patients with baseline CD4 <200 cells/µl, by HIV type, 1998 - 2016 (N=3,922)](PMCID:PMC153062))
**LBPB014**

Systematic empirical versus test-guided anti-tuberculosis treatment impact in severely immunosuppressed HIV-infected adults initiating antiretroviral therapy with CD4 cell counts < 100/μL: Final results from the STATIS (ANRS 12290) randomized trial

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**Background:** Despite increasing access to ART in low-income settings, many HIV-infected adults still present for care with severe immunosuppression. In such late presenters, mortality following ART initiation is high and tuberculosis (TB) or invasive bacterial diseases (IBD) remain major causes of death. Here, we report the final results of the STATIS trial (NCT02057796) comparing the efficacy and safety of two strategies aiming at decreasing mortality and IBD in late presenters in Côte d’Ivoire, Uganda, Cambodia and Vietnam.

**Methods:** From September 2014 to May 2017, ART-naive HIV-1 infected adults with CD4 > 100/μm³ were randomly assigned to ART/extended TB screening (arm 1) or ART/systematic empirical TB treatment (arm 2). In arm 1, TB screening included Xpert MTB/RIF on sputum and urine lipoarabinomannan. ART was initiated immediately in patients who did not start TB treatment at baseline (arm 1 patients with negative TB screening) and two weeks after starting TB treatment in others (arm 1 patients with positive TB screening and arm 2 patients). Primary outcome was the occurrence of death or IBD at week 24. Follow-up lasted 48 weeks (last visit of the last patient: April 2018).

**Results:** 1047 participants (arm 1: 525, arm 2: 522; Africa: 583, Asia: 464; males: 611, females: 436) were analyzed. At baseline, mean (SD) age was 36 (9) years, BMI 20.1 (3.5) kg/m², CD4 36 (27) /μm³, viral load 5.4 (0.6) copies/ml (no difference between arms). As previously reported, there was no difference between arms regarding the primary outcome. During follow-up, 45 participants died in each arm (p=0.9773); there were 20 IBD in arm 1 and 22 in arm 2 (p=0.7377). The rate of documented or presumptive TB was 14.4 (11.8-17.0) per 100 person-years (arm 1: 26.1 (21.0-31.3), arm 2: 4.2 (2.6-5.6), p< 0.0001). The rate of grade 3-4 drug-related toxicity was 15.7 (12.9-18.4) per 100 person-years (arm 1: 8.7 (5.9-11.6), arm 2: 2.3 (1.8-2.8), p< 0.0001).

**Conclusions:** Systematic TB treatment is not superior to extensive TB screening and targeted TB treatment to decrease the risk of mortality or IBD in ART-naive adults with CD4 > 100/μm³. It is associated with a lower risk of TB but higher drug-related toxicity.

[Kaplan-Meier probability of first invasive bacterial disease or death during the STATIS trial (log-rank test; p=0.89).]

**LBPB015**

Adherence to Bedaquiline and antiretroviral therapy predicts mortality in the treatment of multi- and extensively drug-resistant tuberculosis (M/XDR-TB) HIV co-infected patients in KwaZulu-Natal, South Africa

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**Background:** Medication adherence is critical to successful treatment but is poorly characterized in TB/HIV treatment. Bedaquiline is the first new medication licensed for drug-resistant TB treatment in over 40 years. Using next-generation electronic pill boxes (Wisepill RT2000), PRAXIS aims to concurrently measure adherence to Bedaquiline and antiretroviral therapy (ART) in the treatment of multi- and extensively drug-resistant tuberculosis (M/XDR-TB) HIV.

**Methods:** Prospective observational cohort study of adult M/XDR-TB HIV patients initiating treatment on Bedaquiline-containing regimens and on antiretroviral therapy (ART). Medication adherence was assessed in real-time using Wisepill devices separately for Bedaquiline and ART through 6 months. Percent adherence was calculated as observed versus expected doses. Patients were censored at loss to follow up, death or study withdrawal. Patients were assessed clinically in monthly study visits. Primary outcome was all cause mortality at 6 months. Secondary outcomes were changes in HIV viral load, sputum TB culture conversion, and differential adherence to Bedaquiline and ART through 6 months.

[Kaplan-Meier Survival Curves; Stratified by Bedaquiline Adherence (<50%, 51-75%, >75%)]

[Kaplan-Meier Survival Curves; Stratified by Bedaquiline Adherence (<50%, 51-75%, >75%)]
Results: From November 2016 through February 2018, 200 M/XDR-TB HIV patients were enrolled. 156 had sufficient follow up time (6 months) to be included in the primary analysis. Overall patients achieved an average of 92% (SD 11.7) adherence to Bedaquiline and 81% (SD 61.8) to ART (p<0.0001). Mortality through 6 months was 16/153 (10.4%). In patients with <50% adherence to Bedaquiline 6-month survival was 50% while the highest quartile of adherence survival was 100%. Bedaquiline adherence >85% compared to 85% was associated with increased TB culture conversion at 6 months (80.6% vs. 65%; p<0.001). Differential adherence was observed between Bedaquiline and ART (primarily Nevirapine). A decrease in adherence to Bedaquiline was noted from inpatient treatment (96%) to outpatient treatment (91%) (P=0.002). Self-reported, 7-day recall of Bedaquiline and ART non-adherence was poorly sensitive (11%) and specific (100%) with Wispeilli adherence as reference standard.

Conclusions: Adherence is a key indicator of mortality for patients with MXDR-TB and HIV. Next generation e-pill boxes to measure adherence may provide real-time feedback on adherence practices. Supporting optimal adherence may be an important intervention to improve mortality in M/XDR-TB HIV treatment.

**LBPEB016**


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1National Health Laboratory Service. 2National Cancer Registry, Johannesburg, South Africa. 3University of the Witwatersrand. School of Public Health. Division of Epidemiology and Biostatistics, Johannesburg, South Africa. 4University of Bern. Institute of Social and Preventive Medicine (ISPM). 5University of Cape Town. School of Public Health and Family Medicine. Centre for Infectious Disease Epidemiology and Research (CIDER). Cape Town. South Africa. 6University of Cape Town. School of Public Health. Division of Epidemiology and Biostatistics. Cape Town. South Africa.

Background: The impact of South Africa's high HIV burden on cancer risk is not fully understood particularly in the context of antiretroviral treatment (ART) availability. The National Health Laboratory Service (NHLS) serves 80% of the South African population allowing for the first national evaluation of HIV-related cancers in the era of ART. We examined national cancer trends and excess cancer risk in people living with HIV (PLHIV) compared to those who are HIV-negative.

Methods: We assigned HIV status to cancer cases diagnosed in the South African public sector between 2004-2014 through probabilistic linkage of records from the National Cancer Registry (NCR) with HIV data from the NHLS. We also used test search of specific HIV terms from the clinical section of pathology reports to determine HIV status of cancer patients. We used logistic and Joinpoint regression models to evaluate the risk and trends in cancers in PLHIV across the 11-year period adjusting for age, gender, race and year of cancer diagnosis. In sensitivity analysis, we used inverse probability weighting (IPW) to correct for possible selection bias.

Results: A total of 239 208 cancers were reported to the NCR from the NHLS. HIV status is recorded for 82.1% of all cancer records. 50.4% (30 486) of all females and 47.3% (16 443) of all males with a known status were HIV-positive. PLHIV were at high-risk of extrarenal cancers (Figure 1).

Conclusions: Cancer risk in PLHIV continues to rise despite widespread ART availability, specifically for conjunctival cancer and HPV-associated cancers. There is need for improved awareness and screening of these cancers at HIV care centres. Further research and discussion is warranted on inclusive HPV vaccination in PLHIV.

**LBPEB017**

**Doravirine (DOR) versus rilpivirin-boosted darunavir (DRV+rtv): 96-week results of the randomized, double-blind, phase 3 DRIVE-FORWARD Noninferiority trial**


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Background: Doravirine (DOR) is a novel non-nucleoside reverse transcriptase inhibitor (NNRTI) with once-daily dosing and potent in vitro activity against the most common NNRTI resistant variants (K103N, Y181C, G190A). The 48-week results of the phase 3 DRIVE-FORWARD trial showed that DOR was noninferior to DRV+rtv in treatment-naive adults, with a superior lipid profile for fasting LDL-C and non-HDL-C. Herein we present the 96-week data.

Methods: HIV-infected, treatment-naive adults were randomized to DOR (100 mg/d) or DRV+rtv (800/100 mg/d) with investigator-selected nucleoside reverse transcriptase inhibitors (NRTI): tenofovir/emtricitabine (TDF/FTC) or abacavir/lamivudine (ABC/3TC). Resistance-associated mutations to NNRTIs or NRTIs was an exclusion factor. Study was double-blinded until week 96. Participants were stratified by baseline HIV-1 RNA (>200,000 copies/mL) and background NRTI therapy. The proportion of participants achieving HIV-1 RNA <50 copies/mL (FDA Snapshot Approach), adverse events (AEs), and fasting serum lipids effects at week 96 were assessed.

**Table 1: Odds ratios for cancer in PLHIV by complete case analysis and by weighted analysis**

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Complete Case Analysis OR (95% CI)</th>
<th>Weighted Analysis OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaposi</td>
<td>134.01 (111.20-161.50)</td>
<td>98.8 (80.93-120.61)</td>
</tr>
<tr>
<td>Cervix</td>
<td>1.7 (1.63-1.77)</td>
<td>1.48 (1.60-1.76)</td>
</tr>
<tr>
<td>HNl</td>
<td>2.73 (2.56-2.91)</td>
<td>2.89 (2.71-3.08)</td>
</tr>
<tr>
<td>Anus</td>
<td>1.63 (1.32-2.00)</td>
<td>1.61 (1.30-1.99)</td>
</tr>
<tr>
<td>Hodgkin`s lymphoma</td>
<td>1.22 (1.09-1.37)</td>
<td>1.43 (1.27-1.61)</td>
</tr>
<tr>
<td>Vulva</td>
<td>1.64 (1.67-2.29)</td>
<td>1.42 (1.58-2.10)</td>
</tr>
<tr>
<td>Penis</td>
<td>2.35 (1.89-2.99)</td>
<td>2.06 (1.63-2.61)</td>
</tr>
<tr>
<td>Conjunctive</td>
<td>21.51 (16.28-28.41)</td>
<td>20.84 (15.24-28.50)</td>
</tr>
</tbody>
</table>

| Odds for cancer in PLHIV by complete case analysis and by weighted analysis |

**[Trends in cancer risk for selected cancers]**
Results: Of 769 participants randomized, 766 (99.3%) in each group received study drug and were included in the analyses (mean age 35.2 years, 84.3% male, 73.1% white, 87% on TDF/FTC). At 96 weeks, DOR demonstrated higher efficacy versus DRV+r: 73.1% and 66.0% in the DOR and DRV+r groups, respectively. Achieved HIV-1 RNA <50 copies/mL; treatment difference 7.1% (95% CI: 0.5, 13.7) and responses were similar regardless of baseline characteristics (Table 1). Treatment-emergent resistance to any study drug occurred in 0.1% and 0.1% of DOR and DRV+r groups, respectively. AE rates (overall, serious, drug related, and leading to treatment discontinuation) were similar across groups. The most common AEs (>5%, week 0-96) were diarrhea (DOR 17.0%, DRV+r 23.8%), nausea (11.7%, 13.6%), headache (14.9%, 12.0%), and upper respiratory tract infection (13.3%, 7.8%). Pronounced differences between treatment arms in mean changes from baseline in LDL-C (DOR -0.44 mg/dL, DRV+r +14.0 mg/dL) and non-HDL-C (-0.48 mg/dL, +17.7 mg/dL) were seen in favor of DOR.

Conclusions: Through 96 weeks of therapy, DOR demonstrated greater antiviral activity versus DRV+r, was well tolerated, and exhibited a more favorable lipid profile in treatment-naïve adults with HIV-1 infection. DOR in combination with NRTIs provides an attractive alternative for the treatment of HIV-1 in treatment-naïve adults.

**LBPE018**

**The effect of delayed switch to second-line ART and confirmed failure monitoring on mortality among South African adults**

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Background: HIV treatment guidelines in South Africa recommend that patients should switch to second-line antiretroviral therapy (ART) after first-line treatment has failed. Treatment failure is confirmed when two consecutive viral load (VL) measurements exceed 1000 copies/mL. Previous studies have shown that delays in the time-to-switch are associated with increased death. However, the impact of duration between the first and second VL measurements of confirmed failure have not been considered in detail. This is important to consider given the recent push for increased VL monitoring.

Methods: We included 7255 adult patients, from 8 South African treatment programs, with confirmed virological failure (2 consecutive VL >1000 copies/mL, >4 weeks apart) from 2004 onwards. A switch from first- to second-line was defined as a switch from a regimen composed of nucleoside reverse transcriptase inhibitors (NRTIs) and non-nucleoside reverse transcriptase inhibitors (NNRTIs), to a regimen containing at least 1 protease inhibitor (PII). We compared the hazards of death for 6 different time-to-switch categories vs no switch using inverse probability weighting (IPW) of marginal structural models, which adjusted for measured time-dependent confounding of CD4 count and VL. Analyses were performed using the time of the second VL measure of confirmed failure as baseline, and repeated with the baseline at the time of first VL measure of confirmed failure.

**Table 1: Estimates of delay in switch vs no switch on mortality**

<table>
<thead>
<tr>
<th>Baseline</th>
<th>Second VL measurement of Confirmed Failure</th>
<th>First VL measurement of Confirmed Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>No switch (reference category)</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Less than 30 days</td>
<td>0.45 (0.35-0.59)</td>
<td>0.32 (0.19-0.56)</td>
</tr>
<tr>
<td>Greater than or equal to 30 and less than 60 days</td>
<td>0.52 (0.41-0.65)</td>
<td>0.49 (0.35-0.68)</td>
</tr>
<tr>
<td>Greater than or equal to 60 and less than 120 days</td>
<td>0.56 (0.47-0.66)</td>
<td>0.54 (0.44-0.66)</td>
</tr>
<tr>
<td>Greater than or equal to 120 and less than 180 days</td>
<td>0.67 (0.57-0.78)</td>
<td>0.59 (0.49-0.72)</td>
</tr>
<tr>
<td>Greater than or equal to 180 and less than 360 days</td>
<td>0.70 (0.63-0.78)</td>
<td>0.66 (0.58-0.76)</td>
</tr>
<tr>
<td>Greater than or equal to 360 days</td>
<td>0.85 (0.72-0.98)</td>
<td>0.87 (0.72-0.97)</td>
</tr>
</tbody>
</table>

Notes:
- *Mutational profiles of 4 HTE patients receiving DTG*

**Conclusions:** Delays in switch from first-line to second-line ART after confirmed failure result in increased risk of death. In addition, the results indicate an increased risk of death as the length of delay from first VL measure of confirmed failure to switch increases. This implies that efforts should be made to reduce monitoring delays between the first failing VL measurement and confirmed failure, to accelerate the time from first failing VL measure to switching treatment.

**LBPE019**

**Preliminary virologic outcomes and prevalence of integrase strand transfer inhibitor resistance mutations among highly experienced treatment experienced patients receiving dolutegravir in Botswana**

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Background: Botswana became the first country in Sub-Saharan Africa to implement the wide spread use of dolutegravir (DTG) in their public national antiretroviral therapy (ART) programme in January 2016. Approximately 60,000 patients were receiving DTG as part of their first, second, third and salvage ART regimens, as of 31st March 2018. As part of HIV-1 drug resistance (HIV-DR) surveillance, genotypic resistance testing (GRT) is available for all patients who present with virologic treatment failure on DTG. To date, no naïve patients initiated on a DTG containing regimen has developed integrase strand inhibitor (INSTI) resistance mutations. We report preliminary findings from the Botswana Epidemiological ART Treatment Cohort Study, which monitors virologic outcomes and the development of HIV-DR in highly treated experienced (HTE) patients on DTG containing regimens.

Methods: GRT was performed for patients with confirmed virologic failure (two consecutive viral loads [VL] >400 copies/mL) while on DTG containing regimens. We sequenced protease (PR), reverse transcriptase (RT) and INSTI genes using ViroSeq™ HIV-1 standard protocols. Mutational profiles were interpreted using the Stanford HIV Drug Resistance Database. Complete clinical histories were obtained from electronic and manual chart reviews. Patients defined as HTE were those who had failed 3 or more ART regimens.

**Table 2: Time from baseline to switch**

<table>
<thead>
<tr>
<th>Year/ Month</th>
<th>No of ART change</th>
<th>Month of switch</th>
<th>RT mutations</th>
<th>PR mutations</th>
<th>INSTI mutations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004 4</td>
<td>5</td>
<td>Unknown</td>
<td>Unknown</td>
<td>C184R</td>
<td>&lt;400</td>
</tr>
<tr>
<td>2004 4</td>
<td>4</td>
<td>27</td>
<td>Unknown</td>
<td>G164V</td>
<td>G163K</td>
</tr>
</tbody>
</table>

Notes:
- *Mutational profiles of 4 HTE patients receiving DTG*
Results: Of 93 HTE placed on DTG containing regimens, 20 were identified with VL >400 copies/mL. 74/93 (79.5%) achieved VL < 400 copies/mL. Four patients were identified with extensive INSTI mutations (Table 1). Patients 1, 3 & 4 failed Raltegravir (RAL) containing regimens prior to treatment with DTG (patient 2 never received RAL). Patients 1 & 2, with major INSTI resistance mutations, achieved VL < 400 copies/mL. Patients 3 & 4, despite having accumulated extensive mutations to all ART classes, have remained clinically stable on DTG with low grade viremia, both harbouring K65R mutations.

Conclusions: There is limited data on DTG related resistance in HIV-1C virus in real-world settings in Sub-Saharan Africa, particularly among HTE patients. At 2 years of implementing DTG into regimens of HTE patients, clinical outcomes and the low prevalence of INSTI resistance mutations in Botswana are encouraging.

**LBPEB020**

**Preliminary virologic outcomes of patients switched to dolutegravir containing regimens for toxicities, treatment failures and regimen optimization at a large urban hospital in Botswana**

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Background: Botswana became the first country in Sub-Saharan Africa to implement the use of Dolutegravir (DTG) in their National public antiretroviral (ART) programme in January 2016. Approximately 60,000 patients were receiving DTG by 31 March 2018, with approximately 10,000 patients switched to DTG from their previous regimens. We report the preliminary findings from the Botswana Epidemiological ART Treatment Cohort Study, which monitors real-world outcomes of patients switched to DTG regimens for toxicities, treatment failure and regimen simplification.

Methods: Switch patients were identified from electronic and manual patient medical records. All patients that were switched to DTG containing regimens beginning 1 January 2016, were included in the analysis. Viral loads were recorded at 6 and 12 months post initiation of DTG, frequencies of toxicities requiring switch to DTG were also recorded.

Results: A total of 341 patients were switched to DTG containing regimens. Table 1 outlines the viral load results of switch patients at 6 and 12 months post initiation. There were 173 patients switched to DTG for toxicities from previous regimens: 78/173 (45%) due to NRTI induced lipodystrophies, 22/173 (12.7%) for GI disturbance due LPV/r use, 11/173 (6%) due to CNS effects of EFV. Additional toxicities included gynecomastia, skin discoloration, renal and liver dysfunction. Treatment simplification occurred in 33 patients and 135 patients were switched to DTG for treatment failure.

**LBPEB021**

**Administration of CC-11050, a phosphodiesterase 4 inhibitor, is well tolerated but does not significantly decrease immune activation in treated HIV+ persons**

A. Boulougoura1, E. Gabriel1, E. Laidlaw1, A. Pau1, A. Poole1, J. Higgins2, A. Rupert1, A. Kibiy1, V. Khetani3, A. Boulougoura1, E. Gabriel1, E. Laidlaw1, A. Poole1, J. Higgins2, A. Rupert1, A. Kibiy1, V. Khetani3, A. Boulougoura1, E. Gabriel1, E. Laidlaw1, A. Poole1, J. Higgins2, A. Rupert1, A. Kibiy1, V. Khetani3, 1AIDS Research and Reference Laboratory, Washington, United States

Background: Phosphodiesterase 4 inhibitors (PDE4i) are novel anti-inflammatory medications that block degradation of cAMP and decrease productions of inflammatory cytokines. Apremilast and roflumilast are PDE4i approved for treatment of psoriasis and COPD respectively. PDE4i are also being tested as host-directed therapy (HDT) in TB. In the current study, we examined the safety of CC-11050 in HIV+ people with suppressed viral load on ART and hypothesized that CC-11050 would also decrease inflammation.

Methods: Phase 1, placebo-controlled, double-blinded study to examine safety of CC-11050 administered over 12 weeks in HIV+ persons on ART for at least 1 year with plasma HIV viremia (VL) < 50 c/mL. Eligible patients were randomized 2:1 to CC-11050 200 mg BID or placebo. Plasma cytokines were measured at weeks 0, 2, 4, 8, and 12. Monocyte and T-cell activation profile was assessed by flow cytometry. For comparisons between time points T-test or Wilcoxon rank sum tests were used for comparison of continuous variables. To compare biomarker levels over all treatment time points, linear generalized estimating equations (GEE) were used. All analyses were performed in R.

Results: 45 patients were screened and 30 were randomized (9 active drug and 11 placebo) as planned, 20% of whom were women and 43% African American. The median age was 49.6 years (44-55), median BMI 26.8 and median Hemoglobin 135; 53% were on NNRTI and 47% on INSTI regimens. The median CD4 at baseline was 459 cells/μL and CD8 712 cells/μL. Most frequent AEs (grade 1 and 2 only) in active drug recipients were headache (8/19), diarrhea (6/19), cough (2/19), nasal congestion (2/19) and rash (1/19). There were no statistically significant changes in CD4 or CD8 T cell counts and no changes in VL. Efavirenz levels were not affected significantly. There were no significant differences between the two randomization groups in the average level over the treatment weeks, in the unadjusted or adjusted GEE models, for TNF-α, IL-6, IL-8, IL-10, IFN-γ, sCD14, CRP, D-dimer.

Conclusions: Administration of CC-11050 in suppressed HIV-infected patients is well tolerated and can be co-administered with efavirenz, but at the studied dose has minimal effect on systemic inflammatory markers or immune activation.

**LBPEB022**

**Loss of detectable HIV CD4+ T cell RNA following single-dose brentuximab vedotin anti-CD30 therapy for Hodgkin lymphoma**

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**Background:** We previously reported that CD4+ T-cells expressing the tumor marker, CD30, were enriched in HIV RNA and that CD30 mRNA and HIV RNA colocalized in gut tissue from ART suppressed individuals. Ex vivo treatment of PBMC from ART-suppressed individuals with the anti-CD30 antibody-drug conjugate, brentuximab vedotin, led to a significant decrease in HIV DNA levels. However, the direct, longitudinal impact of brentuximab vedotin therapy on HIV persistence in vivo is not known. We studied the impact of brentuximab vedotin therapy for Hodgkin lymphoma on HIV persistence in a newly identified HIV-infected individual on ART.

**Methods:** In depth characterization of CD4+ T cell-associated HIV-1 unspliced RNA and total DNA, and immune phenotyping of CD30 expression on PBMC were determined prior to and 3 weeks following brentuximab vedotin therapy in an HIV-infected individual.
Methods: On enrollment, children received DTG-DT as monotherapy, or added to stable-failing or empiric initial background regimens and dosed using weight-band tables. Intensive 24-hour PK sampling was completed between days 5-10 with fasting (2 hours prior/1 hour after), after which background regimens were optimized based on enrollment HIV genotypes. Safety, tolerability, and plasma HIV-1 RNA levels were assessed through 4 weeks. From adult data, targets (range) for geometric mean (GM) exposures were AUC_{24} (37-86) mgxh/L and C_{24h} 375 (500-2250) ng/mL.

Results: Thirty-two children enrolled to achieve 30 (1 per cohort) with evaluable data, of whom 17/30 (57%) were female; 27/30 (90%) had CD4<sup>+</sup>T cells ≥4 weeks to <6 months, IV: ≥6 months to <2 years, III: ≥2 to <6 years). Prior to planned autologous hematopoietic stem cell transplant. Brentuximab vedotin reduced the number of circulating CD30<sup>+</sup>CD4<sup>+</sup>T cells and led to a major decrease in circulating cell-associated HIV RNA and a modest reduction in total cell-associated HIV DNA. These data and our prior observation of the loss of HIV DNA and RNA following multi-cycle brentuximab vedotin therapy suggest that targeting CD30 may reduce the pool of transcriptionally active HIV-infected cells that persist on suppressive ART. Longitudinal sampling of blood and tissues is underway to determine the longer-term effect of anti-CD30 therapy on the total HIV reservoir.

Conclusions: In P1093, once daily dosing of DTG-DT at median dose of 1.2 mg/kg was well-tolerated, achieving mean AUC<sub>24</sub> and C<sub>24</sub> results within target range with universal declines in plasma HIV-1 RNA. Given the moderate inter-subject PK variability, higher doses are likely needed for children 2 to <6 years of age to reliably achieve a C<sub>24h</sub> within the acceptable range.

Background: Dolutegravir (DTG) is recommended for first-line treatment of HIV-1 infected adults due to its potency, high barrier to resistance, and tolerability. A 5mg dispersible tablet (DTG-DT) pediatric formulation is underway to determine the longer-term effect of anti-CD30 therapy on the total HIV reservoir.

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Conclusions: In P1093, once daily dosing of DTG-DT at median dose of -1.2 mg/kg was well-tolerated, achieving mean AUC<sub>24h</sub> and C<sub>24h</sub> results within target range with universal declines in plasma HIV-1 RNA. Given the moderate inter-subject PK variability, higher doses are likely needed for children 2 to <6 years of age to reliably achieve a C<sub>24h</sub> within the acceptable range.

## Results

The male participant was on long-term suppressive ART and was diagnosed with stage IV Hodgkin lymphoma in 2014. He received doxorubicin/bleomycin/vinblastine/dacarbazine therapy and went into complete remission. In 2017 he was treated with salvage chemotherapy (ifosfamide/carboplatin/etoposide) for recurrence, and again went into remission. Brentuximab vedotin was started as bridging therapy prior to planned autologous hematopoietic stem cell transplant. Prior to brentuximab vedotin, CD4<sup>+</sup>T-cell-associated HIV RNA and DNA levels were 7,359 and 58 copies/10<sup>6</sup> CD4<sup>+</sup>T-cells, respectively. Three-weeks following a single 1.8 mg/kg dose, no HIV RNA could be detected in CD4<sup>+</sup>T-cells (≥3-log<sub>10</sub> reduction), and total cell-associated HIV DNA levels decreased by 42% (Figure). A concomitant 4-fold decrease in the frequency of CD4<sup>+</sup>T-cells expressing CD30 was observed (2.6% to 0.5%).

## Conclusions

A single dose of the anti-CD30 antibody-drug conjugate, brentuximab vedotin reduced the number of circulating CD30<sup>+</sup>CD4<sup>+</sup>T cells and led to a major decrease in circulating cell-associated HIV RNA and a modest reduction in total cell-associated HIV DNA. These data and our prior observation of the loss of HIV DNA and RNA following multi-cycle brentuximab vedotin therapy suggest that targeting CD30 may reduce the pool of transcriptionally active HIV-infected cells that persist on suppressive ART. Longitudinal sampling of blood and tissues is underway to determine the longer-term effect of anti-CD30 therapy on the total HIV reservoir.

## Methods

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Prevalence and correlates of HIV infection among men who have sex with men in Hanoi, Vietnam

H. Bui1, L. Le1, D. Vu1, L. An1, P. Truong2, R. Shiraiishi3, I. Zablotska-Manos1, J. Blandford4, A. Abduli-Quader1, H. Van1, L. Maher1
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Background: Despite advances in HIV biomedical prevention, men who have sex with men (MSM) remain at high risk of HIV infection globally. In Vietnam, where there are concerns that HIV in MSM is increasing, estimates of prevalence and understanding of risk factors in this population remain limited.

Methods: Health in Men (HIM) - Hanoi is a prospective observational study designed to estimate HIV prevalence, incidence and associated risk factors among MSM in Hanoi. The first wave of the baseline survey was conducted in late 2017 using Time Location Sampling. Participants (n=800) completed an audio computer-assisted self-interview and provided biological samples. Data were weighted using the inverse of individual selection probabilities with weights adjusted for individual and cluster non-response. All analyses accounted for the complex design of the survey and were performed using Stata 14.0. Logistic-bimomial regression was used to identify risk factors for HIV infection.

Results: Participants had a mean age of 24.3 years (range: 16 - 66), 87.5% had ≥ 12 years of schooling and 46.4% reported condomless anal intercourse (CIAI) with non-commercial male partners, 18.1% with male clients, and 2.3% with male sex workers, in the last six months. HIV testing uptake was low with 40.8% tested in the last six months and 33.1% never tested. HIV prevalence was 10.9% (95%CI 7.4%-15.8%) and 42.1% tested positive for at least one STI, including 18.9% with infectious syphilis (18.9%), Chlamydia (23.9%), Gonorrhoea (13.9%) and HSV-2 (3.6%). HIV infection was independently associated with lifetime sex with male clients (adjusted prevalence ratio (APR)=1.92, 95%CI 1.09-3.39), ≥ 3 non-commercial anal sex male partners in the last month (APR=2.15, 95%CI 1.20-3.83), group prevalence ratio (APR)=1.92, 95%CI 1.09-3.39), ≥ 3 non-commercial anal sex male partners in the last six months (APR=1.67, 95%CI 1.03-2.72), STI symptoms in the last six months (APR=1.45, 95%CI 1.04-2.01), testing positive for infectious syphilis (APR=1.93, 95%CI 1.17-3.20) and past hepatitis B infection (APR=1.86, 95%CI 1.09-3.15).

Conclusions: The young age, high prevalence of HIV infection and observed associations with STIs and sexual risk behaviour in this sample indicate an urgent need for targeted STI screening and biomedical approaches, including HIV PrEP, to control transmission among MSM in Vietnam.

Prevalence and correlates of STIs among MSM in Hanoi, Vietnam

D. Vu1, G. Len1, H. Bui1, L. An1, H. Van1, P. Truong1, L. Maher1, R. Shiraiishi1, H. Bui1, A. Abduli-Quader1, J. Blandford1
1US Centers for Disease Control and Prevention, DGH, Hanoi, Vietnam. 2Hanoi Medical University, Institute of Preventive Medicine and Public Health, Hanoi, Vietnam. 3Hanoi Medical University, Centre for Research and Training on HIV/AIDS, Hanoi, Vietnam. 4University of New South Wales, The Kirby Institute for Infection and Immunity, Sydney, Australia. 5Bach Mai Hospital, Dept. Microbiology, Hanoi, Vietnam. 6U.S. Centers for Disease Control and Prevention, DGH, Atlanta, United States

Background: Globally, men who have sex with men (MSM) are at high risk of STIs. This risk is potentially increased in the era of HIV Pre-Exposure Prophylaxis (PrEP). In 2017, the Health in Men-Hanoi study launched its baseline survey to measure prevalence of HIV and STIs among a representative sample of MSM in Hanoi, Vietnam.

Methods: The first stage of recruitment for this prospective observational study consisted of a cross-sectional survey using venue-based time-location sampling to recruited 800 MSM. Audio computer-assisted self-interviewing was used to collect demographic and risk behaviour data. Blood, oral, urine and anal specimens were collected for HIV, Hepatitis and STI testing. All analyses accounted for the complex design of the study and were performed using Stata 14.0. Logistic-bimomial regression was used to identify risk factors for STIs.

Results: The majority of MSM attending venues in Hanoi were aged < 25 years (72.7%) and had college/university education (73.0%). Only 44.4% reported consistent condom use with male partners, 46.2% reported ever using PrEP. In 2017, the Health in Men-Hanoi study launched its baseline survey to measure prevalence of HIV and STIs among a representative sample of MSM in Hanoi, Vietnam.

Conclusions: The young age, high prevalence of HIV infection and observed associations with STIs and sexual risk behaviour in this sample indicate an urgent need for targeted STI screening and biomedical approaches, including HIV PrEP, to control transmission among MSM in Vietnam.

Prevalence of STIs among MSM in Hanoi, Vietnam in 2017

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Frequency STIs / row N</th>
<th>Weighted % positive with STIs [95%CI]</th>
<th>Unadjusted weighted prevalence ratio [95%CI]</th>
<th>Adjusted weighted prevalence ratio [95%CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condom use in anal sex with all male partners and transgender in past 6 months</td>
<td>Consistently</td>
<td>121/355</td>
<td>44.8 [34.6-55.4]</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Not consistently</td>
<td>220/444</td>
<td>55.2 [46.6-65.4]</td>
<td>1.31 [1.04-1.82]</td>
<td>1.64 [1.19-2.24]</td>
</tr>
<tr>
<td>Ever diagnosed with STIs</td>
<td>None</td>
<td>226/602</td>
<td>35.2 [29.1-41.7]</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Any STIs</td>
<td>102/166</td>
<td>66.9 [52.5-78.7]</td>
<td>2.26 [1.50-3.42]</td>
<td>2.09 [1.41-3.08]</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hepatitis B or C</td>
<td>13/31</td>
<td>32.4 [12.9-62.7]</td>
<td>0.93 [0.45-1.79]</td>
<td>1.26 [0.59-2.70]</td>
</tr>
<tr>
<td>Stimulant use in past 3 months at moderate or high level</td>
<td>No</td>
<td>318/761</td>
<td>40.4 [34.6-55.4]</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>23/38</td>
<td>72.1 [49.5-87.2]</td>
<td>2.29 [1.15-4.19]</td>
<td>2.24 [1.02-4.90]</td>
</tr>
</tbody>
</table>

Conclusions: The young age, high prevalence of HIV infection and observed associations with STIs and sexual risk behaviour in this sample indicate an urgent need for targeted STI screening and biomedical approaches, including HIV PrEP, to control transmission among MSM in Vietnam.
higher STI prevalence was associated with age (20-24 years; APR 1.61, 95% CI 1.00-2.60), inconsistent condom use (APR 1.64, 95% CI 1.19-2.24), history of diagnosed STIs (APR 2.09, 95% CI 1.41-3.08) and stimulant use (APR 1.31, 95% CI: 0.94-1.82). STI prevalence did not correlate with recent STI symptoms (Table 1).

Conclusions: High STI prevalence among this young MSM cohort requires effective measures to break transmission chains. Condom use and frequent STI testing, especially in the context of the aggressive scale-up of PEPFAR planned for Vietnam can prevent STIs spreading among MSM. As the Vietnam HIV program routinely screens MSM bi-annually, integrating STI screening and treatment into HIV testing services would result to positive outcomes. As self-reported STI symptoms are not reliable predictors of STI infection, laboratory confirmed diagnoses need to be used to identify treatment needs.

Acknowledgements: The study is funded by the President’s Emergency Plan for AIDS Relief through the CDC.

### LBPECo26

**Occupational hazards of traditional healers in rural South Africa: Bloodborne pathogen exposures and risk of HIV transmission**

C. Audet1, S. Ngobeni1, M. Mkanzi1, F. Wafawanaka1, M. Aliyu1, K. Kahn2,3, M. Lahuerta3,4, S. Hone1, M.Y. Aung1, S. Phyu2, R. Sutton3, K.M. Tun1, M. Jacobs2, Y. Wu3,

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Background: Occupational hazards associated with traditional healer practices in sub-Saharan Africa (SSA) are not well studied. Similar to other health care workers, healers are exposed to blood borne pathogens through a widespread practice of traditional “vaccination” which involves diverse subcutaneous cuts in the shoulders, back and chest to rub herbs directly into the bloodied skin. The risk of exposure to patient blood by traditional healers remains unknown; however, previous work has shown that personal protective equipment (PPE) such as gloves, are not always available.

Methods: From December 2017 to May 2018 we conducted 126 surveys and community-based point-of-care HIV counseling and testing with a simple random sample of traditional healers living in rural northeast South Africa. Healers with an initial positive test immediately underwent confirmatory testing before referral to the nearest health facility for care and treatment.

Results: Healers were mostly female (76%), older (median age: 57.0 years; interquartile range (IQR): 47-57), with low levels of formal education (median: 0 years; IQR: 0-5). Healers had practiced for a median of 19 years (IQR: 7-34) and treated a median of 2 patients (IQR: 0-5) in the past month. Fourteen healers (11%) reported at least one unprotected exposure event to source blood in the past month. Among all healers who tested (95%) positive, HIV prevalence was 29.2% (CI: 21.6%-38.0%). HIV prevalence was 72.4% (CI: 40.0%-90.4%) among healers with blood exposure compared to 23.6% (CI: 16.4%-32.7%) among those with no blood exposure. Controlling for age, sex, education level, years practicing as healer, and any previous blood transfusion, healers who were exposed to patient blood had 10.4 times higher odds (CI: 2.74, 39.6; p=0.001) of being HIV-positive than non-exposed healers.

Conclusions: Traditional healers have a higher prevalence of HIV than adults of similar age (40 years) in the same setting (29.2% vs. 23.6%, respectively). Among our participants, blood exposure was significantly associated with a positive test. Intervention to educate traditional healers on the risk of blood exposure and provide appropriate PPE are urgently required to prevent HIV acquisition amongst this neglected high risk group.
Conclusions: Our results highlight the critical gaps in controlling the HIV epidemic among PWID in Myanmar. The low proportion aware of their HIV+ status, especially among adolescents and young people, in both men and women.

**LBPEC028**

Progress towards UNAIDS 90-90-90 goals among people living with HIV in Tanzania: Results from Tanzania HIV Impact Survey (THIS) 2016-17

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Background: Awareness of HIV-positive status among people living with HIV (PLHIV) continues to present a major challenge in Tanzania, including diagnosis of HIV and linkage to care. The Tanzania HIV Impact Survey (THIS), a two-stage cluster survey, was conducted in Tanzania in 2016-17 to establish the prevalence and describe the factors associated with viral load suppression among PLHIV.

Methods: THIS was a two-stage cluster survey of randomly selected households in all 31 administrative regions of Tanzania. Consenting adults, 15-64 years, self-reported their HIV status and ARV use. The survey involved home-based counseling and testing using the national HIV rapid test (RT) algorithm consisting of SD Bioline HIV 1/2 (screening RT) and UniGold (confirmatory RT). Those testing positive on both RTs were confirmed using BioRad Geenius RT and UniGold (confirmatory RT). Those testing positive on both RTs were confirmed using BioRad Geenius RT and UniGold (confirmatory RT).

Results: Of 29,369 eligible persons ages 15-64 years interviewed and tested, 1,831 were HIV-positive. Among all PLHIV, 51.82% (95% CI: 48.74, 54.88) were virally suppressed; 41.14% among males (95% CI: 36.23, 46.5) and 57.35% among females (95% CI: 53.79, 60.45). Factors independently associated with VLS included; female gender, Index (respondent) aware of their HIV+ status, urban residence, age, widowed marital status, and having a partner, Index (respondent) knows HIV+ status of partner.

Conclusion: Awareness of HIV-positive status among PLHIV continues to present a major challenge in Tanzania, including diagnosis of HIV and linkage to care. The Tanzania HIV Impact Survey (THIS), a two-stage cluster survey, was conducted in Tanzania in 2016-17 to establish the prevalence and describe the factors associated with viral load suppression among PLHIV.

**LBPEC029**

Factors associated with viral load suppression among PLHIV in Tanzania: Results from Tanzania HIV Impact Survey (THIS) 2016-17: Implications to the ART programs


Background: WHO recommends early initiation of antiretroviral drugs (ARV) to provide better clinical outcomes among People Living with HIV (PLHIV) and prevent progression to AIDS. Viral Load Suppression (VLS) has recently been globally adopted as universal approach in monitoring the effectiveness of antiretroviral treatments (ART). We analyzed data from the 2016-17 Tanzania HIV Impact Survey (THIS) to establish the prevalence and describe the factors associated with VLS among PLHIV aged 15 years.

Methods: The THIS was a cross-sectional, household survey using two-stage stratified cluster sampling. The sample was powered to obtain VLS estimates at 95% CI of +/- 10% based on the surveyed number of HIV+ individuals. HIV status awareness and ARV use were both self-reported. Blood samples tested using the national HIV Rapid Test (RT) algorithm consisting of SD Bioline HIV 1/2 (screening RT) and UniGold Standard (confirmatory RT). Those testing positive on both RTs were confirmed using BioRad Geenius1TM HIV-1/HIV-2 Supplemental Assay. VLS was defined as <1,000 HIV RNA copies/mL and described using weighted percentages; odds ratios (ORs) were estimated to determine co-factors associated with viral suppression.

Results: Of the 31,579 eligible persons ages 15-64 years interviewed and tested, 1,831 were HIV-positive. Among all PLHIV, 51.82% (95% CI: 48.74, 54.88) were virally suppressed; 41.14% among males (95% CI: 36.23, 46.5) and 57.35% among females (95% CI: 53.79, 60.45). Factors independently associated with VLS included: female gender, Index (respondent) aware of their HIV+ status, urban residence, age, widowed marital status, disclosure of HIV+ status (i.e. Index [respondent] HIV+ status known to partner). Index (respondent) knows HIV+ status of partner, higher CD4 counts, and number of sexual partners in the past 12 months.

Conclusions: VLS is an effect of interaction amid diverse dynamics, besides central ARV administration. Consequently, ART programs should consider strategizing for efficient interplay between the personal, clinical, social and demographic VLS influences.
**LBPECo30**

Does faster service equal better retention: Assessing fast track services in Lusaka, Zambia

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Background: As part of a larger differentiated service delivery (DSD) study in Lusaka, 2 urban sites where selected for a FAST-TRACK (FT) intervention to decrease waiting times and overall time spent at the clinic. The model included a dedicated clinic room staffed by a pharmacy technician (to dispense drugs) and two lay health care workers (to provide brief symptom screening to identify patients in need of higher-level care). Patients were required to visit the clinic every three months to receive ART supply and every 6 months for a clinical examination. Our primary outcome was retention at 12 months.

Methods: A systematic sample of eligible patients (HIV+, on ART > 6 months, not acutely ill, CD4 >=200/µl) were enrolled in FT between March 17 and August 31, 2016. Patients were scheduled for 3-month antiretroviral therapy (ART) pick-ups. Clinical and pharmacy visit data were obtained through existing electronic medical records. Our outcomes included clinic visit attendance, transfer-outs, and death. Kaplan-Meier failure estimates were calculated for 7, 14, 28 and 90 days late for a pharmacy visit. Significance was assessed at the 95% confidence level using the log-rank test.

Results: Among 905 patients, median age was 40 years (IQR: 34-46), 607 (67.1%) were female, median CD4 count was 499 cells/mm3 (IQR: 354-691), and median time on ART was 5 years (IQR: 3-7). The intervention participants had a significantly lower rate of >7 and >14 days late compared to the control group at six (p-value: 0.003 and < 0.001, respectively) and twelve (p-value: 0.0255 and < 0.001, respectively) months of follow-up. In addition, the intervention participants had a significantly lower rate of > 28 days late at twelve months (p-value < 0.001 of follow-up figure). The median visit spacing for pharmacy visits was 90 days for the intervention and 89 for the control.

Conclusions: Compared to our controls, FT had a significant effect on improving retention at six and twelve months. The standard of care, as represented by the control participants, did not show a significantly different ART refill schedule indicating that reduced wait time can increase retention.

**LBPECo31**

Digital pre-exposure prophylaxis (PrEP): Near real-time remote capture of medication ingestion for clinical use in trials and adherence support

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Background: Medication adherence is critical to PrEP prevention of HIV infection. An FDA approved & CE marked Digital Health Feedback System (DHFS) consisting of an edible ingestion sensor (IS), external wearable patch and paired mobile device can detect and record the timing of ingestion events that are automatically uploaded to a secure Internet server, allowing for near-real time remote confirmation and adherence support. We developed Digital PrEP byco-encapsulating Truvada with an IS to generate precise ingestion records. Prior to general clinical use, equivalence of Digital PrEP (IS-Truvada) must be assessed with respect to the native formulation. We report the in vivo equivalence of IS-Truvada to native Truvada, demonstrate its use and acceptability for longitudinal adherence monitoring.

Methods: Sixty adult HIV-seronegative participants desiring PrEP were enrolled in a prospective single arm open label intervention study over 12 weeks assessing the DHFS. Twelve participants taking IS-Truvada underwent pharmacokinetic sampling of tenofovir (TFV) and emtricitabine (FTC) on day 14 at 0, 2, 4, 6, 8, 24-hours post-dose, and on Day 15 at 2 & 4 hours post-dose following crossover to the native formulation. Plasma specimens were analyzed using a validated LC-MS/MS assay. Pharmacokinetic parameters for TFV & FTC were calculated by non-compartmental methods. IS-Truvada formulation equivalence was assessed by comparing peak FTC and TFV concentrations (Cmax) and concentrations sampled 4 hours post-dose (C4) following IS-Truvada and native Truvada using the geometric mean ratio (GMR) test at a 90% confidence level. Subsequently the acceptability of the DHFS was evaluated.

<table>
<thead>
<tr>
<th>PK Parameter</th>
<th>FTC-Steady-State PK</th>
<th>Truvada1 Mean (CV%)</th>
<th>IS-Truvada Mean (CV%)</th>
<th>Truvada1 Mean (CV%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cmax (ng/mL)</td>
<td>1679 (27)</td>
<td>1650 (18)</td>
<td>263 (39)</td>
<td>288 (22)</td>
</tr>
<tr>
<td>Tmax (hr)</td>
<td>2 (0)</td>
<td>2.98 (20)</td>
<td>2.0 (20)</td>
<td>2.4 (38)</td>
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<tr>
<td>Cmin (ng/mL)</td>
<td>97 (48)</td>
<td>75 (22)</td>
<td>59 (49)</td>
<td>54 (20)</td>
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<tr>
<td>AUC(0-24)</td>
<td>1019 (29)</td>
<td>1070 (11)</td>
<td>2706 (42)</td>
<td>2808 (18)</td>
</tr>
<tr>
<td>CL/Fl (l/hr)</td>
<td>195 (24)</td>
<td>190 (12)</td>
<td>59 (41)</td>
<td>50 (18)</td>
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<tr>
<td>T1/2 (hr)</td>
<td>6.7 (11)</td>
<td>10.7 (16)</td>
<td>17 (33)</td>
<td>15 (24)</td>
</tr>
</tbody>
</table>

Table 1. Steady-State pharmacokinetics of FTC & TFV for IS-Truvada & native Truvada

Results: Participant demographics were mean age 37.100% Male (83.3% White, 33.3% Hispanic ethnicity), mean CDC risk score 21.5. The GMRs (90% CI) at C2 & C4 (IS-Truvada/native Truvada) for TFV were 1.04 (0.89, 1.16) and 0.99 (0.87, 1.12), and for FTC were 0.96 (0.87, 1.12) and 0.94 (0.89, 1.04). IS-Truvada pharmacokinetics were comparable to literature values (Table 1). Figure 1 demonstrates DHFS’s results. Ninety two percent of participants reported a positive experience with the DHFS.
Conclusions: Pharmacokinetic equivalence enables clinical use of IS- Truvada for remote capture of precise dosing histories. Acceptable, easy, real-time adherence monitoring is available for PrEP clinical trials and adherence support.

FIG 1: Online platform displays date and time stamped ingestions differentiating PrEP adherence patterns (Subject 1 highly regular. Subject 2 erratic.)

**LBPEC032**

Use of geolocation-based push messaging from a social media platform to promote HIV testing among MSM - Beijing, China, 2015-2016

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Background: Men who have sex with men (MSM) disproportionately bear the highest burden for new human immunodeficiency virus (HIV) infections in China. Estimates of the size of the population of MSM in China range from 4 - 20 million, and 50-75% of those HIV-infected are unaware of their HIV status. Since 2013, "Blued" emerged as the most popular social media platform for Chinese MSM, with over 40 million cumulative users. They currently operate 4 drop-in HIV testing sites in Beijing.

Methods: On March 16, 2015, in order to improve the uptake of HIV testing at its drop-in HIV testing sites, all Blued users who opened the location-enabled mobile app while located within the Beijing city limits were sent a private text message to the number they had registered with Blued. The message had language encouraging HIV testing as a way to preserve health and well-being, and offered the opportunity to follow an embedded link to an online appointment system for HIV testing sites.

Results: Volume at the 4 sites increased markedly following the push messaging effort. In the two weeks prior to the effort, a total of 45 persons were tested at the 4 sites, while in the two weeks including and following the effort, a total of 135 persons tested at the same sites. In 2015 there were 3,086 persons tested versus 388 persons total in 2014 - a sevenfold increase in testing. 41% of persons tested for HIV at the sites in 2015 arranged their testing through the text's provided link. Over 150 persons were diagnosed with HIV at the testing sites in 2015 and more than 60% of them were 30 years or younger.

Conclusions: GPS push messaging to Beijing users in 2015 coincided with an increase in HIV testing uptake soon after the start of the campaign, suggesting that this technique is effective in reaching a traditionally "hard to reach" population, specifically young, well-educated MSM. More information is needed to understand the impact of geo-location push-messaging, whether it retains utility after repeated use, and how to optimize efficiency to achieve sustained levels of testing among MSM.

**LBPEC033**

Impact of a digital HIV self-testing strategy on referrals, new infections and linkage to care: Results from a transition to scale cohort study in South Africa

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Background: Although HIV self-testing (HIVST) offers a promising solution for expanded test access, challenges remain in operationalizing rapid linkages to care. In participants presenting to test for HIV in community clinics in South Africa, we investigated whether an offer of a personalized, digital HIVST strategy (a choice of: a) home unsupervised HIVST, or b) a clinic based supervised HIVST) improved outcomes (i.e., test referrals, new infections, and rapid linkages to counseling/care). The digital strategy consisted of a choice of phone/tablet app with a connected, online cloud web platform and counselors offering 24/7 linkages to care.

Methods: In an ongoing transition-to-scale cohort study (n=2500), we recruited 2250 participants in HIVST cohort up to March 2018. In geographically separated community clinics, we observed and compared outcomes in 1250 participants opting for conventional HIV testing (ConvHT cohort). Test referrals were defined as the total number of participants referred by all index testers. Linkages (a proportion) were defined as the number of consenting participants linked to care (numerator), over the total number of recruited participants (denominator).

Results: Of 1250 participants recruited in the HIVST cohort, 760 (60.8%) opted for unsupervised HIVST, and 490 (39.2%) for supervised HIVST. Participants (HIVST vs. ConvHT) were young (mean age 28.2 (SD=8.8) vs. 29.1 (SD=8.6); female (65.0% vs. 75.3%); and poor, monthly income < 3,000 RAND ($253 USD) (80.5% vs. 75.8%). There were many more referrals (IRR 5.3 [95% CI: 3.7-7.5]) in HIVST; break up (HIVST 14.8% (2.9-16.9) vs. ConvHT 2.8% (1.9-3.9). Many new HIV infections (IRR 1.5 [95% CI: 1.1-1.9]) in HIVST; 120 (9.6% (8.0-11.4)) vs ConvHT 80 (6.5% (5.1-7.9)) were documented. New infections identified: 54 (53.3%) in unsupervised HIVST vs. 56 (46.7 %) in supervised HIVST. Linkages were set up for many HIVST participants (99.7% unsupervised HIVST, 99.8% supervised HIVST), with no difference between the two cohorts HIVST vs. ConvHT (IRR 1.005 [95% CI: 0.99-1.01]).

Conclusions: We conclude that a personalized, connected digital HIVST strategy successfully documented many referrals, detected many new infections, and linked almost all participants to counseling and care. This strategy offers a promising HIVST scale up solution for all digitally savvy populations worldwide.

**LBPEC034**

Different PrEP modalities for different people: switches between daily and event-driven PrEP among MSM and TGP

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Background: To meet individual HIV prevention needs for people whose health risk may vary over time, daily (one tablet emtricitabine-tenofovir daily) and event-driven (1 tablet before, and 2 times 1 tablet after sex) pre-exposure prophylaxis (dPrEP and edPrEP, respectively) can be offered at choice of the user. We assessed user-initiated switches and factors associated with switches during the first two years of follow-up.

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Methods: HIV-negative MSM (n=370) and TGP (n=2) participated in the Amsterdam PrEP project at the Public Health Service of Amsterdam. Participants chose a dPrEP or edPrEP regimen and could switch regimen at quarterly visits. We analyzed data from study start (August 2015) through March 2018. We evaluated time-to-first-switch overall and by PrEP regimen using Kaplan-Meier plots. With Cox regression we assessed the association of baseline characteristics with time to switch, in separate models for dPrEP and edPrEP.

Results: At baseline, 270 (73%) people chose dPrEP and 102 (27%) edPrEP. Medium follow-up time was 2 years (IQR 1.8-2.2). In total, 106 (28%) participants switched regimen 154 times; 37/106 (35%) switched more than once. 78 (22%) switches were from dPrEP to edPrEP and 76 (49%) from edPrEP to dPrEP. The cumulative proportion of participants that switched two years after PrEP start was 30% (95% CI 25-35%). Over time, the cumulative proportion that switched was higher among those who started edPrEP compared to those who started dPrEP (log rank test, p< 0.001) (Fig). Higher age was associated with switching (Table) for both PrEP regimens. Among those who started edPrEP, a higher number of sex acts with casual partners (reported at baseline) was associated with a higher switch hazard. Other baseline variables were not significantly associated with the switch hazard, including ethnicity, STI at baseline, and chemsex (Table).

Conclusions: A substantial proportion of MSM switch between daily and event-driven PrEP regimens if allowed to do so. Some participants may have switched without reporting, suggesting possible underreporting. The high number of switches, in addition to 27% initiating event-driven PrEP, clearly indicates the varying needs and added value of a client-centered approach in PrEP regimen provision.

Switch dPrEP --> edPrEP
Switch edPrEP --> dPrEP

(a) Adjusted for all other variables in the model; (b) Per increase in natural log. Abbreviations: AUDIT, alcohol use disorders identification test; DUDIT, drug use disorders identification test; IQR, interquartile range; PrEP, pre-exposure prophylaxis; STI, sexually transmitted infection.

[Association of baseline characteristics with time to switch, by initial PrEP regimen]
**LBPEc036**

The impact of pre-exposure prophylaxis with TDF/FTC on HIV diagnoses, 2012-2016, United States

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**Background:** Pre-exposure prophylaxis (PrEP) reduces the risk of HIV infection in those at risk for acquiring HIV. TDF/FTC was approved for PrEP in the United States (US) in 2012: 147,000 people had initiated PrEP through 2015.

**Methods:** We analyzed HIV diagnoses among persons ≥13 years old, and viral suppression, from the National HIV Surveillance System and national pharmacy data on prevalence of TDF/FTC use, for PrEP/1,000 persons with PrEP indications. We described changes in rates of HIV diagnoses and PrEP users, from 2012-2016, for states and DC using estimated annual percent change (EAPC). We calculated EAPC and 95% confidence intervals (CI) for HIV diagnoses for states by quintiles of PrEP use. To evaluate the independence of the effect of PrEP uptake from the effect of treatment as prevention, we used data from a subset of states and DC (39 jurisdictions) with viral suppression data (averaged for available years from 2012-2014) among those living with diagnosed HIV, and examined whether the association of PrEP uptake and HIV diagnoses changed when controlling for state-specific level of viral suppression.

**Results:** The overall US rate of HIV diagnoses decreased significantly from 16.7 (2012) to 14.5 (2016)/100,000 (EAPC: -1.6, Cl: -1.9, -1.3). PrEP use prevalence increased from 7.0 (2012) to 68.5 (2016)/1,000 (EAPC: +78.0%, Cl: +77.3%, +78.7%). The pooled unadjusted EAPC of HIV diagnoses for states in the highest quintile of PrEP use was +4.7% (Cl: +5.4%, +3.9%) and for states in the lowest PrEP use quintile was -0.9% (Cl: -0.2%, +1.7%) (Figure). The average prevalence of HIV users in 2016 was 110,100/1,000 (11%) in the highest quintile, and 37,1000/3.3% in the lowest. Among the 39 jurisdictions with viral suppression data, rate of PrEP uptake remained significantly associated with declines in new HIV diagnoses after controlling for state-level viral suppression.

**Conclusions:** PrEP uptake was significantly associated with declines in HIV diagnoses in the US, and this association is independent of levels of viral suppression. US states should take steps to increase the coverage of PrEP among persons with indications in the context of increasing HIV viral suppression for people living with HIV.

**LBPEc037**

A cost-effective strategy to reach WHO hepatitis C virus elimination targets in men who have sex with men in the UK: 90% decrease in hepatitis C incidence by 2030

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**Background:** Routine pre-exposure prophylaxis (PrEP) and post-HIV diagnosis appointments provide low-cost HCV-screening opportunities amongst men who have sex with men (MSM), providing a route towards achievement of WHO elimination targets of reducing hepatitis C (HCV) incidence and prevalence by 2030.

**Methods:** We developed a deterministic model of HCV/HIV transmission, incorporating biological and behavioural heterogeneities (seroconversion, injection drug use and fisting). Our model was parameterised with UK data, calibrated to UK prevalence of HIV (6,9%), active HCV infection among HIV-positive MSM (10.0%) and HIV-negative MSM (3.6%). We assessed the effect of scaling up PrEP to 12.5% coverage amongst HIV-negative MSM (versus no PrEP) on HCV incidence over 2018-2030, assuming 86% HIV- efficacy. We then evaluated the impact over 2018-2030 of enhanced HCV screening with rapid HCV treatment within 6-months of diagnosis versus baseline of 28-months. Enhanced screening strategies included 3, 6 or 12-monthly (versus symptomatic after 10-years) in PrEP users, 6-monthly (versus 12-monthly) in HIV-diagnosed MSM and symptomatically in remaining MSM. The mean incremental cost-effectiveness ratio (ICER) was estimated for each strategy up to 2030 compared to status quo screening. We incorporated HCV screening costs for antibody (£10.22) and RNA tests (£45.57) and HCV treatment drug costs (£15,000) plus other diagnostics (EB0780). Staff (£5709) and necessary additional HCV-care costs.

**Results:** PrEP scale-up decreases HCV incidence by 13.3% due to reduced prevalence of HIV (by 23.2%), thus reducing HCV/HIV co-infection. When rapidly treating and screening PrEP users for HIV 12, 6 or 3-monthly, overall HCV incidence decreases by 16.4%, 6.4% or 47.8%, respectively. If this is combined with rapid treatment and 6-monthly screening in HIV-diagnosed MSM then HCV incidence decreases further, by 77.9%, 81.1% and 82.7%. If rapid treatment also occurs in other MSM (but no enhanced screening), then HCV incidence declines by 90.3%, 91.4% and 92.0% for 12, 6 or 3-monthly screening in PrEP users, respectively, with mean ICERs of £7,200, £8,200 and £10,300 per quality adjusted life year (QALY). Highly cost-effective compared to UK thresholds (£30,000/QALY).

**Conclusions:** Increased screening in PrEP users and HIV-diagnosed MSM plus universal rapid linkage to HCV treatment is highly cost-effective and could achieve the WHO elimination target for MSM.

**LBPEc038**

Three-fold increases in population-level HIV viral-load suppression amongst men and young adults in a mixed urban-rural Tanzania lake-zone community: Intervention outcomes of the Bukoba Combination Prevention Evaluation (BCPE)

C. Steiner1, D. Mickelliar1, H. Chami1, H. Maruyama1, O. Rwabiyago1, G. Kund1, O. Msumi1, R. Weber4, J. Byrd2, E. Churi1, S. Paal5, C. Madeua-Matson1, K. Kazaura1, D. Mbitiny1, F. Marales1, J. Justman1, A. Rwabemera1


**Background:** BCPE interventions aimed to increase population HIV viral-load suppression (VLS) in Bukoba Municipal Council (BMC), a Tanzania Lake-zone community of ~150,000, by increasing uptake of antiretroviral therapy (ART) during a period of expanding ART-eligibility. We compare estimated population prevalence of VLS before (pre) and after (post) the 2.5-year BCPE intervention phase.

**Methods:** BCPE facility- and community-based HIV testing and counseling (HTC). linkage-case-management (LCM), and defaulter-tracing (DT) interventions were implemented during three ART-eligibility periods: CD4<350 (10/2014-11/2015); CD4<500 (12/2015-09/2016); and Test & Start (T&S)(10/2016-03/2017). Pre- and post-intervention population weighted prevalence of VLS (HIV RNA < 1,000 copies/ml) was estimated for HIV-infected participants. We compare estimated population prevalence of VLS before (pre) and after (post) the 2.5-year BCPE intervention phase.

**Results:** During the BCPE intervention phase (10/2014-03/2017), 133,695 individuals were initiated on ART during a period of expanding ART-eligibility. We compare estimated population prevalence of VLS before (pre) and after (post) the 2.5-year BCPE intervention phase.

**Background:** BCPE interventions aimed to increase population HIV viral-load suppression (VLS) in Bukoba Municipal Council (BMC), a Tanzania Lake-zone community of ~150,000, by increasing uptake of antiretroviral therapy (ART) during a period of expanding ART-eligibility. We compare estimated population prevalence of VLS before (pre) and after (post) the 2.5-year BCPE intervention phase.

**Methods:** BCPE facility- and community-based HIV testing and counseling (HTC). linkage-case-management (LCM), and defaulter-tracing (DT) interventions were implemented during three ART-eligibility periods: CD4<350 (10/2014-11/2015); CD4<500 (12/2015-09/2016); and Test & Start (T&S)(10/2016-03/2017). Pre- and post-intervention population-based surveys were conducted in 53 and 47 enumeration areas (EAs), respectively, randomly selected in proportion to the estimated population in 14 BMC wards. In sampled EAS, survey participation was offered to all contacted household members aged 18-49 years. VL quantification was performed at the national laboratory on plasma specimens of participants who tested HIV-positive. Pre- and post-intervention, survey-weighted prevalence of VLS (HIV RNA < 1,000 copies/ml) was estimated for HIV-infected participants.

**Results:** During the BCPE intervention phase (10/2014-03/2017), 133,695 HIV tests were conducted and 4,134 persons were newly HIV diagnosed. Of 4,206 total LCM clients, 93% enrolled in HIV care, and 47% (n=1053) were initiated on ART during CD4<350, 67% (n=816) during CD4<500, and 86% (n=649) during CD4<649 during T&S periods. Of 895 contacted DT clients who reported not being in care, 604 (70%) returned to care, and 573 started or re-started ART. Compared with the pre-intervention survey, estimated
VLS prevalence among HIV-positive post-intervention survey participants increased two-fold overall (28.6% vs. 64.9%) and among females (33.3% vs. 68.0%), and approximately three-fold among males (20.5% vs. 59.2%), and young adults aged 18-24 (14.2% vs. 51.2%) and 25-29 (18.6% vs. 61.2%) years (Table).

Conclusions: After a 2.5-year combination-prevention intervention implemented during a period of expanding ART-eligibility policies (6 months under Test & Start), prevalence of VLS increased substantially among HIV-positive adults in Bukoba, particularly among men and young adults, two groups with consistently low ART coverage. BCPE facility-based testing and LCM interventions were approved in 2017 as new service delivery models and are being adopted by three non-gov-

mental organizations in Tanzania for implementation in 2018.

### Track D

**LBPED040**

I have made friends with whom we remind and encourage each other: Youth perspectives on and access to a WhatsApp-based HIV treatment support tool in Nairobi, Kenya

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Background: Adolescents and young adults (AYA) are disproportionately affected by HIV infection and are experiencing poor treatment outcomes. Mobile health strategies show promise in improving ART adherence but studies in AYA have been limited. In 2014, HIV-infected AYA in Nairobi spontaneously established peer support groups using the mobile social media application, WhatsApp. We conducted a mixed-methods analysis of group messages, perspectives on the groups, and technology access among HIV-infected AYA in Nairobi.

Methods: The study was conducted at two HIV clinics in Nairobi in December 2017-April 2018. The study joined two WhatsApp groups and recorded 6 weeks’ messages. In-depth interviews were conducted with 35 HIV-infected AYA (age 14-24); 14 members of WhatsApp peer support groups and 21 non-members. Transcripts and messages were translated and analyzed inductively and deductively. Two-hundred HIV-infected AYA attending study clinics completed a technology access questionnaire. Correlates of smartphone access were identified by *t*-test.

Results: WhatsApp groups included 290 and 60 members each, with 378 and 714 messages shared during the 6-week observation period respectively. Messaging was unstructured and included encouragement, ART reminders, and entertainment. Members viewed groups as providing companionship, instrumental support, emotional support and behavioral modeling. Barriers to group participation included lack of smartphone and unawareness of the group. Members and non-members endorsed using WhatsApp for peer treatment support. Desired group characteristics included 30 members, mixed gender, and age segregation. Deserted content included unstructured discussion, ART reminders, and advice on status disclosure and HIV prevention. Some respondents desired healthcare worker involvement; others opposed it. Technology survey respondents had median age 17 (IQR: 16-20) and 99(50%) had ≥1 deceased parent. One-hundred-forty (70%) had access to a mobile phone. 123(61%) to a smartphone. 123(62%) had used WhatsApp. Smartphone access was higher in young adults (age 20-24) than adolescents (age 14-19) (86% vs. 44%, *p* < 0.0001), but did not differ by gender, orphanhood or parental financial support (p>0.05 for all).

Conclusions: Mobile social media offer a feasible and acceptable platform to support HIV treatment in Kenyan AYA. Access to smartphones and familiarity with social media is substantial, particularly among older youth. These findings offer guidance for development and evaluation of virtual peer support interventions.

### LBPED039

Ninajamini (I have confidence): Understanding the transformative effects of a participatory intervention in the Maisha Intimate Partner Violence (IPV) Trial in Tanzania

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Background: A cluster randomized trial conducted among women in 66 microfinance groups in Tanzania, evaluated a 10-session participatory intervention and, drawing on their narratives, how the intervention was transformative. Desired content included unstructured discussion, ART reminders, and promoting healthy intimate partner relationships. Over two years, the intervention significantly reduced physical violence. Drawing on qualitative data, we sought to understand women’s experiences of the intervention and, drawing on their narratives, how the intervention was transformative.

Methods: A longitudinal qualitative study was conducted alongside the trial. Eighteen in-depth interviews and 9 focus groups were conducted, in Swahili, with women at three time points: baseline; immediately post-intervention; and two years post-intervention. Interviews were transcribed and translated into English and uploaded to NVIVO 11. A framework analysis approach was taken.

Results: Baseline interviews revealed women’s past and present struggles for access to education, income earning opportunities and rights to land and other assets. Women’s discussion of intimate partner relationships highlighted experiences of violence for some, especially physical and economic abuse. However, none of the women articulated these experiences in terms of gender inequalities. During post-intervention interviews, most of the women did not remember details of individual sessions but were very positive about the sessions as a whole. They interpreted concepts of gender and power in terms of traditional gender norms and authority. In challenging tradition they did not extend fully to notions of equality. However, sessions involving skills development, such as communication in relationships, as well as knowledge about intimate partner violence, built women’s confidence to challenge norms of male authority. One woman commented “I have been taught to communicate with confidence, maybe to protect the boundaries”.

Conclusions: Andrea Cornwall (2016) notes that “where empowerment initiatives include a dimension to actively engage women in critical, conscious, reflection on their own circumstances …there can be a marked enhancement of a programme or project’s transformative effects”. This research revealed that transformation in this participatory intervention allowed women to consciously engage in understandings of gender and power. Whilst such concepts remain, to some extent, abstract, women’s awareness of the realities of their lives and intimate partner relationships meant that skills and knowledge building were the most tangible aspects of transformation.
A comparison of clinical characteristics and behavioral risks between HIV-infected and non-infected older adults in Northern Thailand

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Background: There is a shift in the demographic profile of people living with HIV toward older age groups. Littke is known whether the clinical characteristics and pattern of alcohol use, smoking and physical exercise are different in older adults living with HIV compared to non-infected older adults. The present study addresses this research gap.

Methods: This cross-sectional study was conducted in 2017 and analyzed in 2018. It enrolled two groups of participants aged 50 years and above, including older adults living with HIV (OALHIV) and age- and gender-matched comparison group of non-infected older adults. Participants were recruited from 12 community hospitals in Chiang Mai Province, Northern Thailand. Behavioral information was collected through face-to-face interviews and clinical data were retrieved from the medical records.

Results: We recruited a total of 728 participants, 364 participants in each of the groups. The proportion of participants with chronic kidney disease (4.0% versus 2.2%; P = 0.002) and dyslipidemia (or history of treatment with lipid modifying agents) (4.2% versus 17.7%: P < 0.001) was higher in OALHIV than in the comparison group. The proportion of underweight (BMI< 18.5) was significantly higher among HIV-infected participants than in the comparison group (21.7% versus 10.4%; P < 0.001). The proportion of participants with chronic kidney disease (14.0% versus 2.2%; P = 0.001) and more likely to report currently engaged in physical activities (AOR, 2.58; CI, 1.77-3.75; P < 0.001). There was no difference between the two groups in terms of the “current smoking status”.

Conclusions: OALHIV drank less but were more engaged in physical exercise than the non-infected older adults. The awareness of being sick and necessity to adhere to healthier lifestyle recommendation to control the disease, and the concerns over the consequences of alcohol use on the effectiveness of antiretroviral drugs are possible reasons for lower prevalence of alcohol use in HIV-infected individuals compared to non-infected individuals. There is however need for continued monitoring of socio-behavioral risk factors in this population of OALHIV.
**LBPED043**

Non-disclosure of Middle East-return ed expatriates has led to the extraordinary high transmission of HIV in AJK, Pakistan

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**Background:** AIDS is a growing public health concern in Pakistan due to increasing prevalence particularly in high risk groups where HIV incidence has escalated from 66, 000 to 130, 000 during last six years. Current study was aimed to screen the family members of the HIV positive individuals of Azad Jammu and Kashmir and to analyze the potential transmission routes of HIV in these patients.

**Methods:** A total of 134 AIDS patients (49 females and 85 males), registered at Pakistan Institute of Medical Sciences Islamabad were approached for the HIV screening of their family members. 300 family members, (152 females and 138 males) of these HIV positive patients, were screened for HIV by ELISA and further confirmed by PCR. Risk factors were assessed by using a structured questionnaire.

**Results:** A total of 177 (59%) individuals were found positive for HIV, of which, 25 (14%) were children. Of the HIV positive individuals, 57.6% and 42.4% were males and females respectively. Analysis of risk factors in the previously diagnosed HIV positive individuals revealed that HIV was transmitted to all the 49 females by their spouses.

Among HIV positive males, 65.8% had a histories of unprotected sex while 22% of the infected males had history of unprotected sexual practices in other cities of Pakistan whereas 11.2% were exposed to unhygienic shaving tools. About 7% were found to be injection drug users and 2.4% males were found to be homosexuals.

**Conclusions:** Our study revealed that non-disclosure of HIV carriers has led to transmission of HIV to their spouses ultimately resulting in its vertical transmission to their children. HIV-associated stigma and lack of reproductive freedom for females in a man dominating society renders females engaged in unprotected sexual practices making them vulnerable for high transmission risks of HIV. In this scenario coherent interventions are direly needed to control HIV spread in high risk groups by disseminating preventive awareness, disclosure of disease status, reproductive freedom encouraging the safe sexual practices with pregnancy management among HIV positive spouses and mandatory HIV screening of all incoming population at airports.

**LBPED044**

Young female sex workers and men who have sex with men in Cameroon: Unmet need for HIV prevention and treatment services

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**Background:** In Cameroon female sex workers (FSW) and men who have sex with men (MSM) are key populations (KP) for HIV prevention. While there are limited data, young KP may be additionally vulnerable to HIV infection due to ongoing sexual risks in the context of compounded legal and social challenges to effective service provision.

**Methods:** In 2016, FSW and MSM aged 18+ years were recruited through respondent-driven-sampling (RDS) for a biobehavioural survey carried out in five Cameroonian cities. Prevalence of HIV, risk, stigma, and service access were compared between young (<25 years) and older (25+ years) KP. Multivariate Poisson regression models for various HIV prevention outcomes were used to estimate prevalence ratios (PR) comparing young KP to older KP.

**Results:** Among 2,255 FSW, 72% (32%) were aged < 25 years. The median age of first transactional/compensated sex was 22 years (IQR:19-28). Among 1,323 MSM, 83% (83%) were aged < 25 years. The median age of first anal sex with men was 18 years (IQR:17-21).

In both populations, condom use, recent experience of physical violence and forced sex were similar between age groups. Lifetime experience of stigma was lower among young than older KP but remained high. HIV prevalence was 79% and 32% in young and older FSW, respectively, and 14% and 32% in young and older MSM, respectively. Compared to older KP, young KP in both populations were less likely to have tested for HIV in the past year (FSW PR: 0.75[0.64-0.89]; MSM PR: 0.75[0.64-0.89]).

**Conclusions:** Behavioural and structural risks are consistent across age groups, while biomedical risks—including untreated STIs—are higher among young KP. Further, young KP have lower access to HIV prevention services. Given significant changes in HIV prevalence between age groups, these data suggest high HIV incidence among younger KP in Cameroon, consistent with global findings. Thus, while social and legal systems affecting young KP are complex, achieving an AIDS-Free generation necessitates addressing the specific HIV prevention and treatment needs among youth.

**LBPED045**

Bringing CSE in the era of #digitalization: Comprehensive sexuality education advocacy through innovative evidence-based approach

P Mladenov

CSE Hub, Sofia, Bulgaria

**Background:** Global Online Hub for Advocacy on Comprehensive Sexuality Education (CSE) was an outcome recommendation by youth advocates, including from key populations, who were part of a global technical meeting of 50 global CSE experts. It is based on the need of an innovative instrument for communication and working on joint advocacy initiatives.

**Description:** In 2016 the first version of the Hub was tested during the AIDS2016. It was developed based on an extensive need assessment and research activity. Since 2017 it provided access to 200 publications, 187 news, 30 advocacy stories, and 270 registered users. The platform has been recognized as a key in providing opportunity for building effective advocacy strategies especially around high level inter-
national forums and regional conferences, etc. The analysis shows that the platform has been highly welcomed by the registered users as useful in their work, especially on providing evidence-based advocacy practices which are further supported by qualitative and quantitative results in the field.

The user satisfaction report shows that through the platform and related social media accounts, the average amount of reached people is 6000 and the read articles/publications via the Hub is between 650-800 unique checks (natural, no artificial boosting). People are more likely to register and benefit from the daily news section and they state that the Hub is one of the main channels they are using for getting informed on specialized topics such as CSE and SRHR. More than 85% of the users highlight that using innovative tools is welcomed by experts on CSE/SRHR due to its time and cost efficiency. Lastly it proves that advocacy around CSE could be implemented via online methods that involve qualitative and quantitative data analysis.

Lessons learned: The Hub is an example of how to use innovative methods and digitalization as a cost-effective instrument in community outreach focusing on key populations but also in building successful advocacy and legal strategies.

Conclusions/Next steps: The Hub will be further advanced and it will serve as the online platform for governments as well in information and policy exchange on the upcoming Global Summit on CSE with a clear focus on young key populations.

**LBPE047**

HIV pre-exposure prophylaxis (PrEP) roll out at the National Program in Brazil

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**Background:** Since December 2017, Brazil’s response to the HIV epidemic includes free access to pre-exposure prophylaxis (PrEP) for populations at substantial risk for HIV infection (men who have sex with men (MSM), sex workers and transgender persons), and serodiscordant couples. We used national health system data to monitor the first quarter of PrEP implementation, from January 1st to March 31st 2018.

**Description:** Brazilian National Health System is providing PrEP, free of charge at 23 different municipalities in 11 states, comprising 3 or 6 months supply. The program involves 36 health services. National monitoring system has been used to track 20 different indicators, such as PrEP user profile, sexual practices, adverse events, adherence, seroconversion, PrEP interruption, STIs and health service network.

**Lessons learned:** During the first quarter of PrEP deployment, 1,758 TDF/FTC were dispensed for 1,120 PrEP users. 83% of them were gay men/MSM, 11% cis women, 43% heterosexual men, 1% transgender women (TGW) and 0.2% transgender men. Among gay/MSM, 8% declared themselves as sex workers, equal percentage observed among cis women and 26% of TGW. The age group between 30-39 years presented the highest number of PrEP users. Figure 1 presents age data by key population. Regarding schooling, the vast majority declared 12 or more years of study (76.9%). The mean number of sexual partners, in three months, was higher among the age groups of 18-24yrs (18.4) and 25-29yrs (18.8). Thirty days after the first TDF/FTC prescription, 57% of users reported no adverse events related to PrEP use, and 77% reported having missed 5 or more tablets. With regard to STIs, 22.1% reported symptoms or had a diagnosis in the six months prior to PrEP initiation.

**Conclusions/Next steps:** The initial profile of PrEP implementation points to new challenges: offer PrEP to those who can most benefit from it and are at greater risk for HIV, especially low-income, less educated, non-white ethnic groups of transgender, young gay men and sex workers. Yet, it is clear that offering PrEP at public health services, free of charge at point of care, can reach and retain high numbers of users and provide the opportunity to diagnose and treat STIs.

**Track E**

**LBPE048**

HIV investment case report for Ukraine: Evaluation of program costs, service quality, and resource allocation for HIV expenditures

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**Background:** Countries globally set ambitious goals to achieve 90-90-90 targets by 2020. Optimized resource allocation and cost-effective interventions are the key to achieve success within the limited resource constraints. USAID HIV Reform in Action Project studied the cost drivers of HIV services in Ukraine to identify the most cost-effective mix of services within existing budget constraints to guide HIV resource allocations.

**Methods:** The 57-facility study was conducted in three regions of Ukraine - Mykolaiv, Poltava and Zhytomyr and focused on 1) Unit Cost Analysis for multiple cost types (staffing, commodities, overhead, medications, laboratory), across nine services (HCT, needle and syringe...
LBPEE049

Same-day ART initiation without laboratory tests is safe and effective: Primary outcomes of the SLATE trial in south Africa

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Background: The WHO recommends same-day ART initiation for patients who are eligible and ready and ART initiation ≤7 days of diagnosis for patients identifying efficient operational procedures for determining same-day eligibility and readiness is now a priority. The Simplified Algorithm for Treatment Eligibility (SLATE) trial tested a clinical algorithm that allows nurses to determine eligibility for immediate ART dispensing at a patient’s first clinic visit, without laboratory results or delays for other reasons.

Methods: SLATE was an individually randomized trial at public outpatient clinics serving informal settlements in Johannesburg, South Africa. Patients presenting for an HIV test or HIV care but not yet on ART were randomized to the intervention or standard care. The intervention arm was assessed with a symptom self-report, medical history questionnaire, brief physical examination, and readiness questionnaire to distinguish between patients eligible for immediate ART dispensing and those who should have further care, tests, or counseling before initiation. Follow-up was by passive record review. We report the proportion in each arm initiated ≥28 days and retained at 8 months (‘28d/8m’) after study enrolment.

Results: From 3/7/17-7/28/17, we enrolled 600 adult, HIV+, non-pregnant patients (median [IQR] age 34 [29-40]; 63% female median CD4 count 288 [140-489]). Eight-month follow-up was completed in April 2018. In the intervention arm, 68% of patients initiated ≥28 days, compared to 40% in the standard arm (risk difference 19%; CI 28% [20-35%], relative risk 1.68 [1.43-1.98]). After 8 months’ follow-up, 53% of the intervention arm and 50% of the standard arm achieved 28d/8m outcomes (RR 1.06 [95% CI 0.90-1.26] (Table). With no difference in viral suppression rates. Many patients in both arms were >1 month late for their routine 6-month visit and/or missing viral load results.

Conclusions: Retention is a key limitation of the SLATE algorithm, comprising a simplified set of steps for ART initiation, demonstrating that same-day ART initiation for both new and established HIV patients can be offered safely and effectively at primary health centers without delays for laboratory results, additional education or counseling, or other services. It offers a practical model of same-day treatment initiation that can be widely implemented by existing providers.

(Table: SLATE trial primary outcome results)

LBPEE050

Effectiveness of a community-based model of HIV care in western Kenya

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Background: The Kenya Ministry of Health recommends differentiated models of care for clinically stable HIV clients. We evaluated the effectiveness of a model of differentiated care that utilizes peer-group meetings (ART Co-ops) led by lay health workers in lieu of clinic visits.

Methods: HIV-positive patients with no acute illnesses, receiving health services at the Academic Model Providing Access to Healthcare (AMPATH) HIV clinic in Kitale, Kenya, who were ≥18 years of age, had a CD4 <200 cells/mL, viral load (VL) <40 copies/mL at enrolment and living in one of 30 surrounding sub-locations were eligible. Sub-locations were randomized to standard of care (clinic visits every 3-4 months) or intervention (ART Co-ops with 6-12 members meeting every 3 months in their community for adherence checks, symptom screen, ART delivery and subsequent annual clinic visits). Patients were enrolled from October 2016-March 2018 and followed for 12 months. Data on patient socio-demographic characteristics were collected and outcomes assessed at 12 months, including: CD4 count, VL, durability of ART regimen, and vital status. Descriptive statistics, Chi-square tests and Fisher’s exact test were used.

Results: A total of 420 patients were enrolled and randomized to the standard of care (210) or intervention (210); 77% were female and the median age was 26 years. There were no significant differences in the socio-demographic characteristics between the two groups. The 12 month outcomes, including proportion with viral suppression and ART durability were similar between the standard of care and intervention groups (see table); however, a greater proportion of patients in the intervention group withdrew (27.4% vs. 0.94%; p-value < 0.001). The most common reasons...
LBPEE052
Concurrent implementation of targeted and routine provider-initiated-testing and counseling of HIV among children and adolescents: Evidence from the Active Search for Pediatric HIV/AIDS (ASPA) study in Cameroon

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Background: This study assessed the effectiveness of the concurrent implementation of the targeted (rPITC) and the routine provider-initiated-testing and counseling (pPITC) in HIV testing, case detection and linkage to HIV care and treatment among children and adolescents in Cameroon.

Methods: During a 6-month period, the ASPA study was conducted by introducing the rPITC strategy in three hospitals in Cameroon. This novel approach was implemented by inviting HIV positive parents receiving HIV care in these hospitals to have their biological children (6 weeks-19 years) tested for HIV either in the hospital or at home. At the same time, the study systematically offered HIV testing to all children attending the outpatient department (OPD) of the same three hospitals (pPITC). We collected prospectively and retrospectively the numbers of: children tested for HIV, children tested HIV positive and children enrolled on ART. We compared the means of these numbers before and after the intervention.

Results: Before the implementation of rPITC, 689 children consulted at the OPD, 1338 tested for HIV, 63 tested HIV+ and 44 enrolled on ART. After the implementation of rPITC, 463 children consulted at the OPD, 2090 tested for HIV, 58 tested HIV+ and 38 enrolled on ART. While the HIV testing uptake was significantly higher after rPITC implementation compared with before (223.0 vs 348.3, p<0.0001), the HIV case detection was significantly lower (10.5 vs 9.7, p<0.0001) and there was no significant difference on ART enrolment (7.3 vs 6.3, p=0.3368). During the concurrent implementation of pPITC and rPITC, the HIV testing uptake increased significantly by 143% compared with before (223.0 vs 542.2, p<0.0001). Likewise, the HIV case detection also increased by 93.7% (10.5 vs 20.3, p<0.0001) and the ART enrolment by 65.9% (7.3 vs 12.2, p<0.0001).

Conclusions: The rPITC was associated with an increase in HIV testing uptake, a doubling of HIV case detection, and a significant increase on ART enrolment. This highly effective strategy yielded more newly HIV cases and increased significantly ART initiation. It could be used to fast-track the achievement of the 90-90-90 targets by 2020 among children and adolescents, especially in West and Central Africa Region.

LBPEE051
HIV testing in TB treatment clinic as an effective testing modality for identification of HIV positive individuals: Results from CDC supported health facilities, Nigeria, 2017

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Background: The HIV epidemic has impacted on the burden of tuberculosis in Nigeria. The WHO estimate ranks Nigeria amongst the 30 countries with the highest TB burden in the world with a projected 219 incident TB cases per 100,000 population and TB/HIV co-infection rate of 16% in 2016. HTS (HIV Testing Services) as an entry point to the HIV program, is implemented widely across most TB treatment clinics (DOTS Centers) in supported sites. The identification of effective strategies for increasing overall yield of HIV positive persons in Nigeria as the first step to reaching the first 90 of the UNAIDS 90-90-90 target, will require an in-depth analysis of specific HIV epidemiology, HTS coverage, and yield by testing modality for identification of HIV positive individuals. Results from CDC supported health facilities, Nigeria, 2017

Methods: In 2016, CDC-funded implementing partners were guided to implement and optimize approaches that improve HTS yield within testing streams in the facilities. HTS implementation was monitored to determine yield by testing streams and the streams were to be prioritized for scale-up based on patterns of HIV yield, available resources and programme cost effectiveness.

Results: HIV testing in TB treatment clinics was the second highest yielding of the 6 facility HTS streams/modalities analyzed (Table 1). HTS at TB treatment clinics had a high yield (6.3% HIV+), but currently low patient volume. Increasing TB screening in health facilities for presumptive TB identification and testing them for HIV can increase the number of identified PLHIV in supported facilities.

Conclusions: The HTS testing stream data informed decisions on testing services optimization and scale up in TB treatment clinics and other high yield testing streams/modalities through support for training, commodity supplies and human resources. Continued support for scale-up of HTS in TB treatment clinics and for Presumptive TB within health facilities will be key to meeting the first go of the UNAIDS 90-90-90 targets.
Conclusions/Next steps: Programmatic shifts are critical to increase and/or realign HRH investments to maximize impact and ensure implementation fidelity. PEPFAR programs recently implemented site assessments to understand the HRH context and re-allocate workers based on results rather than a “one-size fits all” staffing norms model. PEPFAR is implementing HRH recruitment and allocation models based on a variety of factors such as People Living with HIV (PLHIV), TX_CURR, and program performance. PEPFAR South Africa is developing a business portal linking site-level performance, HRH assessments, and workforce allocation for optimal results.

**Table 1. Changes in PEPFAR-supported HRH_CURR and Net New PLHIV on ART/FTE gain or loss status, 3 highest burden metropolitan areas - US FY2017**

<table>
<thead>
<tr>
<th>City of Johannesburg Metropolitan Municipality</th>
<th>eThekwini Metropolitan Municipality</th>
<th>Ekurhuleni Metropolitan Municipality</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART Gain</td>
<td>FTE Gain, FY16-FY17</td>
<td>ART Loss</td>
<td>FTE Gain, FY16-FY17</td>
</tr>
<tr>
<td>Number of facilities</td>
<td>59</td>
<td>100</td>
<td>72</td>
</tr>
<tr>
<td>All Cadre FTE Change (% Clinical Cadre)</td>
<td><strong>708</strong> (28%)</td>
<td><strong>362</strong> (41%)</td>
<td>112 (13%)</td>
</tr>
<tr>
<td>Net New*** PLHIV on ART</td>
<td>35,583</td>
<td>58,038</td>
<td>34,676</td>
</tr>
<tr>
<td>ART Gain</td>
<td>FTE Gain, FY16-FY17</td>
<td>ART Loss</td>
<td>FTE Gain, FY16-FY17</td>
</tr>
<tr>
<td>Number of facilities</td>
<td>60</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>All Cadre FTE Change (% Clinical Cadre)</td>
<td><strong>816</strong> (21%)</td>
<td><strong>161</strong> (33%)</td>
<td><strong>62</strong> (51%)</td>
</tr>
<tr>
<td>Net New*** PLHIV on ART</td>
<td>38,927</td>
<td>5,221</td>
<td>15,215</td>
</tr>
</tbody>
</table>

**Background:** MZ has a severe generalized HIV Epidemic. Confronting the HIV epidemic in MZ requires accelerating the identification of HIV-positive (HIV+) persons, enabling them to initiate and remain on antiretroviral therapy (ART) with sustained viral load suppression (VLS). To achieve such ambitious goals, we embarked on a comprehensive surge in ZM.

**Methods:** Since January 2018, ICAP at Columbia University developed and implemented, in collaboration with Ministry of Health and CDC, with funding from PEPFAR, a surge strategy at 26 clinics in ZM. The ICAP surge (I-surge) uses a hyper-focused strategy to eliminate missed opportunities to test, treat and retain HIV+ patients. Community health workers (CHWs) drive Push activities generating demand for HIV services and efforts to track patients who missed visits and to motivate retention and adherence. Clinic staff implement Pull strategies, focusing on increased coverage for HIV testing. ART initiation, VL testing and VLS. Daily reporting of data elements by facility focal points to supervisors allowed for performance review, addressing gaps and re- allocation of resources. Use of WhatsApp® messages facilitated sharing of lessons learned and solutions across facilities and staff members.

**Results:** As presented in the Table, coinciding with I-surge, consistent increase in achievement of key targets was noted in testing, ART initiation and VLS. A 26% increase was noted in HIV testing with more than 1000% increase in index case testing and an 11% increase in linkage to care. A 54% and 43% increase in number of adults and children, respectively, who newly initiated ART was noted and there was a 117% increase in number of VL tests done with a 120% increase in VLS. Most substantial progress was noted in index case testing and viral load testing.

**Table: Comparison of target achievement between Q1 and Q2 of FY18 following I-surge implementation at 26 clinics in ZM**

<table>
<thead>
<tr>
<th>TARGET</th>
<th>Q1 (before surge)</th>
<th>Q2 (after surge)</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV Testing</td>
<td>Number of persons tested for HIV</td>
<td>61,185</td>
<td>77,253</td>
</tr>
<tr>
<td>Number of persons testing positive for HIV</td>
<td>3,734</td>
<td>5,236</td>
<td>+1,502 (40%)</td>
</tr>
<tr>
<td>Number of persons tested for HIV via index case testing (ICT)</td>
<td>290</td>
<td>5,574</td>
<td>+5,284 (1,822%)</td>
</tr>
<tr>
<td>ART Initiation</td>
<td>Number of HIV+ adults newly initiated ART</td>
<td>3,014</td>
<td>4,648</td>
</tr>
<tr>
<td>% Linkage to ART</td>
<td>8%</td>
<td>9%</td>
<td>+1%</td>
</tr>
<tr>
<td>Number of HIV+ children &lt;15 years newly initiated ART</td>
<td>243</td>
<td>348</td>
<td>+105 (43%)</td>
</tr>
<tr>
<td>Number active on ART by age category</td>
<td>adults/children &lt;15 years</td>
<td>39,634/1,822%</td>
<td>42,785/1,822%</td>
</tr>
<tr>
<td>Viral Load Testing</td>
<td>Number of Viral Load (VL) tests done</td>
<td>4,843</td>
<td>10,523</td>
</tr>
<tr>
<td>Viral Load Suppression (VLS)</td>
<td>Number of patients with VLS % of HIV+ persons with VLS</td>
<td>3,605</td>
<td>7,944</td>
</tr>
</tbody>
</table>

**Conclusions:** Reaching epidemic control requires a focused and nimble approach. Complementary facility and community activities are necessary, with intensive follow-up, data use and supervision. Maintaining this momentum requires sustaining staff motivation and intensive oversight.
**LBPEE055**
The implementation of Universal Integrated Test and Treat Programs: one-year experience from Test & Treat Project in Shinyanga and Simiyu Regions, Tanzania

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**Background:** The Test&Treat Project in Shinyanga and Simiyu Regions, where HIV prevalence is estimated at 5.9% and 3.9% respectively, aims to implement a community model of HIV care encompassing both Universal Test and Treat and Differentiated Care based out of four Care and Treatment Centres (CTC). Here we report twelve-month data on HIV testing, linkage to care and viral suppression.

**Description:** Community-based HIV testing services and sensitization campaigns were implemented in public areas, factories, schools, and places of worship based on a "hammer testing" strategy. HIV testing was also offered routinely to all clients reporting to health facilities (HFs). More men were tested in the TC compared to HFs (56% vs 40%).

**Results:** We identified 15,437 clients (68% female) with a VL due (Table). Of those, 65% had a VL captured on TIER.Net and 84% of those were suppressed. Of the remaining 4,748 files, we found and reviewed 2944 paper files (68% of 4308 selected). Almost 25% had a blood draw captured on file and just over 15% had a VL result (of which 68% were suppressed).

**Conclusion:** A high proportion (31%) of ART patients had no VL recorded when one was due. Gaps in electronic data capture accounted for a minority of these missing results, suggesting most results were missing because VLs were not conducted - a failure to follow national guidelines for lab monitoring. Very large gaps in monitoring were observed following an unsuppressed viral load, precisely the group at highest risk for HIV morbidity, mortality and onward transmission. Interventions (e.g. intensified tracing) should be targeted to improve VL monitoring among patients with previously unsuppressed viral load.

(LTable. No. of patients with VL due between 10Oct-31Dec 2016 with VL captured on TIER.Net or patient files stratified by gender and previous VL result)

**LBPEE056**
Identifying gaps in viral load monitoring: Results from an evaluation of viral load reporting at primary health care facilities in South Africa

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**Background:** While rates of viral load (VL) testing for HIV patients on treatment vary widely across facilities and districts in South Africa (SA) the reasons are unclear. We set out to assess prevalence of missing VL measures for HIV patients receiving care in the SA public health sector.

**Methods:** We used a retrospective design conducted at 24 facilities. Patients with a VL due (based on ART guidelines) between 1/10/2016-31/12/2016 were identified from SA's electronic HIV register, TIER.Net, and followed through electronic records to determine whether a VL was done within the scheduled window (Table). For patients with no VL on TIER.Net within the window, up to 300 paper clinic files per facility were randomly selected and reviewed. Proportion suppressed among those with a VL was reported.

**Results:** We identified 15,437 patients (68% female) with a VL due (Table). Of those, 65% had a VL captured on TIER.Net and 84% of those were suppressed. Of the remaining 4,748 files, we found and reviewed 2,944 paper files (68% of 4,308 selected). Almost 25% had a blood draw captured on file and just over 15% had a VL result (of which 68% were suppressed).

**Conclusion:** More men were tested in the TC compared to HFs (56% vs 40%). Linkage was higher in Shinyanga than Simiyu (47% vs 38%; p<0.003). Among 3,041 patients on ARV at the project CTCs, viral load (VL) data were available for 1,745 (58%). Of these, 1,592 (91%) had VL <400 copies/mL. Among the HIV+ clients detected in the TC, 138 (13%) were already aware of their HIV status. By 31st March 2018, 3,952 (43%) newly diagnosed clients identified in TC were linked to a CTC. More women were linked than men (45% vs 40%). Linkage was higher in Shinyanga than Simiyu (47% vs 38%; p<0.003). Among 3,041 patients on ARV at the project CTCs, viral load (VL) data were available for 1,745 (58%). Of these, 1,592 (91%) had VL <400 copies/mL. A high proportion (31%) of ART patients had no VL recorded when one was due. Gaps in electronic data capture accounted for a minority of these missing results, suggesting most results were missing because VLs were not conducted - a failure to follow national guidelines for lab monitoring. Very large gaps in monitoring were observed following an unsuppressed viral load, precisely the group at highest risk for HIV morbidity, mortality and onward transmission. Interventions (e.g. intensified tracing) should be targeted to improve VL monitoring among patients with previously unsuppressed viral load.
cases are screened for HIV and positive patients are initiated on ART. Health education sessions on HIV and AIDS and TB are conducted to raise awareness on services and treatment adherence.

**Lessons learned:** By 2018, 12,365 individuals have been counselled and tested for HIV in the three PoCs, 262 tested positive and 259 have been initiated on ART. Mortality rates due to HIV/AIDS and TB have decreased in the three PoCs from 107 (23% of the total deaths) in 2016 to 31 deaths in 2017 (12% of the total deaths), a 71% decrease in the mortality rate. This corroborates longitudinal studies showing decrease in AIDS-related deaths due to free access to HIV services.[1]


**Conclusions/Next steps:** The provision of comprehensive HIV and TB prevention, testing, and treatment services to displaced populations in camp-based settings is essential in reducing morbidity and mortality from HIV, and in ensuring the 90-90-90 global targets are achieved.

**LBPEE058**

**Establishing a digital OVC case management system in the DRC: New potential for innovation in OVC M&E systems**

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1 Education Development Center (EDC), Washington, United States, 2 Education Development Center (EDC), ELIKIA Project, Lubumbashi, Congo, Democratic Republic of the, 3 The Palladium Group, Washington, United States, 4 The Palladium Group, ELIKIA Project, Lubumbashi, Congo, Democratic Republic of the

**Background:** The ELIKIA project is a five-year PEPFAR-funded project implemented in the DRC’s Haut-Katanga province. The consortium is led by Education Development Center (EDC), and implemented in partnership with Catholic Relief Services, The Palladium Group, three local NGO partners, and the Haut-Katanga Division of Social Affairs. ELIKIA supports HIV-affected OVC and their caregivers through a combination of case management and psychosocial support; linkages to HIV testing, care, and treatment; household economic strengthening and parenting education; health and social service referrals; and strengthening child protection systems. Household support is coordinated through a cadre of 60 case managers from the Congolese government and civil society partners.

**Description:** ELIKIA developed a digital case management system for case managers to track their portfolio of OVC households. The project provided a total of 15 days of foundational training in the project case management approach, household support and referral strategies, and data collection and management procedures. Using programmed tablets, case managers record household vulnerability information; HIV risk, knowledge of HIV status, testing results, and ART initiation/adherence; service referrals and counter-referrals; and participation of caregivers in household economic strengthening and parenting education activities. Tablets sync daily with ELIKIA’s DHIS2-based project database, enabling performance tracking and results capture in real-time. Database dashboards provide project managers with data on performance by implementing partner, health zone, program component, and individual case manager.

**Lessons learned:** By the end of its second year of implementation, 100% of ELIKIA case managers were using the digital system to track and provide support to 11,557 OVC and primary caregivers from 1,804 households. The system is increasingly effective in supporting analysis of case manager performance, ensuring continuous service delivery to retain households in the project, reducing double-counting of OVC supported by multiple project interventions, and demonstrating program results in alignment with PEPFAR reporting standards.

**Conclusions/Next steps:** Digital case management systems have the potential to facilitate improved case management and offer substantial improvements to OVC program monitoring and evaluation, avoiding several common challenges with tracking and reporting. Case managers with a university-level education or a high-school education and some prior social work experience can effectively use digital systems to manage data.
Publication Only Abstracts

Track A

PUB001
Efficiency of two-drug combination of dolutegravir and rilpivirine when compared to triple and quadruple combinations

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‡Ratnam Institute of Pharmacy, Pharmaceutical Analysis, Nellore, India.
§M.S. Ramaiah University of Applied Sciences, Faculty of Pharmacy, MSR Nagar, Bangalore, India

Background: The importance of two-drug combination in viral suppression of HIV is to simplify dosing regimen and reduce pill burden for patients with HIV. Reducing the number of drugs in a regimen reduces long term drug exposures and potential drug toxicity or drug interaction as well as protecting the activity of drugs spared for the future. Subjects switching to this two-drug regimen experienced a significant benefit in bone biomarkers.

Methods: Several clinical trials are performed for DTG+RPV they demonstrate NON INFERIORITY in two phase -3 switch studies known as sword -1 and sword -2 with 95% efficacy at 48 weeks. (LLBRE is the lead author on sword -1 and sword -2 the studies referenced above). Sub studies evaluating bone, kidney, lipid profile, cardiovascular health and health related quality of life are ongoing.

Results: During clinical studies on these two-drug combination of dolutegravir and rilpivirine, the virologic suppression rates were similar between two-drug combination and triple and quadruple combination. The virologic failure rates were <1% in DTG+RPV and 1% in the three or four antiretroviral drug. In DOR+RPV no integrase strand inhibitor resistance was reported.

Conclusions: Life long HIV antiretroviral therapy has promised an interest in two-drug regimen to minimize cumulative drug exposure and toxicity. The safety, tolerability and efficacy of dolutegravir and rilpivirine suggest potential compatibility and effectiveness as a two-drug regimen.

Track B

PUB002
Correlates of mortality among HIV patients following completion of standard Cryptococcal meningitis treatment in Uganda

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†Medical Research Council / Uganda Virus Research Institute Research Unit on AIDS, Kampala, Uganda.
‡Materere University School of Public Health, Kampala, Uganda.
§AIDS Healthcare Foundation, Kampala, Uganda.
∥AIDS Healthcare Foundation, Kampala, Uganda.

Background: Cryptococcal meningitis (CCM) remains a leading cause of mortality amongst HIV patients in Uganda. When patients receive recommended therapy, mortality in various clinical trials has been reported to vary between 20 to 35%. Patients may remain at risk of mortality after completing treatment due to complications, immune reconstitution syndrome and relapse. However, mortality rate and factors affecting time to mortality after completing recommended therapy are not well known.

We investigated the mortality rate, and factors affecting time to mortality at 2 years following completion of recommended CCM therapy in South Western Uganda.

Methods: A retrospective non-comparative cohort study was conducted among HIV patients that had completed 10 weeks of recommended treatment for CCM (2 weeks of amphotericin B 1mg/kg and 10 weeks of Fluconazole 800mg) in the CryptoDex trial (ISRCTN59144167) between 2013 and 2015. Data was collected using semi structured questionnaires. Survival analysis applying cox regression was used to evaluate the mortality rate and factors affecting time to mortality at 2 years.

Results: This study followed up 112 participants for 2 years. Median age was 34 years (IQR, 29-40) with 57% female while 74.5% had been on ART for less than 1 year. At 2 years, overall mortality was 30% (17 per 100 person months). Majority of deaths (63.4%) occurred during the first 6 months whereas only 36.6% occurred in the remaining 18 months. At multivariate analysis, mortality was associated with discontinuation of ART at time of evaluation or prior to death (aHR=4.5, 95%CI: 1.19-0.0; p=0.038, and continuation of fluconazole (aHR=4.9, 95%CI: 2.4-10.1; p=0.01; whereas never being re-admitted (aHR=0.140, 95%CI: 0.07-0.28; p=0.01, and >50% quality of life (aHR=0.320, 95%CI: 0.13-0.76; p=0.01) were associated with reduced mortality.

Conclusions: There remains a considerable burden of mortality in the first two years after completing standard therapy for CCM in resource limited settings. This burden is highest during the first 6 months. We recommend maintenance of close patient follow up during this period. Re-admitted patients and those with poor quality of life need to be followed up more closely while continuation of ART needs to be emphasized to reduce mortality.

PUB003
Predictors of intention to use condom among adolescents living with HIV and AIDS in Botswana

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†University of Botswana, School of Nursing, Gaborone, Botswana.
‡University of Botswana, Population Studies, Gaborone, Botswana.

Background: Adolescent HIV prevalence in Botswana is estimated at 5% (3.6% males and 6.2% females). Youth in Botswana use condoms inconsistently. Among HIV positive youth aged 15 - 24years consistent condom use with non-regular partners was 57.2%. This clearly calls for programmes that reduce risky sexual behaviours among adolescent living with HIV and AIDS (ALWHA).

Methods: The study utilised a cross sectional quantitative survey of 98 ALWHA aged 15 to 19 years, recruited from child care and infectious disease control clinics managing HIV and AIDS clientele. The Theory of Reasoned Action was used to predict intentions, attitudes and beliefs that influence ALWHA’s intention to use condoms. A univariate Generalised Estimation Equations (GEE) model in which a clinic was used as a cluster, with an exchangeable correlation matrix was employed in analysing the correlates between intention to use condom and explanatory variables loaded individually into the model.

Results: Reaction, normative beliefs, prevention beliefs, control belief technical and hedonistic beliefs had higher mean scores (above 3), while control belief negotiation had less than 2.5. Reaction, normative, prevention, control belief technical and hedonistic beliefs had higher scores in explaining condom use intention among ALWHA. The results show that prevention belief and control belief negotiation significantly affected one’s intention to use condom while reaction and normative beliefs did not, for both the adjusted and the unadjusted models. The models were adjusted for age and gender. The survey enrolled 98 ALWHA aged 15 - 19 years. about 66% (51 / 96) females and 44% (41 / 93) males. The mean age was 15.80 (SD = 0.12) for females and 15.73 (SD = 0.14) for males. Self-reported sexual behaviour indicates that 17% had ever had sexual intercourse, 9% had experienced unprotected sex (males- 77%; females -10%). Generally ALWHA exhibited higher intentions to use condoms (mean=3.90; males=3.93 compared to females =3.88).

Conclusions: Overall, the results suggest that interventions that equip ALWHA with skills to use condoms correctly and consistently and negotiate for safer sex will not only benefit ALWHA but will also curb the spread of HIV.
**PuB004**

Detection of infectious agents of cervicitis among young & adolescent female sex workers by multiplex real time PCR in Dhaka, Bangladesh

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*Bangladesh Sheikh Mujib Medical University (BSMMU), Microbiology, Dhaka, Bangladesh. *Save the Children, Dhaka, Bangladesh*

**Background:** The prevalence of STIs related cervicitis in Bangladesh among female sex workers (FSWs) is quite high and among them young (<24 years) FSWs are more sufferers. The aim of this study was to detect infectious agents of cervicitis including *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, *Mycoplasma genitalium*, *Mycoplasma hominis*, *Ureaplasma urealyticum* and *Ureaplasma parvum* in SWs of aged 10-24 years from endocervical swabs by multiplex real time PCR.

**Methods:** A cross sectional study was done in collaboration with department of Microbiology, BSMMU and Save the Children, Bangladesh between March to December 2017 among sex workers enlisted to receive HIV prevention services at different drop in centers (DICs) in Dhaka. Total 105 SWs of aged between 10-24 years and clinically suspected as cervicitis, were enrolled for the study. Endo-cervical swabs were collected during examination and tested by multiplex PCR for M. hominis, U. urealyticum, C. trachomatis, N. gonorrhoeae. Data were collected by face to face interview using semi-structured questionnaire and clinical examinations were done using Casco’s vaginal speculum. The analysis was done using SPSS (Version-20).

**Results:** Among the study population, 87(82.9%) were between 20-24 years followed by 15-19 years(15.2%). On examination out of 105, 67 (63.8%) patients had no cervical discharge, 60(57.1%) had friable cervix and 24 years followed by 15-19 years(15.2%). On examination, out of 105, 67 (63.8%) patients had no cervical discharge, 60(57.1%) had friable cervix and 24 years followed by 15-19 years(15.2%). On examination, 63(66.3%) patients had mixed infections and among them, M. hominis had the highest(76.2%) followed by U. urealyticum(42.3%) in the patients having no cervical discharge. 32(48%) had M. hominis followed by U. urealyticum(40%).

**Conclusions:** Results revealed that majority of FSWs had no cervical discharge though it is one of the diagnostic criteria for cervicitis in current syndromic management and high number of patients had mixed infections. In comparison to other available diagnostic tests, organisms were detected efficiently by multiplex PCR and could be advised routinely in such cases of mixed infection.

**Organisms detected by mPCR**

<table>
<thead>
<tr>
<th></th>
<th>Total (%)</th>
<th>CT(24) n(%)</th>
<th>NO(18) n(%)</th>
<th>TV(25) n(%)</th>
<th>MO(16) n(%)</th>
<th>MH(33) n(%)</th>
<th>UU(34) n(%)</th>
<th>UP(43) n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mixed infection</strong></td>
<td>63(66.3)</td>
<td>22(35)</td>
<td>17(27)</td>
<td>22(35)</td>
<td>15(23.8)</td>
<td>48(76.2)</td>
<td>31(49.2)</td>
<td>26(41.3)</td>
</tr>
<tr>
<td><strong>No cervical discharge</strong></td>
<td>67(63.8)</td>
<td>18(26.9)</td>
<td>11(16.4)</td>
<td>14(21)</td>
<td>8(12)</td>
<td>32(48)</td>
<td>22(32.8)</td>
<td>27(40.2)</td>
</tr>
</tbody>
</table>

*Table: Distribution of organisms in relation to mixed infection and no cervical discharge*

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**PuB005**

The factors associated with high-risk behavior among labor migrants, Uzbekistan

S. Umarkhojaev1, G. Rajabov2

1Republican AIDS Center, Prevention, Tashkent, Uzbekistan. 2Republican AIDS Center, Tashkent, Uzbekistan

**Background:** The HIV epidemic in the Republic of Uzbekistan is in its concentrated stage and spreads primarily among MARPs. However, routine surveillance data shows that in recent years there has been an increased incidence of HIV infection among labor migrants and their sexual partners in the country. If the proportion of HIV infected migrants among newly registered cases in 2002 was 0.9%, so in 2015 this figure increased to 13.6%. This study aimed to identify risk factors of HIV infection and assess the effectiveness of prevention programs among labor migrants.

**Methods:** From July to September 2015 in 16 sentinel sites of the republic a conducted a cross-sectional study. Data were collected through an anonymous structured questionnaire, blood samples by „Dried Blood Specimen” (DBS) methodology. All DBS specimens were tested for HIV, HCV and syphilis antibodies by ELISA. The criteria for including to the study were: people in the age of 18-49 that were employed or self-employed outside of Uzbekistan during the last 5 years. 5450 respondents were recruited into the study. The data were analyzed in Epi-Info 35. Logistic regression was used to assess the factors associated with HIV infection.

**Results:** Of the participants, 69.9% were males; 80.6% had secondary education; 19.6% were single and 13.1% separated. The mean age of the participants was 34.3 years. 45% participants had ever taken drugs, 0.6% reported having sexual partner who inject drugs, 57.6% consumed alcohol in migration. 32.0% respondents reported having sexual intercourse in migration. 37.3% of migrants had irregular and commercial sex partners in migration, 40.8% of them used a condom during their last sexual intercourse. 7.0% reported that they had symptoms of STDs, only 40.6% of them went to health care facilities. 49.5% had misconceptions about HIV transmission and prevention. Prevalence of HIV, HCV and syphilis among migrants were 0.8%, 3.8% and 1.1%, respectively. Not sufficient educational level and risky sexual behavior were associated with HIV serostatus in the multivariate analysis.

**Conclusions:** The results of study confirms that the increasing of the number of HIV cases among labor migrants is urgent as the insufficient awareness, high risky behavior and restricted access to health services.

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**PuB006**

Low risk perception about safe motherhood negatively impact on health seeking behaviour during antenatal period among female sex workers (FSWs) in Bangladesh

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**Background:** In Bangladesh, Maternal mortality ratio (MMR) declined significantly from 322 (2001) to 194 (2010) per 100,000 live births. This was linked to fertility reduction; increased access & use of services in the antenatal, delivery, and postpartum periods; and socioeconomic improvements. However, the Bangladesh Demographic and Health Survey (BDHS) 2014 demonstrated that 10.6% of urban women did not seek for antenatal care (ANC). Among the vulnerable women, female sex workers (FSWs) are at high risk of becoming pregnant because of their reproductive age, poor negotiation power for condom use, and the high number of client. It is essential to understand the risk perception regarding
Track E

PUB007
Integration of HIV services for PWID and navigator involvement improves HIV cascade of care in PWID in Tajikistan clinic

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**Background:** In the Republic of Tajikistan, providing preventive and curative services to people who inject drugs (PWID) is hampered by poor integration of HIV services within drug treatment centers and non-governmental organizations. To tackle this problem and work towards achieving the UNAIDS 90-90-90 goals, the RNC in Dushanbe has integrated HIV services within its medicated assisted treatment (MAT) program for PWID. In this study we investigated the effectiveness of this integrated approach, initiated in November 2014, combined with navigator-provided support.

**Methods:** This prospective study analyzed patient medical records from November 2014 through to November 2017 in terms of the following: (1) HIV testing, (2) administration of antiretroviral therapy (ART), (3) viral load (VL).

**Results:** In November 2014, there were 164 (57 male; 17 female) patients in care at the MAT site, 44 of whom were living with HIV (PLHIV) (m=32,f=12; 72%). Of these 44 PLHIV, 16 (m=13,f=3; 36%) were on ART, 2 (m=2; 12%) of whom had a suppressed VL. Of the remaining 102 HIV-negative patients, 75 (75%) had been tested for HIV. As of December 1, 2017, 119 (m=107,f=12) patients had been enrolled in the integrated service program and were supported by a navigator. All 119 (100%) of these patients had been tested for HIV and were aware of their status. Patients with a positive HIV test subsequently underwent timely testing of ELISA, CD4, and VL. Of the 119 patients, 47 (m=38,f=9;39%) were found to be HIV-positive. Of these, 45 had initiated ART (m=36,f=9; 79%). Of these 45 individuals on ART, 42 (m=35,f=7; 93%) achieved viral suppression. The remaining 72 patients tested for HIV were found to be HIV-negative.

**Conclusions:** Following integration of HIV services within the MAT program for PWID and provision of navigator support, the rate of HIV-positive individuals on ART and achieving viral suppression has increased markedly at the RNC. It would appear that such integration of services facilitates timely testing, initiation of ART and suppression of the HIV VL. The resulting improvement achieved in the 90-90-90 cascade of care for RCN suggests the model would also be effective in other MAT sites in Tajikistan and elsewhere.

PUB008
The exploring the vulnerability of the deaf community in Ghana to HIV infections

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**Background:** HIV/AIDS is major public health issue in Ghana and the Government of Ghana has initiated several measures to curb HIV infections. However, deaf people are unlikely to benefit from these initiatives and may be at high risk for HIV infections. This study investigated the vulnerability of deaf people in Ghana to HIV infection.

**Methods:** This study was quantitative and targeted deaf people who communicate in the Ghanaian Sign Language (GSL) and resident in Ghana. Questionnaires were administered to a total of 304 deaf respondents, made up of 130 females and 174 males.

**Results:** The findings of the study indicated that majority of respondents in the study lacked basic knowledge on HIV; they had not discarded misconceptions about HIV/AIDS and had difficulty identifying methods for preventing HIV infection. Although this study is limited in scope, because it focused only on deaf people who use the GSL, the findings provide insights into deaf people’s level of knowledge on HIV/AIDS.

**Conclusions:** The findings suggest that the situation could be more serious among deaf people who do not use the GSL and are unable to use sign language interpreters to access information and services on HIV/AIDS. It is therefore recommended that more studies should be conducted on the general deaf population in Ghana to identify the needs of the different categories of deaf people so that these could be captured in HIV/AIDS interventions.

(Figure. Continuum of HIV care for PWID before and after integration of HIV and MAT services)

**Conclusions:** Following integration of HIV services within the MAT program for PWID and provision of navigator support, the rate of HIV-positive individuals on ART and achieving viral suppression has increased markedly at the RNC. It would appear that such integration of services facilitates timely testing, initiation of ART and suppression of the HIV VL. The resulting improvement achieved in the 90-90-90 cascade of care for RCN suggests the model would also be effective in other MAT sites in Tajikistan and elsewhere.
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